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## Elementary school students' views and images concerning Science teachers

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### Abstract

The main aim of this research is to determine elementary school students' perceptions and images towards science teachers. This study might give an idea concerning students' expectations towards their science teachers. In this field study descriptive research has been utilized. Open-ended questionnaire were applied on 27 students of 6th grade, 19 students of 7th grade, and 21 students of 8th grade. The questionnaire particularly aimed to reveal elementary school students opinions and image on "the characteristics of the good science teacher", "common characteristics of science teachers and scientists", "distinctive characteristics of science teachers from teachers of other branches" and "drawings on the images of science teachers". The results revealed that students have different perceptions and images towards science teachers.

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*Keywords: Elementary students, science teacher, image.*

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### 1. Introduction

In an ever-changing World, it is our own identity which we can only trust in. If we do not know who we are, how could we decide what to do (Robbins, 1995)? If we can keep alive our awareness, we will notice immediately the imbalances in our life and complete the deficiencies (Cüceloğlu, 2005). In order teachers to be aware of the changing roles of their own profession, implement the innovations and perform their profession in this direction, they should define their own identity.

For centuries, questions such as; "Who is the teacher?", "What must have?", "How should be trained?" "Is teaching a profession?", "Is teaching an art? If there is the aspect of art, is it a science-based engineering which causes a behavior change?" have been tried to be answered (Senemoğlu, 2001). When the situation is examined from past to present, the criteria laid down and implemented in teacher training, seem complex, contradictory and not sufficient (Üstüner, 2004). In the 2000s the efforts and the debates to identify a "good" teacher have increased (Cortazzi & Jin, 1996; Hadley, 1996; Acocella, 2002; Senemoğlu, 2001, 2010; Kısakürek, 2009). In general, these

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studies attempted to identify the teachers' general qualifications and competencies. Qualified teachers are prerequisites to qualified schools. In determining the quality of teachers, the expectations of students who are in focus of education should be taken into consideration. For revealing the expectations of students, students' views should be taken into consultation. The main aim of this research is to determine elementary school students' perceptions and images concerning science and technology teachers. This information might also provide an insight on the students' expectations from their teachers.

## 2. Method

Research has been carried out by using "field research method". Field research method aims to determine the characteristics of a group (Büyüköztürk & others, 2008). In this field study, descriptive research has been utilized. Descriptive studies are of great importance in improving knowledge and understanding (Balci, 2010). Sample of the research has been determined by "random sample technique". The primary school selected to carry out the research, was determined through drawing lots from among 21 schools (6 in the city centre, 15 in nearby towns). The scope of this research covered 6th, 7th and 8th class students of the primary schools of Nevşehir province, a district of Avanos. 25 students of 6th grade, 19 students of 7th grade, and 21 students of 8th grade, aggregated to 65 students who participated in this research.

Characteristics of science and technology teachers have been tried to be determined through the perspectives of the participants in this qualitative study. Qualitative research focuses on significant events, and actions of the participants. Different people perceive the same event differently so that many realities can be collected (Büyüköztürk & others, 2008). The draft questionnaire consisted of five open-ended questions and a drawing. After the validity and reliability of the study, three open-ended questions and a drawing remained in the questionnaire. Two experts were consulted for the validity and reliability studies. The experts were requested to give a score from 1 to 10 for each question. Cohen's kappa coefficient was applied to test the scores given by the experts. Following the experts' suggestions two questions were removed from the questionnaire. This resulted to that the coefficient was determined as ( $K = .93$ ) which in effect was interpreted as that the questionnaire is suitable as a data collection instrument and the harmony is almost close to perfect (Landis & Koch, 1977). Cohen's kappa coefficient is a statistical method that measures the reliability of comparison between the two evaluators (Sim & Wright, 2005). The three open-ended questions and the drawing, applied in the questionnaire are as follows;

- How should a good science and technology teacher be?
- What are the similarities between science and technology teachers and scientists?
- What are the distinctive features between science and technology teachers and other teachers?
- Drawing: How does a science and technology teacher look like?

A pilot study was carried out on 9 students from 6th, 7th and 8th classes (3 from each class). Students participating in the pilot study were asked to answer questions and encouraged to indicate their views and suggestions concerning the clarity of the questions. There was no need for a significant change in the questionnaire. The data obtained from this study were categorical variables, therefore were analyzed with a nonparametric statistical type. Students' responses were categorized according to their similarities. After the content analysis, the frequency and percentage values were depicted in Questions 2 and 3. In the 4th question, students' drawings were examined and the features of the drawings were listed and the frequency and percentages were calculated.

## 3. Findings

The students' views concerning the characteristics of "a good science and technology teacher" can be divided, as personal and academic traits, into two main groups (Table 1).

Table 1: Students' views concerning the characteristics of a good science and technology teacher

Students' views	6th class (N=25)		7th class (N=19)		8th class (N=21)		Total N=65		
	f	%	f	%	f	%	f	%	
Personal traits	behaves well	9	36	7	36,8	3	14,3	19	29,3
	compassionate	12	48	-	-	1	4,8	13	20,0
	tolerant	7	28	-	-	2	9,5	9	13,9
	smiling	3	12	-	-	-	-	3	4,6
Academic traits	carries out experiments /activities	6	24	18	94,7	13	61,9	37	57,0
	explains well	10	40	11	57,9	15	71,4	36	55,4
	does not dictate much	9	36	15	78,9	9	42,8	33	50,8
	reviews the lesson	2	8	1	5,3	1	4,8	4	6,2
	knowledgeable	1	4	1	5,3	1	4,8	3	4,6
	well-arranged	1	4	-	-	1	4,8	2	3,1

“Carrying out experiments”, “working on similar issues” and “dealing with science and technology” were commented by students as similar features of science and technology teachers and scientists (Table 2).

Table 2: Students' views concerning the similarities between science and technology teachers and scientists

Students' views	6th class (N=25)		7th class (N=19)		8th class (N=21)		Total N=65	
	f	%	f	%	f	%	f	%
Carry out experiments	3	12	6	31,6	19	90,4	28	43,1
Work on similar issues	6	24	7	36,8	4	19,0	17	26,2
Deal with science and technology	2	8	7	36,8	8	38,1	17	26,2
Research /investigate	3	12	2	10,6	1	4,8	6	9,2
Both being scientist	1	4	1	5,3	-	-	2	3,1
Examine the natural phenomena	-	-	-	-	2	9,5	2	3,1

Students were asked about their views concerning the distinctive features between science and technology teachers and other teachers. The findings are summarized in Table 3.

Table 3: Distinctive features between science and technology teachers and other teachers

Students' views	6th class (N=25)		7th class (N=19)		8th class (N=21)		Total N=65	
	f	%	f	%	f	%	f	%
Deals with science (science, technical and technology)	6	24	6	31,6	5	23,8	17	26,2
Carries out experiments	1	4	3	15,9	11	52,4	15	23,1
Dictates more	3	12	5	26,3	-	-	8	12,3
Increased examination of the natural phenomena	-	-	-	-	4	19,0	4	6,2

“Dealing with science” and “carrying out experiments” were pointed out by students as the distinctive features of science and technology teachers from other teachers. In particular, 52,4% of 8th grade students indicated that “carrying out experiments” is the feature that separates the science and technology teachers from other teachers.

It is interesting that 60% of 6th grade students, 5,3% of 7th grade students and 14,3% of 8th grade students did not make drawings (Table 4.). Respectively, 57% and 52,4% of students seemed to perceive science and technology teachers as “smiling” and “to be women”.

Table 4: Drawings concerning “How does a science and technology teacher look like?”

Students' views	6th class (N=25)		7th class (N=19)		8th class (N=21)		Total N=65	
	f	%	f	%	f	%	f	%
Smiling	9	36	16	84,1	12	57,6	37	57,0
Women	8	32	12	63,1	14	66,6	34	52,4
Visual materials (books, tubes, pen, telescope, microscope, etc.)	7	28	12	63,1	9	42,8	28	43,1
Studying in a laboratory	4	16	1	5,3	7	33,6	12	18,5
Men	1	4	5	26,3	4	19,0	10	15,4
Scientific writings	-	-	2	10,6	1	4,8	3	4,6
With students	1	4	-	-	2	9,5	3	4,6
Tie	-	-	1	5,3	1	4,8	2	3,1
Glasses	-	-	2	10,6	-	-	2	3,1
No drawings	15	60	1	5,3	3	14,3	19	29,3

#### 4. Discussion

6th grade students seemed to be focused on the personal characteristics of teachers, whereas, others mainly focused on the academic characteristics. Most of the drawings in this study consisted of smiling teachers and about half of the students drawings indicated to women teachers. This might have resulted from the female science and technology teacher in the school. Students also drew teachers when they are working in the lab. Students seemed to perceive science and technology teachers as a part of the laboratorial environment. In addition, instead of the transmission of knowledge, students seemed to expect visual and concrete lessons.

In literature, there are studies aimed to find out the characteristics of a “good”, an “ideal”, and a “successful” teacher. For example; Cortazzi & Jin (1996) determined Chinese students' views regarding on the best qualities of a “good” teacher. Chinese students had expectations in terms of a good knowledge of the subject and the personal characteristics of the teachers. For students, a “good” teacher would have a deep knowledge of the subject, be patient, humorous, a good moral example, friendly, advising students about real life, encouraging students interests, warm-hearted, using effective teaching methods, caring and helpful and explaining clearly. Similarly, Hadley (1996) analyzed the Japanese culture of learning and the views of students on “good” teachers. For Japanese students, a good teacher is a profound, experienced and decent person. A “good” teacher tells real-life stories in relation to the students' interests. A “good” teacher is eager to learn, friendly and joyful, and encourages students' participation in the classroom. A “good” teacher is the one whom students take as a role model, believe in, and rely on. In a study to find out students views concerning their teachers competency, Senemoğlu (2000) found that some of the characteristics of a “successful” teacher were affective characteristics such as; being friendly, warm, love and respectful, encouraging to learn, motivating, and adopting the importance of the course. On the other hand, Acocella (2002) attempted to determine the perceptions of primary school students about the “ideal” teacher and found out that for students the “ideal” teacher is someone who is creative, insightful, patient, knowledgeable, friendly, engaging, easy-going, caring, humorous and sensible. Arsal (2004) tried to determine the views of university lecturers, teachers and students concerning the type of teaching staff who will prepare for the 21st century. The results show that, for university lecturers, teachers and students, teachers must have general as well as extensive subject knowledge. They should think, research, produce information, be open to innovation and development and be affective and tolerant. They should use contemporary and scientific information, be guides in constructing knowledge, identify students' interests and abilities, prepare an environment to promote these and should establish a good relationship with people around them.

Çetin (2001) points out that after a while the teacher's personality traits are resolved by the students. Then, teachers are faced with the question of who they are, rather than what they know. In order to eliminate the negative conditions, teachers should analyze the behaviors of their students, and then should develop their attitudes and behaviors accordingly. According to Bruner (2009), each new generation gives a new shape to education depending on their own wishes emerging from their time as students. Therefore, according to the results, emphasis should be given to the development of personal and professional qualifications. Senemoğlu (2010) suggests that teachers should not directly transmit the information, and should not be much instructive but just be the evaluators. Teachers present a guide for the students own-learning and self-evaluation process. Accordingly, the laboratory-based courses and practical activities should be planned as to meet the students' expectations. Lessons should be enriched through the use of concrete and visual materials. Yıldırım (1996) also points out that teachers are not encouraged to associate their subject areas with other disciplines, meaning that they only try to transmit information to students related to the teaching material. As a result, there are separate groups of knowledge and skills in schools. Therefore, science and technology teachers should pay attention to adopt an interdisciplinary approach and perform education in laboratory environments. Finally, Yetim & Göktaş (2004) suggest that teachers must be aware of the sanctity and importance of their profession, through developing professional and personal qualities; they should meet the requirements of the profession. The sanctity of the teaching profession should result from their raw material itself; respectively the students. As properly, consciously, responsible, and altruistically the profession of teaching is performed as valuable it will be.

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