THE PERCEPTION ANALYSIS OF PRIMARY SCHOOL TEACHERS CONCERNING TECHNOLOGY USE IN MATHS TEACHING: A CASE OF EFELER DISTRICT[1]

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Received: 04.11.2017 *Accepted: 10.03.2017*

ABSTRACT

The aim of this study is to determine the perceptions of primary school teachers regarding the use of technology in maths teaching and to idenfy whether these perceptions change according to particular variables. The mixed research methodology,in which both qualitative and quantitative patterns are simultaneously used,was incorporated in the study, 299 primay school teachers, employed in primary schools in the Efeler town of Aydın in the academic year of 2016-2017, comprise the working group of the study. In order to specify the opinions of the participants, the perception scale on the use of technology in primary grade maths teaching, developed by Öksüz, Ak and Uça, (2009) with a scale of 5 totaling 3 subdimensions and 73 items (PSUT) was adopted. With the goal of deeping the findings of the study, 15 semi-rehearsedd interviews were conducted. The software of Statistical Package for the Social Sciences (SPSS 20.0) was utilized fort he analysis of the quantitative data. The Kolmogorov Smirnov Test was applied to determine whether the data was parametric or not. As the test values were below .05 nonparametric testing methods were employed. Therefore, the relationship between the data of two non-parametric groups was analyzed via the Mann-Whitney U test, while the Kruskal Wallis H test was employed when dealing with multiple group variables. Qualitative data was resolved using descriptive analysis.

Keywords: Primary School Teacher, Maths Teaching, Technology, Use of Technology

[1] Bu araştırma, "Sınıf Öğretmenlerinin Matematik Öğretiminde Teknoloji Kullanımına İlişkin Algılarının İncelenmesi: Efeler İlçe Örneği" adlı yüksek lisans tezinden üretilmiştir ve II. Uluslar arası Çağdaş Eğitim Araştırmaları kongresinde sözlü bildiri olarak sunulmuştur.

INTRODUCTION

Indeed, in our world of constant change and development, individuals living on them are required to renew themselves. This is considered an indispensable element in the training of individuals in order to adapt themselves to the renewal movement. For this reason, the society today wants the individuals to live not only as consumers but also as producers. So in the case of individuals, education should be primarily aimed at increasing productivity. This increase in productivity has also become important for technology that is rapidly developing and changing.

With the increase in productivity, the effects of technological development and change in the world are felt in every area. These developments and changes have led to the restructuring of education systems in accordance with the lifelong learning philosophy in the direction of their effects. In this respect, technology development for lifelong learning is an important step (Özsoy et al., 2009).

Major developments in the latest technology have the potential to change traditional education. The fact that education is contemporary and developed means that educational institutions are equipped with new technologies. For this reason, today's technology should be well studied and all educational institutions should be prepared to train classes with this advanced technology (Yılmaz, 2006).

The class of report 2000, which was prepared without a work done in Delhi in 1988, is described as follows: "In 2000, classroom computer equipment and videos and teacher conducted many individual and small group activities at the same time; will be a superior class than today's classes. The school will be just as small as the house, and the classroom will remind the living room with television, video and computers. The student will not have a notebook, but will be a small computer for notes. The teacher will direct all activities from the center and provide warning control when necessary. "(Bayraktar, 1988). This report reflects the present day to a great extent. When we look at recent years, developments in the field of technology accelerated the process of investment by the Ministry of National Education in this field. The projects carried out by the Ministry emphasized technology-supported education. Nearly every student and teacher tablet computers were provided with the "Fatih" project initiated by the Ministry of National Education. It is planned that the use of the required technology should be removed to the upper levels. By reducing the number of students in the class to the desired level and ensuring that the classroom environment is compatible between the individuals, it is possible to provide the classes indicated in this report. However, the negative experiences about the Fatih project should not be ignored by the researchers. Due to the limited exchange of data between interactive wood and tablet computers, the inability of teachers to dominate the tablet computers in the students caused the negative conclusions for the Fatih project (Pamuk et al., 2013).

In order to reduce these negative experiences, teachers have been given in-service seminars to assist them in using technology. The process of using the technology in the lessons of the teachers within the framework of these trainings has been tried to be determined with some studies. With these studies, it will be possible to see

the effects of the trainings given today. The content of the answer given by the teacher in the question of how best to teach using existing technology is also important at this point in the process. It is thought that information structures composed of information structures such as field knowledge, learning and teaching knowledge, and technology knowledge are valuable in teaching as well, which can be adapted and combined with different fields (Ertmer, 2005).

It has also been found out that, apart from the teachers, the level of information and communication technology in schools in our country is at a level that can generally be considered as good if we look at the data related to the classroom situation. In this sense, private schools have assumed a leading role. In state schools, the efforts of the school administrations and the cooperation of the parents, the technological equipment of the school is being completed. It has also been seen that when research data on the effective use of information technologies are examined, the situation is not good. These results show that; making a school technologically competent may not lead to the active use of those technologies. The active use of technology is limited only by the knowledge, skills and experience of those using it (Seferoğlu, 2015). In terms of knowledge, skills and experience, the number of researches on the use of computers during the teaching of our country teachers is low. Teachers should have an idea about the problems and concerns about adopting computer-assisted instructional programs, which will help in the training of 21st-century teachers and in the strengthening of teachers' training programs (Cagiltay et al., 2001).

Seferoğlu, Akbıyık and Bulut (2008); 51 teachers and 56 teacher candidates participated in the study of the opinions of the primary school teachers and teacher candidates about the computer learning and the use of them in the teacher process. According to the results of the research, it was found out that the teachers prefer to use the computer by going to an in-service training course and the teacher candidates prefer to do this by getting help from their close circles. Orphans and Ak (2009); 292 prospective teachers; prospective teachers have investigated the necessity, advantages and disadvantages of technology in their studies that reveal the perceptions of technology use in elementary school mathematics teaching. At the end of the research, it was concluded that the prospective teachers had a necessity in terms of the use of technology in mathematics teaching, positive in the advantage dimension and negative in the disadvantage dimension. Gray, Thomas and Lewis (2010); they tried to determine whether elementary and junior high school teachers used technology in their teaching. These teachers mentioned the most intelligent tools, internet, projectors and camcorders. The purpose of using the internet is to enter the notes and attendance records of the students, to evaluate the students, and to share the evaluations with the parents.

Tutkun, Öztürk and Demirtaş (2011) have found that the use of mathematical software in mathematics teaching is a necessity in the studies of computer software and its effectiveness in mathematics teaching and that the use of mathematics software in primary and secondary education should be extended. Yilmaz (2012); The aim of the study was to determine the attitudes of the teachers by using attitude scale in the study of 153 teachers and their teachers in using technology in education. It is stated in the findings that the teachers

participating in the research have a positive attitude towards technology. Male teachers use technology more than female teachers. According to research findings, vocational teacher teachers use technology more. Bronze, Durmuş and Akkaya (2015); 71 mathematics teacher candidates did their research using scale with 71 candidates in their work titled "Qualities of using concrete materials and virtual objects in mathematics teaching". As a result of this research, the qualifications of elementary mathematics teacher candidates to use concrete materials were higher than the ability to use virtual learning and objects. All these studies show that teachers' perceptions of technology use in education are at a positive level. Teachers; they think that the use of technological tools is useful in the learning-teaching process.

In this study, it is aimed to determine the perceptions of classroom teachers regarding the use of technology in primary school mathematics education. It is also important for the fact that the findings and results obtained from the study are the factors that determine the perceptions of classroom teachers about the use of technology in mathematics lessons and that they will constitute an example of future works. It is also important for the Ministry of National Education to provide ideas for in-service training courses. Research; unique in terms of reflecting classroom teachers' attitudes towards technology and their views; Today's greatest invention is also the latest in technology.

For this purpose, the following sub-problems have been searched.

1. Is there a meaningful difference between classroom teachers' perceptions of technology use in mathematics teaching and the school enrollment they are working on?
2. Is there a meaningful difference between classroom teachers' perceptions of technology use and their gender in mathematics teaching?
3. Is there a meaningful difference between classroom teachers' perceptions of technology use in mathematics teaching and socio-economic levels of schools?
4. Is there a meaningful difference between classroom teachers' perceptions of technology use and their occupational seniority in mathematics teaching?
5. Is there a meaningful difference between teachers 'perceptions of technology use and teachers' education in the mathematics teaching of primary school teachers?
6. Is there a meaningful difference between classroom teachers' perceptions of technology use in mathematics teaching and their computer ownership?
7. Is there a meaningful difference between teachers' perception of technology use in mathematics teaching and the internet presence of teachers in their home?
8. Is there a meaningful difference between classroom teachers 'perceptions of technology use in mathematics teaching and teachers' taking computer courses?
9. What are the opinions of 9th grade teachers on using technology in mathematics lessons?

METHOD

In this part of the research, the research model, the study group, the data collection tool, and the information about the analysis of the data are given.

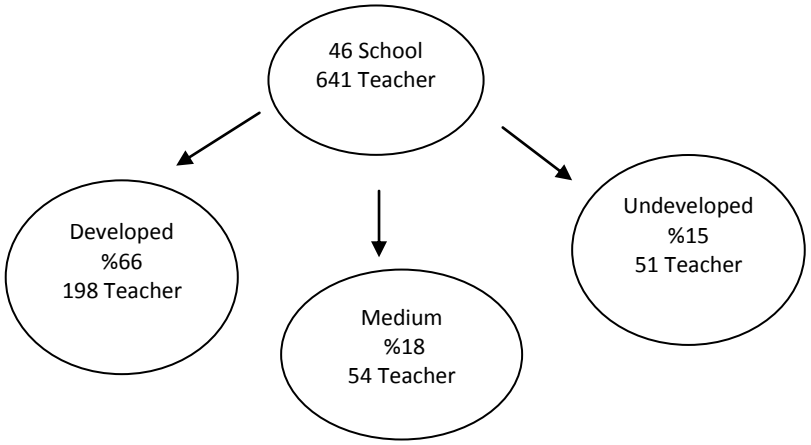
Research Model

The research is modeled using a combination of qualitative and quantitative research designs. In the study, quantitative data were collected in order to determine the use of technology in mathematics teaching of classroom teachers. The analysis and interpretation of the scale data were performed according to the quantitative method. The study was constructed using the screening model which is one of the descriptive research types.

Study Group

The study group of the study; In 2016-2017 academic year, 303 primary teachers working in 13 primary schools located in the province of Efeler in Aydın province are formed. 4 scale forms were not included in the survey because they were not filled out properly and therefore the study was conducted on 299 classroom teachers. TSI for Operation (Turkey Statistical Institute) above belonging to the province of Aydın Efeler district neighborhood streets, according to the database from the streets and boulevards were requested information on the basis of the level of development in three main categories according to their school's level of development; developed, medium, undeveloped. This data base; Aydin Efeler was verified by the District Directorate of National Education. Due to the fact that the number of teachers who are selected in the 3 main titles by layered sampling is very high (641 teachers), some schools have been determined by objective sampling method and the study has been continued. The number of teachers in Aydın province Efeler district and how these teachers were selected by taking layered sampling are shown in Table 1 below.

Table 1. Selection of Teacher Numbers and Stratified Sampling Method in Aydın Province Efeler District



Face-to-face interviews were also held with 17 class teachers in the study. These teachers are volunteers. The demographic characteristics of the teachers in the interviewed study group are shown in Table 2. It is stated that the data given to the class teachers who explained the purpose of the research can only be used in scientific research. In the prepared interview form, there are 5 open-ended questions as personal information about teachers' gender, professional seniority, graduation status, presence of personal computer and so on. The talks lasted about 10-15 minutes.

Table 2. Demographic Characteristics of Interviewed Working Group Teachers

	Frekans (N)	Percent(%)	Teacher
School Development Levels			
Developed	10	58	T1,T5,T7,T9,T10,T11,T12,T13,T16,T17
Medium	4	24	T2,T8,T14,T15
Undeveloped	3	18	T3,T4,T6
Gender			
Woman	10	59	T1,T4,T6,T7, T8, T12, T13,T14,T15,T16
Man	7	41	T2,T3, T5,T9,T10,T11,T17
Professional Seniority			
15 years under	1	6	T7
Between 15 and 25	6	36	T1,T4,T6, T10,T12,T16,
Over 25 years	10	58	T2,T3,T5,T8,T9,T11,T13,T14,T15,T17
Education Status			
Licence	17	100,0	T1,T2,T3,T4,T5,T6,T7,T8,T9,T10,T11,T12,T13,T14,T15,T16, T17
Graduate	0	0	
Personal Computer Availability			
Yes	17	100,0	T1,T2,T3,T4,T5,T6,T7,T8,T9,T10,T11,T12,T13,T14,T15,T16, T17
No	0		
The state of the Internet Home			
Yes	17	100,0	T1,T2,T3,T4,T5,T6,T7,T8,T9,T10,T11,T12,T13,T14,T15,T16, T17
No			
Computer Course Reception Status			
Yes	14	82	T2,T3,T4,T5,T6,T8,T9,T10,T11,T12,T13,T14,T15,T17
No	3	18	T1,T7,T16
Total	17	100,0	

Data Collection Tools

In the study, the data were collected in three ways.

- Personal Information Form: In this form, the names of the participants were not asked to answer the questions more sincerely and healthily. Teachers were asked to write and write down the appropriate choices from the personal information form by directing the teachers 5 questions to help them identify their personal information under the title of gender, occupational seniority, graduation status, personal computer availability.

- Technology Perception Scale: The appropriate data collection instruments for the purpose of the research were examined and the five-point Likert-type Perception Scale for Technology Use in Elementary Mathematics Teaching developed by Öksüz, Ak and Uca (2009), which aimed to determine the perceptions of teacher candidates / teachers about technology use in primary school mathematics teaching (TKAÖ) "was used. The Perception of Technology Usage Scale is quintile scaled and consists of 3 sub-dimensions and 7 propositions scaled increasingly from the most negative to the most positive option in the direction of "Totally Participating", "Participating", "Undecided", "Not Participating" and "Never Participating" .
- Interview: Semi-structured interviews prepared by the researcher were conducted with the teachers in order to reveal in depth the perceptions of technology in the mathematics teaching of the primary school teachers. Teachers who participated in the interviews were harmonized on the basis of volunteerism. 4 open-ended interview questions were created by taking the sub-dimensions in the questionnaire as an example in order to ensure the equivalence of the scale applied to the class teachers. The scope of the interview questions was checked by two specialists in the field and piloted with two class teachers.

Analysis of Data

In order to be able to apply the research scale, the permission of the Aydın Provincial Directorate of National Education was applied to the schools to be implemented and the research scale was left for the teachers who were visited by the researchers by filling out necessary explanations. In 13 schools, the scales were collected within 3 weeks. An individual interview was provided with all classroom teachers in the schools attended by the researcher. Participation in the scales was voluntary. During the regulation of the data, 4 data collection instruments were not included because they were not filled in properly. An analysis of the reliability of the responses to the questions on the perception of technology use by respondents was conducted. The scale has a high degree of confidence with the evaluation criterion in the evaluation of Cronbach's Alpha Coefficient.

Statistical Package for the Social Sciences (SPSS 20.0) program was used to analyze the data obtained from the Technology Usage Perception Scale and the Personal Information Form. The Kolmogorov Smirnov Test was applied to the data to determine whether the data were parametric or nonparametric. Since the test values are smaller than 0.05, nonparametric test methods are used. Mann-Whitney U and Kruskal-Wallis H tests were used for comparison between groups. 64, 65, 66, 67, 68, 69, 70, 71, 72, 73 were entered in reverse when entering the data into the SPSS program. Because these proposals have negative content as meaning.

The data obtained from interviews were analyzed using descriptive analysis technique. According to this method; summarized according to the previously decided issues and interpreted. In descriptive analysis, direct citation is frequently given to explain the views of participants who are seen or observed. In such analyzes, the objective is to present the findings in an understandable way to the reader by arranging the findings. (Yıldırım and Şimşek, 2013). In this study, the data obtained from the interview questions were first organized according

to the thematic framework and then the organized data were defined and divided into sections and analyzed with direct quotations.

FINDINGS (RESULTS)

The results of the normality test are examined in the sub-dimension of necessity, sub-dimension of advantages and sub-dimension of disadvantages. Since Kolmogorov-Smirnov Z test values of the data were smaller than 0.05 significance values (p <0,05), nonparametric test methods were used in the analysis of data. Therefore, data were analyzed with Kruskal Wallis H in multiple group variables by Mann-Whitney U test to examine the relationship between two nonparametric group variables. The averages of the responses of the classroom teachers to the questions about the use of technology in teaching mathematics teaching, the distributions of the answers, the averages and the Perception Scale for Technology Usage subscales were examined by frequency analysis. According to this study, the necessity advantage and disadvantage sub-dimensions are interpreted as being noted by the results of frequency analysis. According to this;

In the sub-requirement dimension, 80% of the students stated that using computer is necessary in mathematics teaching. For the necessity of using the calculator, 48% did not participate and 14% was undecided. Smart-interactive board and internet are necessary. 95% agree that they agree. In the sub-dimension of necessity, 90% of students expressed the opinion that the use of software in teaching mathematics is necessary. At the same time, the teachers used the voices in support of this statement. Another requirement is that when we look at the suggestions for using technology in mathematics teaching in the subscale, 95% of the recommendations made are answered. This is an expected result. Teachers welcome the recommendation given in the requirement of using technology.

In the sub-dimension of benefits, 90% of the items on the benefits of using technology included in the statement of participation. "I do not agree with 34% of teachers in the expression" Mathematics is one of the basic conditions for a teacher to be a good teacher to teach mathematics, "which is the use of technology - when using inaccurate expressions; 66% have used the expression I agree. It is clear that some of the teachers do not see technology as a rule among the basic conditions of teaching.

Approximately 90% of the negative statements about the use of technology in the disadvantages sub-dimension were answered. The vast majority of teachers do not think that the use of technology is a disadvantage. Classroom teachers' variables include school variables, gender, socio-economic levels of schools, and teachers; occupational seniority, education, possession of computer, presence of internet at home, taking computer courses are examined. Accordingly, the test results are listed below.

Class teachers are variable according to the school they work for the Kruskal-Wallis H test perception scale use of technology results are shown in Table 3.

Table 3. Kruskal Wallis H Test Results Regarding Perceptions of Technology Use Per School Variables by Classroom Teachers

Sub Dimensions	N	Kruskal Wallis H	p.
Requirement	299	16,784	,158
Advantage	299	18,256	,108
Disadvantage	299	19,552	,076
Total	**299**	**20,941**	**,051**

*p<0,05

As a result of this analysis, there was no statistically significant difference between classroom teachers' perceptions of technology use perception, necessity, advantage, disadvantage sub - dimensions and school groups of classroom teachers.

Class perception scale for teachers to use technology based on their gender dimensions of the test results shown in Table 4.

Table 4. Mann Whitney U Test Results on the Sub-dimensions of Technology Use Perception Scale According to Gender of Classroom Teachers

Gender		N	Ort.	Ss.	Mann-Whitney U	p.
Requirement Lower Dimension	**Woman**	171	121,54	12,67	9981,000	,193
	Man	128	122,62	14,28		
Advantage Lower Dimension	**Woman**	171	141,60	19,10	10363,000	,432
	Man	128	142,67	20,15		
Disadvantage Lower Dimension	**Woman**	171	18,51	5,88	9920,000	,162
	Man	128	17,84	6,33		
Total Scale	**Woman**	171	281,65	25,84	10288,500	,375
	Man	128	283,13	27,07		

*p<0,05

The Mann-Whitney U test was used to analyze whether the perceptions of technology teachers in primary school mathematics classes differed by gender. As a result of the analysis, there were no statistically significant difference between the need, advantage and disadvantage sub-dimensions of the perception scale of the classroom teachers regarding the use of technology and the gender groups of the class teachers. (p<0.05)

Perception scale subscales of technology use by classroom teachers according to their socio-economic levels are shown in Table 5.

Table 5. Perceptions of School Teachers' Use of Technology According to Socio-Economic Levels of Schools Subscale Test Results

Level of Development		N	Ort.	Ss.	Kruskal-Wallis H	p.
Requirement Lower Dimension	**Undeveloped**	45	124,38	11,22	3,821	,148
	Medium	54	119,11	15,13		

	Developed	200	122,25	13,23		
Advantage Lower Dimension	**Undeveloped**	45	144,49	18,89	1,882	,390
	Medium	54	138,98	20,05		
	Developed	200	142,35	19,52		
Disadvantage Lower Dimension	**Undeveloped**	45	18,60	6,21	1,364	,506
	Medium	54	18,81	5,55		
	Developed	200	17,98	6,20		
Total Scale	**Undeveloped**	45	287,47	23,08	3,234	,198
	Medium	54	276,91	29,25		
	Developed	200	282,57	26,06		

*p<0,05

The Kruskal-Wallis H test was used to analyze whether the perceptions of technology teachers on classroom teachers working in elementary schools differed according to the level of development of schools. As a result of the analysis, there was no statistically significant difference between the necessity, advantage and disadvantage sub - dimension which is the sub - dimensions of perception scale for technology use of classroom teachers and school groups of classroom teachers. (p <0.05)

Class perception scale for teachers to use technology, according to the seniority of the subscale test results are shown in Table 6.

Table 6. Perceptions of Technology Use by Classroom Teachers by Vocational Seniority Scale Subscale Test Results

Professional Seniority		**N**	**Ort.**	**Ss.**	**Kruskal-Wallis H**	**p.**
Requirement Lower Dimension	**15 years under**	56	123,16	13,39	1,008	,604
	Between 15 and 25	117	122,71	11,43		
	Over 25 years	126	120,83	14,95		
Advantage Lower Dimension	**15 years under**	56	140,82	21,40	2,173	,337
	Between 15 and 25	117	144,01	18,86		
	Over 25 years	126	140,80	19,29		
Disadvantage Lower Dimension	**15 years under**	56	17,77	6,24	1,215	,545
	Between 15 and 25	117	18,61	5,87		
	Over 25 years	126	18,06	6,22		
Total Scale	**15 years under**	56	281,75	28,06	3,054	,217
	Between 15 and 25	117	285,32	24,75		
	Over 25 years	126	279,69	26,89		

***p<0,05**

The Kruskal-Wallis H test was used to analyze whether classroom teachers who were working in primary school showed a difference according to the occupational seniority of their perceptions of technology use in mathematics class. As a result of the analysis, there was no statistically significant difference between the teachers' occupational seniority groups and the necessity, advantage and disadvantage sub - dimensions of the perception scale of technology teachers. (p <0.05)

Perception scale subscales of technology use according to educational status of class teachers are shown in Table 7.

Table 7. Perceptions of Technology Use by Classroom Teachers According to Their Educational Scale Subscale Test Results

Education Status		N	Ort.	Ss.	Mann-Whitney U	p.
Requirement Lower Dimension	**Licence**	287	121,92	13,26	1550,500	,559
	Graduate	12	124,00	16,25		
Advantage Lower Dimension	**Licence**	287	142,19	19,67	1507,000	,463
	Graduate	12	138,92	16,32		
Disadvantage Lower Dimension	**Licence**	287	18,25	6,03	1471,000	,388
	Graduate	12	17,58	7,44		
Total Scale	**Licence**	287	282,36	26,42	1659,000	,830
	Graduate	12	280,50	25,35		

***p<0,05**

The Mann-Whitney U test was used to analyze whether the perceptions of technology teachers on mathematics teaching in primary school were different according to the educational status. As a result of the analysis, there were no statistically significant differences between the teachers' education situation groups and the necessity, advantage and disadvantage sub - dimensions which are the sub - dimensions of the perception scale of technology teachers. (p<0.05)

Perception scale subscales of technology use according to computer ownership status of class teachers are shown in Table 8.

Table 8. Mann Whitney U Test Results on the Use of Technology Perception Scale Sub-Dimensions by Classroom Teachers' Personal Computer Status

Personal Computer Availability		N	Ort.	Ss.	Mann-Whitney U	p.
Requirement Lower Dimension	**Yes**	269	122,33	13,00	3621,500	,357
	No	30	119,00	16,27		
Advantage Lower Dimension	**Yes**	269	142,81	19,11	3486,000	,221
	No	30	135,30	22,20		
Disadvantage Lower Dimension	**Yes**	269	17,96	6,04	3137,500	,044*
	No	30	20,53	6,05		
Total Scale	**Yes**	269	283,11	25,62	3600,500	,333
	No	30	274,83	31,64		

*p<0,05

The Mann-Whitney U test was used to analyze whether the perceptions of technology teachers about mathematics classroom teachers who were working in primary school differed according to the personal computer ownership variable. As a result of the analysis, there was no statistically significant difference between the necessity, advantage and disadvantage sub-dimension of the perception scale of the classroom

teachers regarding the use of technology and the personal computer ownership status of the classroom teachers. (p <0.05)

The perceived scale subscales of the technology use are shown in Table 9 according to the state of having an internet in the house of the classroom teachers.

Table 9. Mann Whitney U Test Results for Sub-Dimensions of Technology Use Perception Scale According to Internet Presence in Home Teachers' Home

The State of the Internet Home		N	Ort.	Ss.	Mann-Whitney U	p.
Requirement Lower Dimension	**Yes**	277	122,40	13,08	2423,000	,110
	No	22	116,95	16,07		
Advantage Lower Dimension	**Yes**	277	142,49	19,09	2722,000	,404
	No	22	136,68	24,25		
Disadvantage Lower Dimension	**Yes**	277	18,07	6,02	2464,500	,132
	No	22	20,09	6,57		
Total Scale	**Yes**	277	282,96	25,78	2626,000	,281
	No	22	273,73	32,02		
	Total	299				

*p<0,05

It was analyzed by the Mann-Whitney U test that classroom teachers who were working in elementary school showed a difference according to the variable of internet presence at the home of perception of technology usage in mathematics class. There was no statistically significant difference between the necessity, advantage and disadvantage sub - dimensions of the perception scale of technology teachers' use of technology, and internet availability of classroom teachers at the end of the analysis. (p<0.05)

Perception scale subscales of technology use by classroom teachers according to their computer literacy status test results are shown in Table 10.

Table 10. Mann Whitney U Test Results on the Use of Technology Perception Scale Sub-Dimensions by Classroom Teachers'

Computer Course Reception Status		N	Ort.	Ss.	Mann-Whitney U	p.
Requirement Lower Dimension	**Yes**	269	121,93	13,49	3894,000	,753
	No	30	122,67	12,37		
Advantage Lower Dimension	**Yes**	269	142,42	19,25	3787,000	,580
	No	30	138,83	22,00		
Disadvantage Lower Dimension	**Yes**	269	18,26	6,07	3882,500	,732
	No	30	17,90	6,26		
Total Scale	**Yes**	269	282,60	26,32	3877,500	,726
	No	30	279,40	26,78		

*p<0,05

The Mann-Whitney U test was used to analyze whether the perceptions of technology teachers in mathematics classroom teachers who were working in primary schools differed according to the variance of computer literacy status. As a result of the analysis, there were no statistically significant differences between the need, advantage and disadvantage subscale of the perception scale of the classroom teachers regarding the use of technology, and the computer literacy status groups of the classroom teachers ($p < 0.05$).

Sixteen (94%) of the interviewed class teachers stated that they used intelligent-interactive board as a technological tool in mathematics lesson. Eight of the teachers (47%) said they also used computer and printer-copier. In addition, 1 teacher (5%) gave projection, 2 teachers (11%) internet and 1 teacher (5%) telephone answers. One teacher (5%) mentioned that he could not use the technology effectively. Some of the teachers' responses to this are given below.

"We often use projectors, smart boards, computers, printers, copiers. We distribute the output we receive from the printer to the students in class. We use the computer to do the question-and-answer on the smart board "(T1, M), (Developed)

"Smart board, my phone, I use a computer. I use mathematics from sites such as OKULISTIK, EBA. Or I use them by asking questions to children on the intelligent board attached to them. "(T15, W), (Medium)

"I'm just using the computer and the printer. I'm learning more traditional methods. There is insufficient internet on smart boards. I can't use it healthy. Preparations are taking a long time. Open, close, prepare ... "(T4, W), (Undeveloped)

17 of the interviewed teachers (100%) found the positive effects of the use of technology in mathematics education.

"Very positive direction ... She sees it. Even in the simplest fractions the child sees more examples. Perception is much more. "(T7, W), (Developed)

"Absolutely positive. Using only pencil, not using wooden chalk ... Supporting visual activity with different activities helps children to learn and helps them to learn permanently. "(T8, W), (Medium)

"They love it, they love it. It goes to your likes so much ... the use of technology that we have put into order. It is the technological tool he is using if he is the student on that day. They are very happy. They love using the smart board. There is a big screen, so they have to play it, there they are going to see more. For example, we just solved the math problem. The problem comes to the solving board and the correct answer is marked. There's an immediate applause. Draws attention. Even a child who never lifts a finger wants to lift it. He wants to go there and print, he wants to applaud. Very nice ... "(T3, M), (Undeveloped)

2 of the class teachers interviewed (12%); (T4, T6) stated that the use of technology in mathematics lesson is not related to student achievement. Of the interviewed classroom teachers, 15 (88%) say that there is a correlation between technology use and student achievement in the mathematics classroom.

"No, there is no effect. The use of technology allows the child to participate in the lesson, to express self-confidence, to express himself when he is using the technological tool, and to say that I succeed and to have fun. So direct does not affect his success "(T6,W), (Undeveloped)

"There are more successes to seeing students doing. Now that our children are technologically more clever than us, we are more interested in using the computer to solve the questions. He draws his attention and his achievements are increasing. "(T1, M), (Developed)

"In other words, the use of technological equipment rather than traditional education, student achievement is increasing more. We see more types of questions from there. It's different when you use the smart board. Solving questions using a smart board is different for children. I think that it is more effective because it is in the picture and it increases the successes. "(T14, W), (Medium)

The interviewed class teachers have also made some suggestions in order to make the use of technology more effective in teaching mathematics. These;

"When I entered EBA application I can't find a work for 2nd Grade. There's work on some issues, but it says it's in the construction phase. I want to use EBA often. "(T1, M), (Developed)

"I would like to increase free applications. With the smart boards, when the hardware is better, we can use it better when the software is better, along with the technological tools that are offered to you. So software needs to grow. You should be able to use it better. The necessary training should be given. "(T2, M), (Medium)

"The use of technology may be more active. The materials need to be well prepared. If the internet is healthy ... If the hardware is nice. One day there is no day. Something's happening. We are racing all the time. I have an hour of math lessons a day. Was also hooked, pulled, pulled or something ... Gathering attention again, playing back ringing ... "(T4, W), (Undeveloped)

The interviewed class teachers expressed their views about the old system and the new system in education as follows.

"Chalkboards do not attract the attention of children because they are in the computer age. MORPA Campus for visuals, OKULISTİK attracts their attention more easily. They are interested in. They talked in fairy tales. We tell them, but they are more effective ... "(T1, M), (Developed)

"The wood-chalk system was wasting time. You write a question, it's a waste of time. You are waiting for the writer to write. The child can't write. Now they are moving faster. We can solve the question faster. I am

setting up questions that I will solve one day in advance. I open lesson students. When they write and solve, I look at their books and check them. "(T2, M), (Medium)

"I am the old systemist. The teacher is the individual to tell. He's using a smart board method. The way each child learns is different. Because intelligence is different. You're telling that child again the same thing. Another again. We are able to tell 5-6 types of a cone. But in intelligent boarding programs, it is narrated with 1 method, 1 drawing. We can't afford to give up the wooden chalk. "(T4, W), (Undeveloped)

CONCLUSION and DISCUSSION

In this research, the perception of technology use of classroom teachers is examined; we looked at the meaningful difference between these perceptions and the independent variables of the research, and the answer was searched for the question "How are the perceptions of classroom teachers using technology in mathematics teaching?" The research was conducted on 13 primary and 303 classroom teachers. Four scale forms were not included in the survey because they were not filled out properly. 171 female and 128 male class teachers participated in the research. The findings are the answer to the underlying problems. In the discussion and conclusion section, the results obtained from the research were discussed and these results were compared with the interviews made with the field sample and the class teachers in the light of the scores obtained from the subscales of the perception scale of technology use.

Class teachers have a positive structure in terms of perceptions about necessity and advantage sub-dimensions; they also have a negative structure in the perception of perceptions of disadvantage sub-dimensions. Class teachers responded negatively to the statement "necessity of using calculator is necessary" in the requirement sub-dimension. Most of the class teachers see the use of calculator unnecessary in teaching mathematics. Çömlekoğlu (2001); In the study of the use of calculators in problem solving with prospective teachers, prospective teachers have reached the conclusion that they will use the calculator in their class in the future. Contrary to this, they argue that the majority of teachers do not participate in the statement "Today calculator is necessary in elementary mathematics teaching".

Class teachers have responded to the requirement sub-dimension that "almost all of the expressions of intelligent-interactive board and internet use are necessary in elementary mathematics teaching". Wall, Higgins and Smith (2005); in their work they have made it easier for learners to learn when they use the smartboard themselves. According to the result of interviews with the students, the intelligent board allows the students to collect their attention faster. In interviews with teachers, they reached the conclusion that intelligent boarding students are effective in improving derste motivation, attention, attention. With this result, the expression results are parallel.

Interview questions from the teachers "How do you use the technological tools in mathematics?" Teachers responded by mentioning that they used intelligent-interactive boards.

In the requirement sub-dimension of the classroom teachers, most of the statements in the statement "It is necessary to use various educational softwares in elementary school mathematics teaching" are answered. Can (2010); according to the results of examining the effect of the course design on the development of the teacher candidates, the technological software does not take the place of the teacher in the class; which makes it easier to work, helps to calculate, and attracts the attention of students and visuals.

In the sub-dimension of the requirement of primary school teachers "Primary mathematics program; technology support. "Almost all agree that I agree. Ministry of National Education vision of information technology; "To integrate the education system with advanced technologies, to support with innovations, to continuously evaluate and evaluate them, to provide student-centered and project-based education using information technology" (MEB, 2009). Ministry of Education; in this definition will support the use of technology in teaching programs.

In the requirement sub-dimension, class teachers responded with the majority saying "Teachers should be educated so that the use of technology in elementary mathematics teaching can be carried out effectively". Halderman (1992); and that the majority of teachers want to use technology better. This result can be achieved according to the finding of the use of technology in the teaching of mathematics. In the interview with the teachers, some of the class teachers suggested that the teachers should be given trainings in order to ask "How can the use of technology in mathematics teaching be more active?"

The vast majority of classroom teachers gave the answer that I agree with all the expressions below the advantage dimension. It is understood that class teachers think that using technology in elementary mathematics teaching is an advantage. During the interview with the Class Teachers; The answers given to the question "How is the use of technology in teaching mathematics affecting children?" Provide us with the advantages of using technology in mathematics teaching.

The vast majority of classroom teachers gave the answer that I do not agree with all the statements in the bottom line. It is understood from this that classroom teachers do not think that using technology in elementary school mathematics teaching is a disadvantage. During the interview with the Class Teachers; Do you think "how is the use of technology in teaching mathematics affecting children?" And "is a correlation between the use of technological equipment in mathematics lessons and student achievement? What kind of correlation is there? "Also provides us with the disadvantages of using technology in teaching mathematics.

The results obtained from the analyzes made are as follows:

- ✓ There was no significant difference between classroom teachers' perceptions of technology use in mathematics teaching and school enrollment.

Teachers working in 13 elementary schools surveyed did not find a difference between school variables and the perceptions of technology use in mathematics teaching. Looking at this result, the perception of technology

usage is the same in all public schools affiliated to the Ministry of National Education. In terms of technological equipment, it is possible that even though each one is at the same level, minor disruptions have occurred. During the interviews, the teachers mentioned some disruptions. Fatih project was created by the work done during the failure. Teachers expressed how they were used in the interactive classroom, and generally expressed their views about the interactive board. The development of e-content suitable for the board, in order to enable the board to be used more actively in a single interview, while the teachers clearly express their satisfaction with the interactive board, underlines the importance of ensuring every kind of internet connection.

- ✓ There was no significant difference between classroom teachers' perceptions of technology use and their gender in mathematics teaching.

57.2% of the class teachers participating in the survey were composed of females and 42.8% were composed of males. The results of the research show differences with the work of Baş (2011) and Yilmaz (2012). Chief (2011); teachers 'self-efficacy beliefs of educational internet use of teachers in elementary school teachers' education internet use self-efficacy beliefs by gender, occupational seniority and educational status variables. gender, occupational status and educational status. It is noted that female teachers 'internet use self-efficacy beliefs are higher than male teachers' perceptions. Yilmaz (2012); it has been found that male teachers use technology more than female teachers in the study of teachers in the use of technology in education.

- ✓ It was found out that the perceptions of technology usage in mathematics teaching of Classroom Teachers did not differ according to sex. The results of the research are in parallel with the study of Özçelik and Kurt (2007) primary school teachers' computer self-efficacy.

There was no significant difference between classroom teachers' perceptions of technology use in mathematics teaching and socio-economic levels of schools. 13 The school received from TUIK and the District Directorate of National Education; schools developed according to the socio-economic level of schools, the schools are divided into classes as middle, undeveloped. The result of this distinction is that classroom teachers' perceptions of technology use are not related to the socio-economic level of schools. The fact that schools are in developed, moderate, undeveloped levels does not say that classroom teachers' perceptions of technology use in math teaching are at high or low levels. There was no difference between the separation of schools into classes and the teachers' perception of technology.

- ✓ There was no significant difference between classroom teachers' perceptions of technology use and their professional seniority in mathematics teaching.

The majority of the teachers (81%) who participated in the research are teachers for 15 years or more. The end result of the researcher and Spiegel's (2001) study is different. Spiegel (2001); with the increase in the age factor, teachers' use of computers has decreased. The fact that classroom teachers have not found an

association between their perception of technology use and their occupational seniority in the research is an indication of the fact that new teachers and senior teachers in the profession try to use it in their technology courses. Özçelik and Aşkım Kurt (2007); in the study they conducted, were inversely proportional to the age of primary school teachers' self-efficacy beliefs. According to this result, newborn teachers had to use them more frequently in their classrooms. The study by Toker (2007) has resulted in the fact that the newly graduated class teachers of lisanstan did not see themselves enough in IT field. In this case, there is a great responsibility to the education faculties. Ulaş and Ozan (2010); examined the qualification level of classroom teachers in terms of educational technologies and reached various results. According to this, as the age of classroom teachers increases, they use more technologically advanced technologies, audiovisual technologies and theoretical approaches in classroom learning-teaching activities. found that some senior teachers did not give up classical education technologies and used them more than young people.

- ✓ There was no significant difference between classroom teachers' perceptions of technology use in teaching mathematics and the educational status of teachers.

Most of the teachers participating in the research (96%) are teachers with undergraduate degrees. The ease of access to developing and changing technology is not a causal link between the educational status of teachers and the use of technology, and it is possible to draw the conclusion. Ulaş and Ozan (2010); teachers who graduated from faculty or graduate schools are not interested in the use of audiovisual technologies and teachers of two-year college graduates achieved the results they use more effectively in audiovisual courses in classroom activities.

- ✓ There was no significant difference between classroom teachers 'perceptions of technology use in mathematics teaching and their teachers' computer literacy.

Most of the class teachers who participate in the survey (90%) have their own computer. However, this does not constitute a departure from classroom teachers' perceptions of technology use in mathematics teaching.

- ✓ There was no significant difference between the teachers' use of technology in mathematics teaching and the internet presence of teachers in their home.

Nearly all of the class teachers who participated in the survey stated that they had internet in their home (92.6%). It has also been found that there is no relationship between classroom teachers' internet presence variables in the technology usage perceptions in mathematics teaching.

- ✓ There was no significant difference between classroom teachers' perceptions of technology use in mathematics teaching and the status of teachers taking computer courses.

The majority of the teachers who participated in the research (90%) were teachers who went to the computer course. Research result; Seferoğlu and Akbıyık 'ın (2005) show differences with the results of the studies they

performed. Seferoğlu and Akbıyık (2005) found that teachers rarely use computers in their primary self-efficacy perceptions. The computer also attended courses to find out what they learned. However, there was no relationship between classroom teachers' perceptions of technology use and computer literacy in this study.

The majority of the teachers (94%) answered with intelligent board-interactive board in the question "How do you use technological equipments effectively in mathematics lessons" with one-on-one interviews with teachers? Again teachers (47%); printer-copier, internet and computer. These are the expected results of the researcher. The perception of using technology in mathematics teaching by classroom teachers has been made more concrete with these answers.

All of the teachers (100%) said that the use of technology in the question "How is the use of technology in teaching mathematics affecting children" positively affect the teaching of mathematics? The fact that all teachers have this view should be considered important. It is considered gratifying that this result has been achieved by the researcher.

The majority of the teachers (88%) answered that "Yes, there is a relationship" in the question "Do you think that there is a correlation between the use of materials and student achievement in mathematics class?" The use of technological equipments in the lessons has an effect on the attention of students. The student who collects his attention will definitely be more successful. However, some teachers do not participate in this view. As a result of not participating in this opinion, they believe that they are successful even when there is no computer 10 years ago. This view does not mean that they are completely right. The children of today and the children of 10 to 20 years ago, unfortunately, do not have the same interests. Today, children have computers, handsets, tablets and phones in their homes, and they show how they are related to technology. It is necessary to aim at success by starting from this information.

Teachers; They answered by finding some recommendations in the question "How can the use of technology in mathematics teaching be more active?" More than half (53%) of the teachers suggested that the development of educational software should produce a wide variety of software and be marketed. Some of the teachers (23%) also suggested that internet access should be provided at each school in the first stage since internet access is a problem for schools. This is justified. Unfortunately, these interactive-smart banners, which are gained before the internet infrastructure is created, cause some disruptions in the system. Very few of the teachers (5%) mentioned that the parents should contribute. Parental involvement is considered important. The teacher is the greatest assistant for the teacher. It is surprising that teacher-teacher cooperation among teachers has not been counted.

While the teachers defended the old system and the new system comparison (71%) from the interview questions, the new system; a small fraction (5%) of the efficiency of the old system; some (24%) favored a mixed system. Teachers' new system; they have adopted the use of technology in lessons. So it is possible to say that teachers' perception of using technology in teaching mathematics is at a positive level.

SUGGESTIONS

It is possible to present some suggestions with the results obtained from research findings and discussions on these results. These;

All technical equipment must be provided in the state schools affiliated to the Ministry of National Education. And the use of technology in teaching should be encouraged for class teachers working in the ministerial schools; in-service training programs should be organized on the effective use of technological equipments by teachers and participation of all teachers should be ensured. School administrations affiliated to the Ministry; and should give seminars on the use of technology in teaching to working teachers. Information sharing about the use of technology among teachers should be provided to schools. Teachers should be willing and open to use technology in teaching. At the same time, teachers have to adapt to the developing technology and work to get rid of the existing deficiencies. Teachers should prepare a lesson plan by choosing the appropriate technological vehicle recruiter to be more productive. Teachers and school administrators who have developed appropriate plans for the lessons in the lessons should also adjust the number of students according to this plan. Teachers should have easy access to the internet from all classes in the school. An official database should be established where teachers who use technology can meet with their colleagues about the beauty, advantages, challenges, experiences, etc. they experience. Support staff and technology support room for classroom teachers should be provided. Helping classroom teachers in class; professional . Teacher application should be started. In the Faculty of Education, practical lessons should be put into teaching candidates how to use technological tools. Educational software should be replicated and new programs should be installed for each grade level.

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