

The Students' Views Related to the Given Homeworks in the Science and Technology Courses: A Qualitative Study

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This study has been created as a qualitative search related the given homeworks in the science and technology courses in order to examine the students' views. The sample consists of 1,539 7th- and 8th- grade students in the city centre of Osmaniye. The search data is obtained from by using five open-ended questions. In the analysis of the data, content analysis method is used. As a result of the research, it is found that the students' perceptions for the homeworks are about understanding the subjects better, as reviews, responsibilities, homeworks to be done at home and doing researches. Also, it is concluded that there is a difference between the type of the homeworks given to the students and the homeworks which the students prefer doing. It is found that the students have difficulty in reaching the information from the resources, providing the tools, doing the hard homeworks, and doing the homeworks without understanding the subject. Finally, it is concluded that by these homeworks, the students understand the subject better, develop their skills (hand, research, observation, experiment, reading, and writing skills), get information about the natural events and living beings, solve tests in a shorter time, and get information about current events.

Keywords: science education, homeworks, students' views

Introduction

Homeworks are well-known and common education activities among different culture, class, and ability levels (Chen & Stevenson, 1989; Warton, 2001). Besides, providing students learn better (Cooper, 2001; Ramdass & Zimmerman, 2011), homeworks also have different purposes. These can be arranged as getting knowledge about the education of children's families' and about their schools (Department of Education, 2005; Corno, 1996), developing the communication between teacher, student, and parents (Van Voorhis, 2003; Van Voorhis, 2004), and connection between home and school (Forster, 2000).

The positive effects of homework on science success are presented in the result of research (Van Voorhis, 2001; Özben, 2006; Kaplan, 2006; Cooper, Robinson, & Patall, 2006; Hizmetçi, 2007; Sabah & Hammouri, 2007; Jones, 2007; Büyüktokatli, 2009; Kumandaş & Kutlu, 2010). Beside this, it is stated in international works that there is a positive correlation between the time that students allocating for science homeworks and science success (Postlethwaite & Wiley, 1992; Ersoy & Anagün, 2009; Beaton, Martin, Mullis, Gonzalez, Smith, & Kelly, 1996). However, according to TIMSS (trends in international mathematics and science study) 1999 and 2007 findings, it is seen that although more time is allocated in Turkey than the countries which are

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successful in science, our science success is low (Uzun, Bütüner, & Yiğit, 2010; Özgün-Koca & Şen, 2002). These results indicate a problem in practice of homework in the aspects of science and technology. It is seen that the homeworks which are given randomly decrease the success; the homeworks which are given purposively increase it (Bilen, 1999; Yeşilyurt, 2006). Thus, when the fact that the practiced homeworks policy in Turkey has an indirect impact on international exam success is regarded, it is thought that there is a problem and the source of the problem can be revealed by the students' views. Therefore, it is required an extensive research to find the students' reviews that are responsible for doing their homeworks that are given in science and technology classes. By this way, it is believed that the homeworks practices will reach in an expected structure, so in this research, it aims to find out the secondary school students' views about the homeworks given in science and technology courses.

Method

The Research Model

In this work, the case of science pattern (phenomenology) was used which is one of the qualitative research pattern that is suitable for the nature of research. It is understood from the term "qualitative research" that it is a type of research, findings of which are not reached by means of statistical operations or quantitative tool (Strauss & Corbin, 1998). Qualitative research patterns provide flexibility to the researcher, they also contribute to research stages to be consistent (Yildirim & Şimşek, 2008). Phenomenological studies are researches which are created to clarify and interpret the experience of people who attend the study (Ary, Jacobs, Sorensen, & Razavieh, 2010).

Participants

Participants consist of 1539 7th- and 8th- grade students at nine primary schools in the city center of Osmaniye, which are under the control of Department of Education Ministry. In the selection of the study group, typical case sampling model was applied. Typical case sampling requires choosing a typical situation among the related situations which exist in the population, and then, getting data by using it (Yildirim & Şimşek, 1999; Büyüköztürk, Çakmak, Akgün, Karadeniz, & Demirel, 2009).

Data Collection Tools

In this study, reaching a lot of participants was aimed. In this way, in the research, a questionnaire which includes five open-ended questions was used in order to reveal the students' reviews about homeworks. The final form of the questionnaire which includes open-ended questions was organized after the views and offers of the authority. The questions asked in the questionnaire form are given below:

- (1) What does the homework mean for you? Clarify it, please;
- (2) What kind of activities do the homeworks of science and technology courses include?
- (3) What kind of activities would you prefer in the homeworks given in science and technology courses?

Give the reasons, please;

- (4) What kind of difficulties do you have while doing homeworks of science and technology courses?
- (5) What are the contributions of given homeworks in science and technology courses?

Validity and Reliability

In order to provide the validity, five participants and an authority stated their thoughts about the accuracy of the data and the comments about the data and their presentation were reviewed after the search report. Also,

the raw data obtained from the research was cited without adding any comments and quotations were frequently used. To provide reliability, the researcher controlled whether the processes of data collection, codification, and interpretation are consistent with each other. Besides, the researcher tried to confirm the results by checking the raw data.

Data Analysis

In phenomenology studies, content analysis method is applicable (Yildirim & Şimşek, 2008). The content analysis sometimes means searching for repeating words and themes in a text, but it is generally used for simplifying and making sense. In other words, it tries to define a series of qualitative data in the aspects of consistency and the meanings (Patton, 2002). In this respect, after the content analysis, the themes, and codes were composed related with each questions that take place in the interview form. Strauss and Corbin (1990) stated that there are three types of codification and they array them as the codification according to the defined concepts, the codification according to concepts obtained from the data and the codification done in a general frame (Yildirim & Şimşek, 2008).

Findings

In this part, the codifications and themes about the students' views about science and technology homeworks are given. As a result of the content analysis, the data obtained from the students' views were classified in five categories and 51 codes. These categories are: (1) the students' perceptions for the homeworks; (2) the content of the homeworks; (3) the students' demands for the homeworks' content; (4) the difficulties experienced while doing homeworks; and (5) the contribution of the homeworks for students. The findings and the comments obtained from the students' views are provided below. It is necessary to say that the frequency values of the given data available in the Tables 1–5 show the number of the codes, not the number of the students. Each student was given numbers during the transfer process of direct quotations and their views were coded according to the content. For example, S₂₄₅Code: 2 (It shows that the student's number is 245 and his/her view is about the second codification).

Table 1

The Students' Perceptions for the Homeworks

Theme code		<i>f</i>
	1. Studies for understanding the subject	286
	2. Studies for reviews	216
	3. Responsibilities	211
	4. Homeworks and studies	190
Perceptions about the homeworks	5. Boring and meaningless studies	137
	6. Research	130
	7. Solving tests (preparation for the exams)	65
	8. Studies for self-development	36
	9. Studies for identifying what we learnt	14

In Table 1, the codifications related to the theme called “homework perceptions” are given. When the codes which have the highest frequencies are examined, it is seen that the students consider homeworks as a way to understand the subjects better, as reviews, responsibilities, homeworks to be done at home, and researches. Samples from students' views: S₄₀₇Code: 1 “It is something that makes me understand the subjects related to the course”; S₈₅₄Code: 2 “The first thing comes to my mind is: Review”; S₁₆₁₁Code: 3 “It is my

responsibility”; S₁₃₅₈Code: 4 “When the homework is mentioned, I think of the duty given by our teacher”; S₁₃₀Code: 5 “Generally makes me bored, I access the net, write and put it in my file, I do not understand anything about it”; S₂₆₉Code: 6 “They are the researches that our teachers’ ask for us to do”; S₈₃₉Code: 7 “I think homeworks makes us more successful on the tests which help us to understand better”; S₆₇₆Code: 8 “Self-development, to understand our work better. Doing research about the homework better”; and S₂₂₀Code: 9 “A test for checking understanding”.

Table 2

Students' Views About the Homeworks Given in Science and Technology Class

Theme code		<i>f</i>
The content of the homeworks	1. Researching	860
	2. Writing	795
	3. Doing experiment	767
	4. Solving test	663
	5. Observing	492
	6. Reading	477

In Table 2, the codifications related to the theme called “The content of the homeworks” are given. When the codes which have the highest frequencies are examined, the students state that the homeworks are mostly in the form of researches, writing, doing experiment, and solving tests. Samples from students’ views: S₁₅₁₈Code: 1 “The homeworks are mostly given in the form of experiments and observation”; S₄₀Code: 2 “Generally, we write (we also do experiment)”; S₁₅₁Code: 3 “It is related to search and doing experiment”; S₉₃₃Code: 4 “Generally solving tests, searches and a kind of experiment homeworks”; S₆₉₉Code: 5 “The homeworks which are given science and technology class include reading, writing, and observation-aimed activities”; and S₆₈₇Code: 6 “Reading, writing and doing search”.

Table 3

Students' Demands for the Homeworks' Contents Given in Science and Technology Class

Theme code		<i>f</i>
Homework preferences	1. Doing experiment	491
	2. Researching	247
	3. Doing interesting activities	164
	4. Solving test	147
	5. Observation	114
	6. Doing homeworks about nature and animals	84
	7. Reading	82
	8. It does not matter, I am OK.	61
	9. Writing	60
	10. Doing homeworks about daily life	34
	11. Playing games	20
	12. The ones want doing nothing	18
	13. Doing activities in the workbook	18

In Table 3, the codifications related to the theme called “The homework preferences” are given. When the codes which have the highest frequencies are examined, it is seen that the students want to be given the homeworks like experiments, researching, interesting activities, solving tests, and observations. Samples from

students' views: S₁₂₁₀Code: 1 "I want to do experiment because I do not forget what I do"; S₈₉₄Code: 2 "I want homeworks include research and observation subjects because by researching, I develop my vocabulary and knowledge more"; S₁₂₃₃Code: 3 "I would like it to be more enjoyable and funnier"; S₂₈₈Code: 4 "I generally want to solve test because I understand my correct and false answers better by solving test, not by writing or observing"; S₈₈₇Code: 5 "I want to have more observation activities, because I understand better by observing"; S₁₃₈₇Code: 6 "I would like the homeworks given in science and technology courses to include activities about environment and nature"; S₂₀₇Code: 7 "Researching, reading, and experiment; these are more interesting for me"; S₄₀₇Code: 8 "The homeworks are already given as I want"; S₆₉₉Code: 9 "I want writing homeworks in science and technology courses because if I write, I can understand better"; S₃₁₄Code: 10 "Related with daily life"; S₃₉₁Code: 11 "funny games, etc."; S₃₂₃Code: 12 "I do not do it, and I do not like science and technology courses"; and S₁₈₈Code: 13 "From workbooks or solving test is better".

Table 4

Students' Views About the Challenges They Have While Doing Homeworks

Theme code	<i>f</i>	
Challenges	1. Difficulty in reaching the information from the resources	236
	2. Lack of tools (having difficulty during experiment)	221
	3. I have no problem	207
	4. Hard (I cannot understand, I cannot do)	198
	5. Giving homework without understanding the subject	104
	6. More writing and reading	73
	7. I get bored easily	72
	8. Not having a computer/internet access	36
	9. Frequently given homework/too much homework	32
	10. Difficulty in doing workbook exercises	30
	11. Lack of instruction about how to do it	26
	12. Not getting help	14
	13. Forgetting the formulas	12

In Table 4, the codifications related to the theme called "The challenges" are given. When the codes which have the highest frequencies are examined, it is seen that the students have difficulty in reaching the information from the resources, providing the tools, doing the hard ones, and doing the homeworks without understanding the subject. Samples from students' views: S₃₀₅Code: 1 "Difficult in finding exactly what I research"; S₁₂₅₉Code: 2 "During experiments, lack of one or more tools get me in trouble"; S₅₁₄Code: 3 "I do not have any trouble while doing homeworks of science and technology courses"; S₈₀₁Code: 4 "I do not understand the formulas, it is very boring"; S₁₂₃₅Code: 5 "The subjects which I do not understand get me in trouble"; S₁₆₃₄Code: 6 "I write too much, I cannot study science and technology courses happily and heart and soul"; S₂₆₉Code: 7 "The troubles, getting bored and boring courses are the reasons"; S₅₇₇Code: 8 "Having no net access"; S₁₄₀₉Code: 9 "Because of too much homeworks; I have difficulty in doing them"; S₄₃₆Code: 10 "Mum, I'm scared. What if the book ate me?"; S₃₄₅Code: 11 "Because sometimes I do not understand what to do in the homework"; S₅₈₄Code: 12 "Because nobody helps me"; and S₅₁₁Code: 13 "I cannot memorize some formulas because they're complicated".

Table 5

Students' Views About the Contributions of Homeworks

Theme code	<i>f</i>
1. I understand better	717
2. Develops my skills. (hand, research, observation, experiment, reading, and writing skills)	145
3. I get information about the natural events, living beings, and technology (science)	137
4. It has no contribution	123
5. I solve tests in a shorter time	112
Contributions	
6. The ones who are contented with saying useful	85
7. Get information about current events	73
8. It provides self-development	41
9. It provides me to know my own body	28
10. It provides me to get high mark	16

In Table 5, the codifications related to the theme called “contributions” are given. When the codes which have the highest frequencies are examined, it is seen that by these homeworks, the students understand the subject better, develop their skills (hand, research, observation, experiment, reading, and writing skills), get information about the natural events and living beings, solve tests in a shorter time, and get information about current events. Samples from students' views: S₁₂₁₂Code: 1 “Thanks to the homeworks, I understand better, thanks to the homeworks, and I can understand the subject which I couldn't understand before”; S₁₅₃₉Code: 2 “I learnt doing experiment, observing and studying”; S₁₃₅₈Code: 3 “It develops my environmental awareness and increases my general knowledge, and it provides me to get detailed information about the cases around me”; S₁₆₃₄Code: 4 “It has no contribution, it is a waste of time”; S₁₆₉Code: 5 “It helps in placement test”; S₁₉₄Code: 6 “It contributes well”; S₁₅₁₉Code: 7 “Learning new things, and we get information”; S₇₆₅Code: 8 “It develops our skills”; S₁₃₉₆Code: 9 “Learning, reading, and knowledge about our body, for example how our hair grows, what should we do adolescence period”; and S₁₁₉₁Code: 10 “In order to do well and faster during the exams”.

Results and Discussion

As a result of the research, the students' perceptions for the homeworks can be ordered as: understanding the subjects better, reviews, responsibilities, homeworks to be done at home, and researches. In their study, Aladağ and Doğu (2009) stated that the homeworks have an important role on understanding the subject and reviews. Also, in Gedik, Altıntaş, and Kaya's (2011) study, students stated that homeworks are given for reviewing and reinforcing in the same day. With these results, it can be said that students believe in the educational role of the homeworks. However, these results do not mean that all the homeworks have this role. Students believe that homeworks are beneficial for themselves but the quality of given homeworks is questionable.

By using the students' views about the content of given homeworks, it can be inferred that the homeworks are intended for researching, writing (summarizing), doing experiment, and solving test. In the study of Gedik et al. (2011), it is stated that students want homeworks to prepare them for the exams of science and technology class. An exam focused educational system in which the teachers assign solving test, it can be seen natural for students to want test solving homeworks. In science and technology class, the majority of homeworks are expected to be mainly in the form of doing experiment, observing, and researching which provide learning by doing and experiencing. However, it is known that the multiple choice homeworks restrict the students'

creativity and critical thinking skills. The students cannot be aware of it and by focusing on exam success, they want to be given multiple choice homeworks.

When the students' homework choices are examined according to the order of priority, it can be inferred that students want to be given homeworks, such as experiments, researches, interesting activities, multiple choice questions, observations, and the homeworks about nature, animals, and daily life. Aladağ and Doğu (2009) stated that students want assignments which are about daily life and including laboratory applications. Similarly, in Gedik et al.'s (2011) study, the students said that the homeworks are useful for their daily life. Besides, Corretjer (2009) stated that students enjoy research project homeworks because they highlight flexibility and creativity. The reason for the students' demands for experiments, observation, and interesting activities are studying on funny activities without getting bored and learning by doing and experiencing. The exams can be shown as the reason of demanding test-typed homeworks.

When students' views about difficulties they have while doing the homeworks are examined according to the order of priority, they have difficulty in reaching the information in the resources, providing the tools, doing the hard ones, and doing the homeworks without understanding the subject. Ari (2010) concluded that students make others do their performance and project homework. Also, Corretjer (2009) stated that 4th- and 5th- grade students find the homeworks boring and hard. This situation pushes the students to get support. Therefore, it can be said that students are not instructed enough about how to reach information. On the subject of the equipments necessary for the homeworks, it is seen that it is important to give homeworks which require readily available equipments at each home. Not giving that kind of homeworks force students to look for the equipment out of home. At this point, the families' becoming a part of the activity without being aware of the teachers' expectations and their effort to create a qualified work for their children may cause problems for the students. It is seen that another trouble is the hard homeworks. In this case, teachers should vary the homeworks, such as preparation, exercise, and reinforcement and give the suitable ones for the students who cannot understand the subject well. Reinforcement homeworks can also be given to the students who understand the subject very well. Otherwise, the homeworks given for the students who cannot understand the subject well may cause trouble and boredom for them.

When students' views about the contributions they have while doing the homeworks are examined, it is understood that the students understand the subject better, develop their skills (hand, research, observation, experiment, reading, and writing skills), get information about the natural events and living beings, solve tests in a shorter time, and get information about current events. In the study of Çetin and Çakan (2010), it is found that students learn more and develop their research skills and they understand the subject better with the performance and project works, so students believe that the homeworks are beneficial to themselves.

Conclusions

Consequently, it can be said that the homeworks have an educational goal by means of the students' perceptions about the homework given in science and technology course. Different from the homeworks given by the teachers, it can be concluded that students want to do interesting homeworks which require observation and which are about nature, animals, and daily life. It is understood that during the homework period, students have troubles about reaching the information in the resources, providing the tools, doing the hard homeworks, and doing the homeworks without understanding the subject. Also, students state that the homeworks have significant contributions to themselves.

Implications

The implications of the study are as follows:

- (1) Students' demands for homeworks can be taken into consideration;
- (2) Interesting homeworks which require observation and which are about nature, animals, and daily life can be given;
- (3) Students can be guided about how to reach the sources related with the subject of the homeworks;
- (4) Homeworks can be given when the subject is understood well;
- (5) Readily available homeworks should be considered while giving homeworks;
- (6) Homeworks which are suitable for the students' level (6th-, 7th-, or 8th- grade) can be chosen.

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