



How Students Perceive the Math Teacher?¹

Öğrenciler Matematik Öğretmenini Nasıl Algılıyor?

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Abstract

The study is aimed to put forward how the students express their perception of math teacher visually. The study is a qualitative research conducted with 30 randomly selected 8th grade students from three elementary schools. Data are gained from document analysis and open-ended questions. For the purpose of the study, sample students were asked to draw a picture about their perception of mathematics teachers and later their ideas about that matter were taken by five open ended questions. Pictures were interpreted with the help of the subject-field specialist and findings presented by making quotations from the students' responses to the questions. According to the results, students who have positive perception about mathematics teachers exactly reflect these feelings into their pictures. Besides, they transfer many situations in their pictures that they could not express orally.

Key Words: Elementary school, Mathematics teacher, Image of teacher, Students' drawing, Students perception

Özet

Yapılan bu çalışmada öğrencilerin matematik öğretmenleri ile ilgili algılarını görsel olarak nasıl ifade ettiklerini ortaya çıkarmak amaçlanmıştır. Çalışma nitel bir araştırmadır ve üç ilköğretim okulunun 8. sınıfında okuyan rastgele seçilmiş 30 öğrenci ile yürütülmüştür. Veriler, açık uçlu sorularla ve doküman analizi yapılarak elde edilmiştir. Çalışmanın amacına ulaşmak için örneklem grubundaki öğrencilere, matematik öğretmenlerine yönelik algıları ile ilgili resimler yaptırılmış ve sonrasında da beş açık uçlu soruyla onların konuya ilişkin görüşleri alınmıştır. Yaptırılan resimler konu uzmanından yardım alınarak yorumlanmış ve öğrencilerin açık uçlu sorulara verdikleri cevaplardan alıntılar yapılarak bulgular sunulmuştur. Araştırmanın bulgularına göre, matematik öğretmenleri ile ilgili olumlu yönde algıya sahip öğrenciler bu düşüncelerini çizdikleri resimlere de aynen yansıtmışlardır. Ayrıca, öğrenciler sözel olarak ifade edemedikleri birçok durumu resimlerine aktarabilmişlerdir.

Anahtar Kelimeler: İlköğretim okulu, Matematik öğretmeni, Öğretmen imajı, Öğrenci çizimi, Öğrenci algısı

¹ Part of this study has been presented as a poster proceeding at the 1. International Conference of Living Theorists "Howard Gardner" held by Mehmet Akif Ersoy University in Burdur, Turkey between 23-24 May 2009.

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Introduction

There has been a substantial emphasize over considering students' individual characteristics both in the worldwide educational trend and in the recent curriculum alterations in Turkey lately (Ministry of National Education Turkey [MEB], 2005.) The piece of knowledge saying each student has a different learning style and intelligences triggered this process. According to multiple intelligence theory, founded by Gardner in 80s, individual has different intelligence types (Gardner, 1983). Among these types, the most common multiple ones are Verbal-Linguistic, Logical-Mathematical, Visual-Spatial, Body-Kinesthetic, Musical-Rhythmic, Interpersonal, Intrapersonal and Naturalistic Intelligence. As the maxim "A picture is worth thousand words." implies, Visual-Spatial intelligence is one of the most fundamental expression way of the human brain (cited by Bümen, 2002, 12).

Visual-Spatial intelligence capacity relates to recording and perceiving the real world things and events correctly. Individuals convert and shape knowledge based upon initial perceptions. When there is no such stimuli, they can reconstruct knowledge by their visual experiences (Demirel, Başbay & Erdem, 2006, 29). Visual-Spatial Intelligence concerns everything; not only concrete things (things we see physically), but also things we see in our dream world (including; imagining possible things, dreaming, daydreaming, imaginary trips to dreamlands, and creating or inventing the things never done before) (URL - 1, 2009). However another intelligence type; Verbal Intelligence, is the skill of using the words effectively both orally and in writing. Listening, reading, speaking and writing are the fundamental elements of Verbal Intelligence. (Demirel et al., 2006). By writing skill, individual analyzes her recollections by thinking with the words (cited by Bümen, 2002) and reflects feelings and ideas about the events happening around. So, it is important that individuals express their perceptions about an event or situation by more than one way.

For learning's taking place, it is impossible to undermine the role of student teacher interaction in the classroom. It is indispensable for rendering teaching and learning activities effective. A student would feel far more comfortable in the classroom of a close, appreciating and friendly teacher than in a classroom of an irrelevant teacher. In a classroom where there is a warm relation arising from reciprocal trust and respect, the productivity, the probability of attaining the learning goals will increase and discipline and manner problems will decrease (Açıköz, 2003). Only adversity or incompatibility between student and teacher is pretty enough reason for failure, even when all other learning conditions are at optimum. We often witnessed how much directly related to the students' attitude towards some courses and their relationship developed with the course instructor (Kuzu, 2003).

It has been stated that mathematics is placed out of the starting gate of the courses where elementary first and second level students most failed (Tıraş, 1999). As a reason for that failure, negative attitude of students and especially teachers' attitudes were showed. Therefore, teachers' approach on teaching mathematics at elementary level is considerably important. In the related studies, it is a common knowledge that there have been students displaying positive attitude to the course because of teachers' approach whereas there are students having negative attitude to the same course

(Taşdemir, 2009). Considering mathematics course as one of the top courses in which students have difficulty (Dede and Argün, 2004), student – teacher relation is especially important for mathematics. It is known that student learning and motivation increases when they have positive feeling towards the mathematics course (Cornell, 2000; Ünlü, 2007). For this reason determining the students' perception of mathematics teacher in their minds visually and verbally was set as an aim of the present study. We believed accepting students' written and picture descriptions of their mathematics teachers will yield the most close and realistic picture in their minds.

Method

This is a qualitative study and was carried out as a case study in April 2004. The case study contains no greater bias toward verification of the researcher's preconceived notions than other methods of inquiry (Hays, 2004). Drawing, as a qualitative method, was generally used in the studies which were aimed to exhibit individuals' opinions about any topic and their conceptual frame (White & Gunstone, 1992). The sample is 30 randomly chosen 8th graders from 3 different primary schools in Trabzon province in Turkey. In this study, we prefer drawing method in order to understand students' opinions about the concept of math teacher. To support the data, open ended questions were asked to the same students. As advocated by Patton (1990), we used multiple sources of data—drawings and interview questions—to help establishing trustworthiness.

Data Collection and Analysis

The data were gathered by open ended questions and documentation. To reveal the mathematics teacher perceptions in their minds; the students were asked to draw pictures explaining "What do they imagine when they are said; "Mathematics teacher?" After a week later, participant students were made to fill a questionnaire composed of 5 open ended questions to identify their views about mathematics teacher and the course. While preparing the questions, researchers were taken to the consideration that their content must be in the scope of revealing students' ideas about the mathematics teacher (see. Appendix1). The reason for choosing these questions is that they obtain more information without leading the participants (White & Gustone, 1992).

To verify the internal validity for document analysis, the researchers utilized two experts' opinion working at the department of Fine Art Education Main Field to interpret the pictures. Thus, pictures drawn by students were interpreted more accurately. In addition, students' response to the open-ended questions was compared by their explication to the pictures. In this way, teacher image in their mind was tried to be asserted more clearly. Students' drawings were analyzed based on their positive or negative views about the math teacher and grouped. An overview evaluation was tried to be drawn from the analysis of the written student answers together with the pictures.

Findings

In this section, findings gained from the research data were explained. In the analysis, the student pictures categorized under the titles; students having affirmative and negative perceptions about

mathematics teacher. Because of the limitations, only some selected pictures from the mentioned categories were presented as samples.

Students Having Affirmative Perceptions

The analysis of the drawings showed that a group of students have affirmative perceptions about their mathematics teachers for a variety of the reasons. The positive manner and behavior of mathematics teachers foster students' interest both towards the teacher.

Figure 1: Charming Teacher Image



Figure 2: Helpful Teacher Image



In the Figure 1 and 2 above, the teacher is described; friendly, warm and supportive. She helps when students fail to solve a problem and the rest of the students participate by raising their hands. In Figure 3 below, a teacher figure attaching importance to her lesson in all aspects and attracting students' attention is expressed. In the Figure 4, the teacher is described with the symbol of fairy godmother. The same students qualified their teachers as; "good instructor, well-mannered, caring, beautiful, angel, cheerful, sweet, clever, sympathetic etc." The same students explain the reasons for which they like mathematics mostly as; "adoring the teacher, good teacher instruction, to be interested in problem solving."

Figure 3: Precise and Neat Teacher Image



Figure 4: Guardian Angel Teacher Image



Students Having Negative Perceptions

The analysis came up with that some of the students have negative perceptions for their mathematics teachers. Students' dissatisfaction about teachers' manner and behavior is the primary source for these negative ideas. And this result caused in student apathy towards mathematics course.

Figure 5: Badly Behaved Teacher Image



Figure 6: Nervous Teacher Image



In the Figure 5 and 6 above, teachers were described while they are punishing students as a response to failure in problem solving or failure of the whole classroom. Those students qualified their mathematics teachers; "beater, nervous, boring, asking hard questions, anxious, dull, unfair etc." The same students reported the reasons for not liking the mathematics course as "not being pleased with the teacher's instruction, the teacher's bad treatment, difficulty of the topic etc." Moreover, a few students noted that although they like the course, they do not like the teacher for not instructing amusingly or lack of teacher authority.

As illustrated in the Figures 7 and 8 below, the teacher turns his back to students and lectures without interesting what students do and students are not interested in the lesson, either. These students report their teachers as "not teaching amusingly and endearingly, do not interest students, and he is not listened by students." In their answers, students also complained about there are too many students speaking and too much noise in the classroom and they don't understand the lesson. Unlikely, a student in the sample remarked that he/she likes the teacher and describes him as "patient, affectionate, and friendly" but he/she still expressed his/her examination and marked fear with the picture he/she drew.

Figure 7: Boring Teacher Image

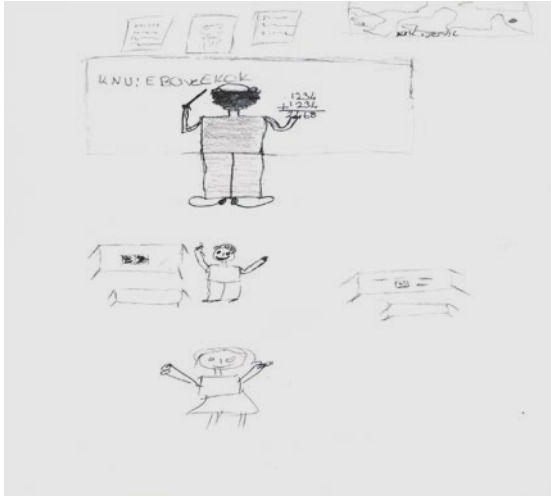


Figure 8: Facing Back Teacher Image



From the Figure 9 below, it is seen that the student failing the math course and getting one point evaluates the math teacher without considering his/her other qualities and proficiencies. He/she has negative feelings about the teacher based solely on the score he/she gained. This situation can be understood from his/her note seen at the right bottom corner of Figure 9 as “Mean teacher, giving 1”.

Figure 9: Giving Lower Score Teacher Image

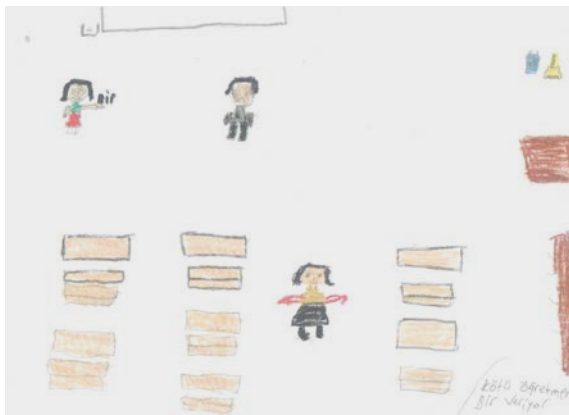
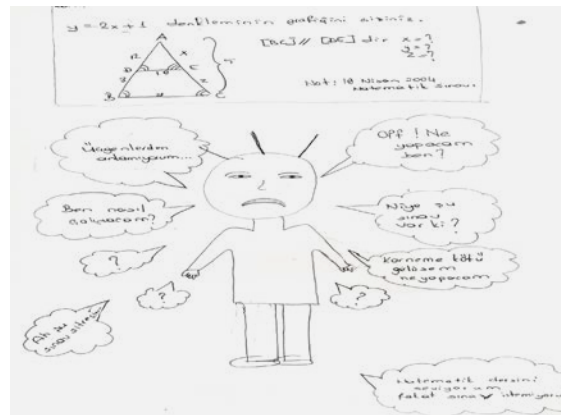


Figure 10: Causing Exam Anxiety Teacher Image



In Figure 10, the student indicates that he/she does not like the mathematics course because of the exam anxiety and he/she scared of his/her math teacher as well as the course in his/her responses reflects these feelings in his/her picture, too.

Discussion and Results

The results indicate that student expressions by using their visual and oral intelligences can reflect their affirmative and negative perceptions about their mathematics teachers. Backed with the analysis of the pictures it was concluded that teacher manner and behavior affect student interest in the teacher and the course (Alkan, Güzel & Elçi, 2004). Most of the 8th graders participating said that they

would like their mathematics teacher if he/she taught the course more amusingly, which actually means; students are not satisfied with the conventional teacher centered instruction; they prefer a student centered one instead. This demand proves the necessity of the former curriculum alteration towards constructivist approaches such as; multiple intelligence, cooperative learning, learning by problem solving. Other studies also reveal that students identify the good teacher as the one teaching amusingly (Senemoğlu, 2001; Murat, Özgan & Arslantaş, 2005).

As another point, the teacher profile drawn by the student pictures is compatible with the teacher profile determined by students' answers to the posed questions. In other words, students with positive ideas about math teacher reflect positive meanings in their drawings while students with negative components in their pictures put forward negative ideas in their responses. Additionally, it was determined that some students explicitly interpret having lower scores or exam stress as a result of the math teacher's negative behaviors in their pictures and written explanations.

Apart from these data, analysis show that some students drew about the things they had not mentioned in their answers or they wrote about the things they had not drawn since every student can express himself/herself in different ways. In this study, measuring the perceptions of students with different data collection tools promoted to show their ideas about their teachers more clearly. However, identification of more comprehensive results will be obtained by making observations and interviews during the math classes of these students in order to see student-teacher interaction or by taking into account a greater number of samples from schools having different socio-cultural environment, in addition to pictures and open-ended questions. Moreover, since the present study shows that student's perceptions about mathematics teacher also affects their point of views on math classes; in order to see whether there's a correlation between each other; teacher's perception can be compared to different variables such as students' attitudes towards lessons, their motivation and success.

The results of the study reveal that students with affirmative perceptions about their mathematics teachers, like mathematics course, too. Therefore teachers should utilize multiple intelligence activities regularly in different ways in their mathematics courses to determine student opinions about themselves and the evaluation of the course implementation. By this way students will have opportunity to express their concealed feelings indirectly. If these feedbacks are taken into consideration by teachers, students' interest to their math teachers and accordingly to the course will be raised. On the other hand, teachers should allow amusing and interesting activities including daily life problems, puzzles and mind games etc. in their math courses to make students like them and the course. In addition, teachers should be well-aware of each student have individual differences in their skills, learning paces and interests. Along with knowing students from this aspect, teachers can reduce negative properties of their students such as existing score and exam anxiety or failure.

Lastly, pictures drawn by a child can be considered as a mirror of his/her inner world. Because children can reflect their feelings by drawing, they can explain their perceptions and opinions about any event (Doğru, Turcan, Arslan & Doğru, 2006). Hence, researchers planning to conduct a research on this matter can make studies intended to determine and reduce students' mathematics anxiety or exam fear by using student drawings technique.

References

- Açıkgöz, K. Ü. (2003). *Etkili öğrenme ve Öğretme*. (4. Basım). İzmir: Eğitim Dünyası Yayınları.
- Alkan, H., Güzel, E. B. ve Elçi, A. N. (2004). Öğrencilerin Matematiğe Yönelik Tutumlarında Matematik Öğretmenlerinin Üstlendiği Rollerinin Belirlenmesi. *XIII. Ulusal Eğitim Bilimleri Kurultayı*, 6-9 Temmuz 2004, Malatya: İnönü Üniversitesi.
- Bümen, N. T. (2002). *Okulda Çoklu Zekâ Kuramı*. Ankara: PegemA Yayıncılık.
- Cornell, C. (2000). Matematikten Nefret Ediyorum. (Çev: Nilüfer Eyüboğlu). *Yaşadıkça Eğitim*, 65, 15-22.
- Dede, Y. ve Argün, Z. (2004). Öğrencilerin Matematiğe Yönelik İçsel Ve Dışsal Motivasyonlarının Belirlenmesi. *Eğitim ve Bilim*, 29 (134), 49-54.
- Demirel, Ö., Başbay, A. ve Erdem, E. (2006). *Eğitimde Çoklu Zekâ Kuramı Ve Uygulama*. Ankara: PegemA Yayıncılık.
- Doğru, S.S.Y., Turcan, A.İ., Arslan, E. ve Doğru, S. (2006). Çocukların Resimlerindeki Aileyi Tanılama Durumlarının Değerlendirilmesi. *Selçuk Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, 15, 223-236.
- Gardner, H. (1983). *Frames of mind: The theory of multiple intelligences*. New York: Basic.
- Hays, P. A. (2004). Case study research. In K. de Marrais and S. D. Lapan (Eds.), *Foundations for research: Methods of inquiry in education and the social sciences* (pp. 217-234). Mahwah, NJ: Lawrence Erlbaum Associates.
- Kuzu, T. S. (2003) Eğitim-Öğretim Ortamında Etkili Sözel İletişim. *Milli Eğitim Dergisi*, 158. <http://yayim.meb.gov.tr/dergiler/158/kuzu.htm> adresinden 13 Ocak 2009 tarihinde indirilmiştir.
- MEB (2005). *İlköğretim Matematik Dersi (1-5. Sınıf) Öğretim Programı*. Ankara: Ders Kitapları Müdürlüğü Yayınevi.
- Murat, M., Özgan, H. ve Arslantaş, H. İ. (2005). Öğretmen Adaylarının Öğretim Elemanlarının Empatik Tutumlarına İlişkin Algıları İle Ders Başarıları Arasındaki İlişki. *Milli Eğitim Dergisi*, 168. <http://yayim.meb.gov.tr/dergiler/168/index3-arslantas.htm> adresinden 13 Ocak 2009 tarihinde indirilmiştir.
- Patton, M. Q. (1990). *Qualitative evaluation and research methods* (2nd ed.). Newbury Park, CA: Sage Publications, Inc.
- Senemoğlu, N. (2001). Öğrenci Görüşlerine Göre Öğretmen Yeterlilikleri. *Eğitimde Yansımalar: VI. 2000 Yılında Türk Milli Eğitim Örgütü ve Yönetimi*, 11-13 Ocak 2001, Ankara: Hüseyin Hüsnü Tekişik Eğitim Araştırma Geliştirme Vakfı.
- Taşdemir, C. (2009). İlköğretim İkinci Kademe Öğrencilerinin Matematik Dersine Karşı Tutumları: Bitlis İli Örneği. *Dicle Üniversitesi Ziya Gökalp Eğitim Fakültesi Dergisi*, 12, 89-96.

Tıraş, S. (1999). Öğrenme-Öğretme Açısından Matematik Öğretmenlerinin Yeterliliği Ve Etkili Olma Düzeyleri. *D.E.Ü. Buca Eğitim Fakültesi Dergisi*, Özel Sayı 11.

URL-1. Çoklu Zekâ Kuramı. <http://www.bilgicik.com/tag/gorsel-zeka/> adresinden 3 Ocak 2009 tarihinde indirilmiştir.

Ünlü, E. (2007). İlköğretim Okullarındaki Üçüncü, Dördüncü Ve Beşinci Sınıf Öğrencilerinin Matematik Dersine Yönelik Tutum Ve İlgilerinin Belirlenmesi. *Dumlupınar Üniversitesi Sosyal Bilimler Dergisi*, 19, 129-148.

White, R. & Gunstone, R. (1992). *Probing understanding*. London: Falmer Press.

Appendix1: Open-ended Questions for 8th Grade Students

- 1) Do you like math course? Why?
- 2) What is the effect of your math teacher to like or don't like the math course?
- 3) Describe your math teacher with three words.
- 4) How do you want your math teacher to behave you?
- 5) How do you want your math teacher to teach the course?