

Full Length Research Paper

Elementary school students' views on the homework given in science courses

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Homework is a significant part of teaching and learning process. For this reason, teachers use it constantly as tools of teaching process. The effect of homework on students' achievement and student-parent relationship has been emphasized in several studies. The present study aimed to find out the views of the middle school students (n=705) about homework. Additionally, it has been examined whether these views differ according to several variables such as gender, class level, and the education level of the parents. Survey method was used in the study. It was found out that the views of the students about homework do not significantly differ in terms of the variables such as gender or the educational levels of their parents, but they differ according to class levels. Furthermore, an important proportion of the students believe that science homework does not improve their power of thinking and creativity. In addition to this, the students stated that they were more careful about and spare more time for their homework because it will contribute to their success in the high school entrance exam.

Key words: Science, homework, middle school students.

INTRODUCTION

Science is a field that covers issues that go hand in hand with our daily life. It also includes the abstract concepts in its structure. Therefore, reviews of the topics and applications out of the school are necessary for science to be long lasting. The children between the ages 6-14 are very curious. They want to learn how most of the events happen in the world they live in. That is why they ask a lot of questions. As they learn about a topic, they ask new questions about it. Thus, the teachers should keep the students' curiosity alive and continuous. They should be given the activities that will lead them to find solutions, to think over the concepts and rules, and that will keep their attention alive. These activities can be

given both within and out of the classes (Özben, 2006).

It is expressed by most educators that homework is one of the out of class teaching activities commonly used in educational institutions (Hong and Lee, 2000). Homework has an important role on the learning process, it teaches the students about scientific thought and using the resources of information by doing research, it improves the students' study skills and the power of critical thinking (Gür, 2003) and it shows them that learning is possible out of the school, too (Sullivan and Sequeira, 1996). Knowing the styles of the homework, and giving it in accordingly improves the success of the students (Hong et al., 1995; Gür, 2003; Hizmetçi, 2007).

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A student doing the given homework regularly is a factor that affects success on its own (MacDonald, 2009).

Homework is defined as academic tasks assigned by teachers to be done by students outside of the instructional time (Cooper et al., 2012). According to this definition, homework can be considered both as preliminary investigations which ensure students to make preparations for courses and a tool which consolidates understanding. Besides being an academic task, homework has a quality which increases the interaction between teacher and student. Bembenutty and White (2013) asserted that all teachers should be encouraged to use homework logs in order to provide feedback to students about the factors that interfere with their academic performance.

Homework has differences within itself: three kinds of homework are mentioned in general. These are; (1)-Getting prepared, (2)-Practice and (3)-Comprehensive studies (project homework) (Doyle and Barber, 1990). When these are organized well and used regularly, they can contribute to learning (Foyle, 1985). 1) Homework to get prepared; the kind of homework given to contribute to the readiness levels of the students. It aims that the students do some research and have some ideas about the following classes. For instance, students may need to refresh their previous knowledge for the following topic or they may have to get ready for the activity to be done in the class. 2) Homework for practice; Improves the newly gained skills. For example, students that have just learnt to solve a science problem should be given similar problems. Ebbinghaus (cited in Baymur 1985) found that if the knowledge that is learnt is not reviewed or used, most of the material learnt is forgotten especially immediately the material was just presented. Hence, doing homework is very important in terms of permanency. 3) Comprehensive homework; the projects done to be parallel with the studies in the class and that requires a long time. This homework can be scientific projects, performance homework, or term papers and it makes the students apply what they have previously studied (Swanson, 2001). This is valid when the student goes beyond the lesson in the class and acquires suitable skills in new circumstances.

There are two contrasting views about homework. On one side of the debate are those who call for homework to be reduced or reformed, pointing to its negative family impact, capacity to entrench ability and socioeconomic differences, and limited value for academic achievement (Horsley and Walker, 2013). On the other side are those who cite positive associations between homework and academic achievement (Cooper et al., 2000; MacDonald, 2009) and who cite increasing motivation (Katz et al., 2010; Bembenutty, 2010; Akioka and Gilmore, 2013). Furthermore, there are positive factors for doing homework. These are self-efficacy and interest. Bembenutty (2010) found that students who were self-efficacious and intrinsically interested were more likely to adopt a

proactive self-regulatory approach to their homework tasks.

The views of the parents on homework affect the students' homework success, performances, and continuity. If the parents support the students about homework, the rates of the students' doing homework and thus their success increases (Cooper et al., 2000; MacDonald, 2009; Albayrak et al., 2004). Knowing the attitudes of the students on the lessons and homework and giving homework accordingly increases the students' performance on doing homework (Atlı, 2012; Yücel, 2004). Teachers sending some messages on the extent of the homework to the parents increases the students' motivation and performance of homework positively (Power et al., 2007).

Homework is an important opportunity to improve the children's feeling of responsibility and self-disciplines. Well organized homework increases the students' success, making them more responsible, and teaching them to be more self-disciplined no matter which skill it is based on (Çağlayan, 2002, p.137). Homework is a basic part of teaching science since it gives the chance to revise the topic covered in the class, and it helps students to gain the skill of scientific thinking. Homework is a good way to interact with parents and helps them to join in the learning process of the children actively, and also helps them to understand the program and monitor the child's development in the lesson (Özben, 2006).

Teachers give homework to help students review, analyze what they have learnt in class and the applications, to be prepared for the following class (Sabancı, 2010), or to make students have the necessary skills to learn by themselves and use the materials like library, and extra resource books (Milbourne et al., 1999). According to the teachers, when a student completes his/her homework successfully, it means that s/he understood the topic well. If students cannot complete their homework successfully, the teacher thinks that they need extra explanation or study (Moates and Schumacher, 1980). Besides the role of homework in increasing of achievement, Patrick et al. (2011) stated that classroom environment also has an effect on students' achievement. According to these researchers, classroom environment predicts whether students endorse mastery goals, "success is accompanied by effort and is indicated by personal improvement or achievement of a set standard" or performance goals, "learning is a means of achieving recognition of personal worth and success is indicated by outperforming others" (Patrick et al., 2011).

There are a number of studies in the literature that show that homework increases students' success. For instance, in his PhD thesis study he did with teacher candidates, Hill (2003) found out that giving homework increases students' success. Elliott (2003) concluded that the grade the teachers give to the homework affects students' school success. Hyman et al. (2005) and

MacDonald (2009) point out that homework is a key factor for the success of teaching and learning process. Some studies also reveal that the ones that spend more time doing homework are more successful academically (Konstantopoulous et al., 2001; Rowell and Hong, 2002; Paulu, 1995).

According to Costley (2013), homework is a complex issue that brings together the child, parent, and teacher in planned and unplanned ways, with positive and negative effects. Homework does have some beneficial effects and it can help students develop effective study habits and can show students that learning can occur at home as well as at school. Homework can foster independent learning and responsible character traits. Homework can even give parents an opportunity to know what is being taught at school. Parents daily can see the hopeful progress or lack of progress with their child. Furthermore; homework can also have negative effects and can lead to boredom when homework becomes overly repetitive. Homework can deny students access to leisure activities that also teach other vital and worthwhile life skills. One downfall can be parents who get too involved in homework- pressuring their child and confusing them by using different instructional techniques than the teacher (Costley, 2013).

According to Simons (1989), the two functions of homework are; didactical and pedagogic functions. It aims to improve the learning process didactically: for example, it can be used to make the topics understood better. The pedagogic function is to teach students how to study independently. It helps them gain the habit of studying in this way. It shortens the time spared for the topics covered in the class. It supports the study done at school. In addition to this, it makes the student independent, responsible, and it makes the home and school to become closer (Cited in: Özben, 2006). Akioka and Gilmore (2013), in their studies, designed a current homework intervention to incorporate not only support for autonomy through the provision of choice among homework options, but also a focus on encouraging relatedness through an increase in both peer and student-teacher interactions, and developing competence through personalized feedback. According to the result of this research, intervened current homework increased the teacher-student interaction, motivation and intrinsic interest (Akioka and Gilmore, 2013).

The place where the students put homework that has this much importance in learning has an inevitable importance. Thus, this study tried to explain the views of the students about homework and how some factors affect it.

Aim of the study

When the literature is analyzed, it is seen that the advantages of homework, the relation between homework and academic success, the views and attitudes of

teachers, students and parents on homework were studied but the studies on increasing the students' homework performances are not mentioned. However, it is only possible for student to get high efficiency if he or she is able to do homework successfully depending on how s/he perceive the homework, answer the questions about homework and present the homework subject. Therefore, this study throws light on how primary school students perceive homework given and how they are affected by which variable.

Eventually, this study aims to define middle school students' views about homework given in the science classes and whether these views differ according to various variables such as gender, class level, and the education level of the parents.

- a. What are students' views on homework given in the science classes?
- b. Is there a difference between students' views on homework given in science classes based on gender?
- c. How do students' views on homework given in science classes vary with regard to class levels?
- d. How do students' views on homework given in science classes vary with regard to the education level of their mother?
- e. How do students' views on homework given in science classes vary with regard to the education level of their father?

METHODOLOGY

Study group

The sample of the study was 705 students chosen using accidental sampling method and studying at 6th, 7th and 8th grades of state schools of Ministry of National Education in the city center of Denizli province. While 52.48% (n=370) of the sample is constituted of female students, 47.51% (n=335) of the sample is constituted of male students. 29.8% (n=210) of students are 6th grade, 32.1% (n=226) of students are 7th grade and 38.2% (n=269) of students are 8th grade.

When students' parents are grouped regarding their education level, 35.3% of students' mother (n=249) is primary school graduate, 16% of students' mother (n=113) is middle school graduate, 26.7% of students' mother (n= 188) is secondary school graduate and 22% of students' mother (n=155) is university graduate. If we take a look at educational level of students' father, 22.3% of students' father (n=157) is primary school graduate, 14.9% of students' father (n=105) is middle school graduate, 30.8% of students' father (n=217) is secondary school graduate and 32.1% of students' father (n=226) is university graduate. 30.4% of students (n=214) stated that their family's level of income is under 1000TL (about \$450), 46.7% of students (n=329) stated that their family's level of income is between 1000TL and 3000TL (between about \$450 and \$1.350), and 23% of students (n=162) stated that their family's level of income is over 3000TL (over \$1.350).

RESEARCH MODEL

In this study, survey method general screening model, which is one of the descriptive research methods, was used. General screening

model is screening regulations made on the whole universe or a selected group of universe, sample or sampling in a universe that is composed of many elements in order to reach a general conclusion about universe (Karasar, 1994).

Data collection

As data collection tools, "Personal Information Form", developed by the researcher and "Questionnaire on the Views on Homework", developed concerning the science courses by Aladağ and Doğu (2009), were used. Another scale, "Science and Technology Lesson Self-Efficacy Scale" (Tatar et al., 2009) has been also applied to the same sampling in the same time (together) and the data gathered from this scale have been used for another research report (Uçak and Bağ, 2012). In the personal information form, developed by the researcher, questions intended for gender, class level and demographic features about parents' information are included. Questionnaire on the Views on Homework is a 5 point Likert scale with 23 items. Reliability studies of the questionnaire are carried out on students studying in secondary stage of primary school. Cronbach alpha reliability coefficient of the questionnaire is $\alpha=0.81$. Students are supposed to express their views about each item in 5 point likert type scale. Answers are scored for items as "strongly agree=5", "agree=4", "neither agree nor disagree=3", "disagree=2", "strongly disagree=1" that are in compliance with 5 point likert type scale (Table 1).

Data analysis

After gathering and controlling the questionnaire forms by which research data are collected, the data is coded and entered into SPSS for Windows (11.5) program. In the analysis of the data, one way ANOVA (Analysis of Variance) and independent samples t-test besides frequency and percentage values are used.

T-tests are used to find out whether students' views about homework differ in terms of variable of gender. Frequency analysis technique is used to find out whether students' views on homework differ in terms of variables such as class level, educational level of parents and occupation of parents. Scheffe test is done to define between which groups there are significant differences, if there is any. The significance level in the study is accepted as $p=0,01$ and $p=0,05$.

RESULTS

Study findings and comments that are based on the findings are included in this section. Findings and comments acquired in the study are stated below in accordance with sub problems of the study.

As many of the students (66.8%) expressed that they have fun and agree with the statement "I have great fun while doing my homework given in the science classes"; very few of the students (15.7%) expressed that they did not have fun. Therefore most of the students stated that they had fun while doing homework given in science classes.

While 70.4% of the students expressed positive opinion for the statement "I think homework given in science classes has a major role in making me understand the science courses subjects", 12.7% of students expressed negative opinion. Most of the students have a point of

view that homework given in the science classes makes them understand the science courses subjects.

While nearly half of the students (43.2%) expressed that homework given in the science courses should be obligatory, less of the students (35.5%) expressed that homework given in science courses should not be obligatory for the statement of "Homework given in the science classes should be obligatory"

As nearly all of the students (87.1%) said that correction of homework makes a significant contribution for the statement of "Teachers' correction of homework given in science classes makes a significant contribution", 5.2% of students expressed that it is useless. According to this result, students think that it has a significant contribution if homework is corrected.

Most of the students (76.5%) said that it promotes the dialogue between teacher and student for the statement of "Correction of homework given in the science classes promotes the dialogue between teacher and student"; very few of the students (8.2%) expressed that it does not. According to students' expressions, correction of homework given in the science classes promotes the dialogue between teacher and student.

While 86.2% of students strongly agree, 3.5% of students disagree and strongly disagree with the statement, "I think it will be more beneficial if homework given in the science classes is given in accordance with course subject covered". Nearly all of the students think that it will be more beneficial if homework is given in accordance with the course subject covered.

As 82.0% of students agreed with the statement, "I try to be very careful while doing homework given in the science classes", 4.2% of students disagreed. Most of the students stated that they try to be very careful while doing homework given in science classes.

Most of the students (84.8%) "agree" while very few of them (6.1%) "disagree" with the statement, "I am more motivated to related course subject while doing homework given in the science classes". A considerable amount of students stated that they are more motivated to related course subject while doing homework given in the science classes.

33.9% of the students "strongly agree and agree", 35% of the students as "neither agree, nor disagree", 31.1% of students as "disagree and totally disagree" with the statement, "Among homework given at school, I do the homework given in the science classes" According to this result, it can be deduced that students do not do homework in a definite order. At the same time this result make us think that students do not make comparison between homework given in the science classes and homework given in any other classes.

While almost all (82.0%) of the students "agree", 6.1% of them "disagree" with the statement of "Tests that are given as homework in the science classes enable us to get ready for exams". It can be inferred that tests that are given as preliminary tests are motivating students.

Table 1. Distributions of student responses for questionnaire items.

Items	Strongly agree		Agree		Uncertain		Disagree		Strongly Disagree	
	f	%	F	%	f	%	f	%	f	%
1. I have great fun while doing my homework given in the science classes	270	38,3	201	28,5	124	17,6	61	8,7	49	7,0
2. I think homework given in science classes has a major role for me to understand the science courses subjects	281	39,9	215	30,5	120	17,0	47	6,7	42	6,0
3. Homework given in the science classes should be obligatory	152	21,6	98	13,9	150	21,3	127	18,0	178	25,2
4. Teacher correction of homework given in science classes makes a significant contribution to correct mistakes	425	60,3	189	26,8	54	7,7	15	2,1	22	3,1
5. Correction of homework given in the science classes promotes the dialogue between teacher and student	331	47,0	208	29,5	108	15,3	26	3,7	32	4,5
6. I think it will be more beneficial if homework given in the science classes is given in accordance with course subject covered	407	57,7	201	28,5	72	10,2	13	1,8	12	1,7
7. I try to be very careful and regardful while doing homework given in the science classes	315	44,7	263	37,3	98	13,9	18	2,6	11	1,6
8. I am more motivated to related course subject while doing homework given in the science classes	288	40,9	239	33,9	135	19,1	29	4,1	14	2,0
9. Among homework given at school, I do the homework given in the science classes	129	18,3	110	15,6	247	35,0	140	19,9	79	11,2
10. Tests that are given as homework in the science classes enable us to get ready for exams	375	53,2	203	28,8	84	11,9	24	3,4	19	2,7
11. It motivates me better when homework given in science classes are based on research	257	36,5	224	31,8	144	20,4	53	7,5	27	3,8
12. It is more appealing if homework given in the science classes are to be done in the lab	405	57,4	146	20,7	87	12,3	34	4,8	33	4,7
13. It motivates me to do homework if homework given in the science classes are preliminary to the exam that I will take at the end of primary school	305	43,3	223	31,6	120	17,0	25	3,5	32	4,5
14. It is enjoying to make use of multimedia services while doing homework given in the science classes	290	41,1	205	29,1	143	20,3	31	4,4	36	5,1
15. I believe that homework given in the science classes improve my imagination	177	25,1	143	20,3	135	19,1	102	14,5	148	21,0
16. I think if homework given in the science classes were a group work, I would acquire more consistent knowledge	252	35,7	166	23,5	127	18,0	75	10,6	85	12,1
17. It will be more deductive in terms of learning course subject, if homework given in the science classes is leading us to make use of different resources	308	43,7	235	33,3	107	15,2	32	4,5	23	3,3
18. Homework given in the science classes as a preparatory work makes me more willing to learn the course subject	269	38,2	209	29,6	160	22,7	37	5,2	30	4,3
19. Homework given in the science classes as an exercise, enable me to understand and comprehend course subject better	287	40,7	215	30,5	138	19,6	30	4,3	35	5,0
20. I would like to choose my term paper among the science courses subjects	249	35,3	145	20,6	193	27,4	68	9,6	50	7,1
21. I think homework and term paper given in the science classes do not improve my creativity	140	19,9	155	22,0	143	20,3	107	15,2	160	22,7
22. If homework given in science classes is related to current issues, I am more willing to do homework	259	36,7	218	30,9	157	22,3	40	5,7	31	4,4
23. I think assessment of homework given in the science classes affect final grade that teacher gives	336	47,7	203	28,8	113	16,0	26	3,7	27	3,8

As 68.3% of students “agree”, 11.3% of them “disagree” with this statement: “It motivates me

better when homework given in science classes are based on research”. Most of the students think

that they are more motivated when homework given in science classes is based on research.

Table 2. Students' views on homework in terms of gender variable.

Gender	n	M	SD	df	T	P
Female	370	3.88	.56	703	1,46	.143
Male	335	3.82	.55			

Table 3. Students' views on homework in terms of class level variable.

Class level	n	M	SD
6th grade	210	4.00	.55
7th grade	226	3.79	.53
8th grade	269	3.78	.54
Total	705	3.85	.55

78.1% of students agreed and 9.5% disagreed with the statement "It is more appealing if homework given in the science classes is done in the lab". As a result it can be deduced that students are interested in activities done in a lab environment. Besides, most of the students think that it is more attractive if homework given in the science classes is experimental.

While 74.9% of students agreed with the statement "It motivates me to do homework if homework given in the science classes is preliminary to the exam that I will take at the end of primary school", 9.5% of students disagreed. Students are in the opinion that if homework given in the science classes is preliminary to the exam that they will take at the end of primary school, they will be more motivated.

Most of the students (70.2%) agreed with the statement: "It is enjoying to make use of multimedia services while doing homework given in the science classes" and very few of the students (9,5%) disagreed. Most of the students are in the opinion that it is enjoying to make use of multimedia services while doing homework given in the science classes.

While 45.4% of students agreed with the statement, "I believe that homework given in the science classes improves my imagination", 35.5% disagreed. It can be concluded that almost half of the students think that homework given in the science classes does not improve their imagination.

More than half of the students (59.2%) "agree" with the statement "I think if homework given in the science classes were a group work, I would acquire more consistent knowledge" and 22.7% "disagree". As a result it can be said that students think if homework given in the science courses were group work, they would acquire more consistent knowledge.

As many of the students (77.0%) agreed with the statement "It will be more deductive in terms of learning

course subject, if homework given in the science classes is leading us to make use of different resources", very few (7.8%) disagree. Most of the students think that homework given in the science classes should be leading to making use of different resources.

While majority of the students (67.8%) agreed with the statement "Homework given in the science classes as a preparatory work makes me more willing to learn the course subject", few of the students (9.5%) disagree. Most of the students are in the opinion that if homework given in the science classes has a function as a preparatory work, they will be more willing to learn course subject.

As majority of the students (71.2%) agreed with the statement "Homework given in the science classes as an exercise enables me to understand and comprehend course subject better", very few of them (9.3%) disagree. Most of the students think that homework given in the science classes as an exercise enables them to understand and comprehend course subject better.

55.9% of students agreed with the statement "I would like to choose my term paper among the science courses subjects" and 16.7% disagreed. It can be seen that more than half of the students want to choose their term paper (term research project) among the science courses subjects.

While 41.9% of students agreed with the statement "I think homework and term paper given in the science classes do not improve my creativity", 37.9% disagree. It can be concluded that students think homework and term paper given in the science classes do not improve their creativity.

Majority of the students (67.6%) agreed with the statement, "If homework given in science classes is related to current issues, I am more willing to do homework" and very few of the students (10,1%) disagreed with the statement. Majority of the students have opinion that relation of homework given in the science classes to current issues motivates them to do homework.

For the statement that "I think assessment of homework given in the science classes affects final grade that teacher gives" majority of the students (76.5%) agree and strongly agree but very few of the students (7.5%) expressed negative opinions. Students think that assessment of homework given in the science classes affects final grade that teacher gives.

As it is seen in Table 2, while the average of female students' views on homework given in the science classes is 3.88 (M=3.88, SD=0.56), the average of male students' views is 3.82 (M=3.82, SD=0.55). There is no significant difference in terms of gender between students' views on the homework given in science classes ($t= 1.46$, $p=0.143$).

When the averages at Table 3 are examined, the averages of 6th grade students' views on homework given in the science classes (M=4.00, SD=0.55) are higher than that of 7th grade (M=3.79, SD=0.53) and 8th grade (M=3.78, SD=0.54). In order to define whether

Table 4. ANOVA results of students' views depending on class levels.

Source of variance	SS	df	MS	F	p	Significant difference
Between groups	6.978	2	3.489	11.68	.000	6>7, 6>8
Intra-groups	209.613	702	.399			
Total	216.590	704				

Table 5. Students' views on homework in terms of educational level of their mothers.

Educational level of mothers	n	M	SD
Primary	249	3.84	.50
Middle	113	3.83	.53
Secondary	188	3.81	.58
University	155	3.93	.60
Total	705	3.85	.55

differences are significant or not, variance analysis is made. The results are given in Table 4.

When Table 4 is examined, according to variance analysis, it is determined that there are differences between different class levels of students' views on homework given in the science classes [$F(2, 712)=11.68$, $p=0.000$]. Scheffe test is done to define the source of this difference that exists between different class levels. According to Scheffe test, there is a significant difference between 6th ($M=4.00$, $SD=0.55$) and 7th ($M=3.79$, $SD=0.53$) grades and also 6th grade and 8th ($M=3.78$, $SD=0.54$) grade classes.

When Table 5 is examined, it is seen that the average of students' views, whose mothers are university graduate, on homework given in the science courses ($M=3.93$, $SD=0.60$) is higher than average of students' views whose mothers are primary school graduate ($M=3.84$, $SD=0.50$), middle school graduate ($M=3.83$, $SD=0.53$) and secondary school graduate ($M=3.81$, $SD=0.58$). Variance analysis is done to define whether there is a significant difference between the averages or not. The results are given in Table 6.

Analysis results explain that there is not a significant difference at the $p<.001$ level between students' views on homework given in the science courses based on educational level of mothers [$F(3, 701)=1.558$, $p=0.198$]. When Table 7 is examined, it is seen that the averages of students' views, whose fathers are university graduate, on homework given in the science classes ($M=3.89$, $SD=0.56$) is higher than averages of students' views whose fathers are primary school graduate ($M=3.82$, $SD=0.49$), middle school graduate ($M=3.85$, $SD=0.57$) and secondary school graduate ($M=3.83$, $SD=0.57$). Variance analysis is done in order to define whether there is a significant difference between the averages. The results are given in Table 8.

Analysis results indicate that there is no significant difference at the $p<.05$ level between students' views on homework given in the science classes based on educational level of students' fathers [$F(3, 712)=0.768$, $p=0.512$].

DISCUSSION AND CONCLUSION

The present study was carried out to find out the views of the secondary school students' views on the homework assignments given in the science classes and whether these views differ according to various variables such as gender, grade level, and the education level of the parents. It was found that while the views of the secondary school students on the homework given in the science classes did not show a significant difference according to various variables such as gender, education level of parents; they only showed a significant difference according to grade level. When analyzed in terms of grade level, the mean of the views of the 6th grade students on the homework given in science classes ($X=4.00$) was found to be higher than the average of the views of the 7th ($X=3.79$) and 8th ($X=3.78$) grade students. This means that as the grade level of the students increased, the mean of the views of the students on the homework given in science classes decreased. When the responses they gave to the items on the scale were examined, it stood out that as the grade level of the students increased, they wanted to study exam-oriented. As the students were subjected to success-oriented exams at the end of 8th grade to be able to study at a high school they wanted, this awareness developed as grade level increased.

Considering the gender factor between grades, it was seen that there was not a significant difference between girls and boys. In his study in 1994, Cooper concluded that gender did not have a significant effect on homework. The fact that the education level of the students' parents did not cause significant differences on the students' views on homework was among the results obtained.

When the views of the secondary school students' on the homework given in science classes were analyzed, following conclusions can be drawn: Students stated that while they were doing science-related homework, they enjoyed themselves especially in empirical and group activities. Kaplan stated in his study conducted in 2006 that unlike traditional homework assignments, giving

Table 6. ANOVA results of students' views on homework depending educational level of their mothers.

Source of variance	SS	df	MS	F	p	Significant difference
Between groups	1.434	3	.478	1.558	.198	No
Intra-groups	215.156	701	.307			
Total	216.590	704				

Table 7. Students' views on homework in terms of educational level of their fathers.

Educational level of fathers	n	M	S.D.
Primary	157	3.82	.49
Middle	105	3.85	.57
Secondary	217	3.83	.57
University	226	3.89	.56
Toplam	705	3.85	.55

different homework increased students' interests and attitudes towards homework (Kaplan, 2006). As a result of this, it can be said that when the homework assignments are planned by including group work and experiential learning, science related homework assignments become more effective and enjoyable.

Students believe that the homework given in science classes should be obligatory and homework assignments given have a significant role in comprehending the science subjects. There is not much difference between the knowledge not repeated and the knowledge not learnt. Repetitions should be done by having not too long intervals as possible. If possible, the first repetition should be done on the day the subject is treated. The subject should be repeated the following day if it is desired to make the subject more long lasting: (http://mebk12.meb.gov.tr/meb_ajs_dosyalar/33/08/715812/dosyalar/2012_12/12015807_derscalimabrosur.pdf).

The purpose of the daily homework is to ensure the repetition of the subject. If the knowledge learnt is repeated regularly and the homework given is done earnestly, success is inevitable. The most appropriate way to make students repeat what has been learnt is giving homework assignment. While doing homework, students repeat the subject without noticing.

According to the data obtained from the questionnaire, students think that teachers checking the homework assignments given in science classes provides great benefits in terms of correcting the mistakes made. Homework assignments should certainly be checked and students should be given feedback. Yuladır (2009) states that the homework assignments that will not be checked and no feedback will be provided to students should not be given. Providing feedback is at least as important as checking the homework. The fact that students have

done their homework is not a criterion that is enough for the homework to reach its goal. Correcting the mistakes will eliminate any incorrect learning. Students believe that having the homework given in science classes checked will improve the dialogue between teacher and student. Özben (2006) states that homework is a technique that helps the establishment of the communication between teacher and student. Homework is perceived as a teaching technique when looked from teachers' aspect and a learning technique when looked from students' aspect.

Students believe that it will be more beneficial if the homework assignments given in science classes are assigned in a way appropriate for the subjects treated in class. According to Doğru and Aydoğdu (2004), homework assignments that will be given to students could be assigned at the preparatory stage of the unit and the purpose of the homework assignment that will be given at this stage is to arouse interest in the students towards the unit. The purpose of the homework assignments that will be given at the stage of unit planning is to make the interest towards the unit deeper and stronger. The purpose of the homework assignments that will be given at the evaluation stage should be to make up the shortage of the assignments given beforehand and correct the mistakes.

The students stated that they try to be very careful and attentive while doing the homework given in science classes and be more motivated towards the subject. Hizmetçi (2007), in his study, revealed that while doing homework, an important proportion of the students prefer to be motivated by their parents and teachers, have a snack and more light in the environment they do homework. As a result of this study, the relationship between students' homework styles and their academic achievement was found to be significant in terms of motivation, snack, and visual and structuring sub factors (Hizmetçi, 2007). In a study conducted by Donley and Williams (1997), it was concluded that the motivation of the children who are awarded while doing homework was higher (Cited in: Sabancı, 2010). In addition to this, the students are of the opinion that the tests given as homework assignment in science classes make it easier to prepare for the exams. Weems (1998) investigated the effects of math homework on the exam with two student groups consisting of 108 students in each. The exam results of the 108 students who did homework were significantly higher than the other 108 students not doing

Table 8. ANOVA results of students' views on homework depending on educational level of their fathers .

Source of variance	SS	df	MS	F	p	Significant difference
Between groups	.710	3	.237	.768	.512	No
Intra – groups	215.881	701	.308			
Total	216.590	704				

homework (Cited in: Ilgar, 2005, s.127).

The students believe that when the homework assignments given in science classes are based on research, their motivation towards the class increase as well. Demirel (1999) suggests that assigning homework before the end of the class is beneficial in order to support in-class-learning and motivate learners to do research. It is helpful that explanations regarding how the assignments will be done are clear and comprehensible and examples are provided. In their study, Trautwein et al. (2006) investigated the effort put forth on the homework assignments at 5th and 9th grades and the effects of this effort on development, motivation and classroom studies all together and stated that homework assignments increased motivation. Center for Public Education (2007) claimed that although the homework assignments given for after school did not increase the students' academic achievement consistently, they increased their motivation, study habits and self-efficacy.

The students believe that if science-related homework assignments are type of assignments that are done in the laboratory, they will draw their attention more. Cooper et al. (2006) claim that although researchers believe that assigning homework serves multiple purposes, teachers give homework for a little different reasons. According to Cooper et al. (2006), one of the common goals of assigning homework is to apply the previously learnt skills to new situations and other areas of interest. Students are of the opinion that the homework assignments' given in science classes being preliminary for the exams that will be taken at the end of the primary school increases their motivation to do homework. Cooper (2008) revised the five studies focusing on the students who completed and who did not complete their homework and stated that the students who completed their homework were more successful in the end of subject tests and general tests. Similarly, in their study they carried out on 3rd grade students, Pelletier and Normore (2007) investigated the relationship between the students' rate of doing homework and the scores they got on achievement tests and reached the conclusion that the students who completed their homework got higher scores to a large extent.

The students believe that taking the advantage of multimedia facilities while doing science homework gives great pleasure. In some of the studies carried out it is mentioned that teachers make use of laptop, internet,

overlay chart or tools like homework monitoring charts as they increase students' motivation and success rate while doing homework (Bafle, 2005; Hopkins, 2005; Shellard and Turner, 2004; Dierson, 2000; Salend et al., 2004). In addition, Salend et al. (2004) indicated that some schools have homework support websites. These websites include the lists of homework assignments given and graded assessment rubrics. The website also explains the connections between the homework assignments given. It provides opportunity to create groups and do homework. In addition, it provides access to resources they will use and provides opportunity to ask questions online, as well (Salend et al., 2004). All of these facilities bring about motivation and success as they provide opportunity for students to do homework by sharing in an environment they like.

The students believe that the science homework does not improve their power of thinking and creativity. Türkoğlu et al. (2007) grouped homework assignments and stated that development homework assignments encouraged students' personal knowledge and imagination and improved creativity and critical thinking. These assignments could be things like writing a book, finding some information on the internet or investigating local news like "Until where does a balloon flies when we leave it to the air?" or "what would happen if there were no sun?" (Türkoğlu et al., 2007). Teachers should give students some of the control they have for students to be able to find creative solutions to the problems (Sternberg and Lubart, 1991). Creativity requires the ability to see events in a flexible way and to be able to reveal creativity; firstly it should be valued (Davis and Rimm, 1990). Based on the data of the students, it can be stated that the necessary importance is not given to development homework assignments given by teachers.

The students think that if the assignments given in science classes are in the form of group work, they will help them gain more permanent information. Özben (2006) argued that the atmosphere should be socialized by giving homework assignments that will direct the students to group work. While some studies revealed that doing assignments individually would increase success and persistence (Hong and Lee, 2000; Hong and Milgram, 2000), others stated that grouping students while doing assignments and studying individually and together with the group increased their performance (Corno, 2000; Mutlu and Öztürk, 2003; Gündüz 2005; Yücel, 2008).

Hizmetçi (2007) stated that while teachers were giving homework; students who preferred working in groups should be given group homework and the ones who preferred studying individually should be given individual homework and the students who always preferred to study alone should also be given group homework to develop their social skills.

Majority of the students believe that if the homework assignments given in science classes direct learners to take advantage of different sources, they will be more effective in teaching the subject. Büyüktokatlı (2009) explained that homework assignments should be given to the students in a way that they would understand what they would do and how they would do that clearly and added that timing should also be considered and resources should be indicated. According to National Education Association (2008a) and Paulu (1998), students should be provided opportunities to find out and identify the sources such as library, internet, reference books and common sources that belong to the community.

The students are of the opinion that homework assignments given in science classes as an exercise will help them understand and comprehend the subject better and makes them more willing to learn the subject. Demirel (1989) tried to find out whether the exercises given to 5th grade students as homework assignments in foreign language teaching created any significant difference or not and it was found that the group that was given homework as an exercise was more successful than the other group that was not given homework. Mikk (2006) revealed that there was a connection between TIMSS 2003 math scores and teachers' habit of giving homework and also giving homework based on more exercise was effective in increasing success (Mikk, 2006).

The students believe that if the homework assignments given in science classes are associated with current issues, they will make them more willing to do homework. While planning a good homework assignment, it is necessary to diversify homework assignments and instead of traditional heavy assignments, original projects that could be done at home should be given. Originally prepared homework assignments and especially the ones that are associated with the real world and real studies increase students' interest (Vatter, 1992).

The students believe that assessing the homework assignments given in science classes affects teacher's final grade. Demirel (1999), in a way that he supported the views of the students, stated that the grades obtained from homework assignments and project works were effective in determining the students' success at primary and secondary schools under the Ministry of Education. Students' in-class activities and extracurricular activities take part in this evaluation as "teacher's final grade" as well (Demirel, 1999).

In conclusion, as the students who regularly do homework are academically more successful than the students who do not, it can be stated that homework assignments

have an effect on learning and increasing success at school. In addition, homework assignments help teachers determine the subjects that students lack and need help with. Another result of our study is that as the grade level increases, habit of doing homework and motivation increase as well. In addition, it can be stated that homework assignments build a bridge between school and home, help students obey the rules, start and finish work on time, take responsibility and gain the ability to do work on their own.

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