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Views of Elementary Education Students Related To Science and Technology Teaching Process

Gülcan MIHLADIZ [a] *, Meltem DURAN [b]

[a] *Education Faculty, Science Education Department, Mehmet Akif Ersoy Üniversitesi, Burdur,15100, TURKEY*
[b] *Gazi Education Faculty, Science Education Department, Gazi University, Ankara, 06500, TURKEY*

Abstract

In this study, it was aimed to determine the views of elementary education students related to the science and technology teaching process. The research was carried out with totally 182 students studying at 3 elementary education schools providing training for students in a province in Turkey. In this research in which has survey model descriptive qualities, views of students were collected through a semi-structured form including 4 questions. The first two questions of the interview form were for teaching method, technique and strategies the students like and prefer, the third question was for the experiments conducted during the process, and the fourth question was for the individual and/or group works. The data obtained from the student views were coded, and their descriptive statistics such as percentage and frequency were calculated. According to the research result, it was determined that the elementary education students enjoyed mostly of the method and techniques performed within the scope of science lesson as experimentation, teaching through Vitamin Program (Turkish e-teaching program), presentation, problem solving, taking the subject notes to a notebook and lecture method. The most common of the method, technique and strategies the students want to be actualized during the science teaching process were experimentation, technology-aided teaching, activities out of classroom (in nature) and more joyful methods and techniques according to the order of participation. Furthermore, most of the students shared the troubles they feel from not experimenting, as they required. Whereas most of the students mentioned that they preferred working in groups during the activities and experimentations they carried out within the scope of science lesson, there were also the ones who mentioned that they preferred working individually or in groups.

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Keywords: Science and Technology Education, Students' Views, Teaching Process, Teaching Methods;

1. Introduction

* Corresponding author: Gülcan Mıhladız
E-mail address: gulcanmihladiz@gmail.com

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The research program into children's scientific reasoning that has emerged over the last 20 years has focused on domain-specific knowledge schemes in the context of children's learning of science (Driver et al., 1994). The aim of the science courses is to educate individuals of the most basic scientific literacy (AAAS, 1990; NRC, 1996; Moss, Abramsand & Robb, 2001; MEB, 2005; McDonald, 2010). In national and international education programs are highlighted such as how to use features that are research, and scientific literate-query, critical-thinking, problem-solving and decision-making skills, life-long learning to be an individual and for maintain the sense of wonder about the environment and world of science and technology and to maintain the necessary skills, attitudes, values, understanding, and with information on how to, as the individual and the social scientific information for its intended purpose and the scientific critical thinking skills (AAAS, 1990; MEB, 2005). Science education programs envisage an active role for students that research, monitors, experienced, discussing, problem solvers, like a scientist, to uncover and evaluate the information needed for such activities which constitute their own cognitive structure through activities (Driver, Guesne & Tiberghien, 1985; Akınoğlu, 2008; ERG, 2008;). Cognitive approach is student-based. Therefore it recommends that student-centered teaching methods. While the project method, role play method, tour-observation method, discussion method and problem solving are more emphasised on such methods; the classic presentation, question and answer, such as teacher-centric methods are less emphasised.

To make a decision on teaching strategies and learning conditions, it is necessary to focus on firstly students' previous knowledge and life, interests, learning styles, development levels and program (Taşpınar & Atıcı, 2002). In teaching-learning process, approaches, which will contribute to designing and planning of training events that are developing students' different aspects and answering to different learning ways, should be used (Demirel et al., 2008) Using of events, which enable to attend students' research, inquiry, problem-solving and decision-making process, are recommended. Also, it is stressed that "doing-thinking" learning events are important and cooperative learning strategies should be used as necessary. It is observed that from time to time people exploit multiple intelligence theory for development of events (ERG, 2008). For example; project development is basically a long, complex and demanding process. It requires students' high level thinking skills, such as creativity, inquiry, communication and scientific process skills. Project works are relied on planned research, examination and observation. Projects also pave the way for the attainment of report preparation and presentation skills (Akınoğlu, 2008). Elementary science needs to engage students in inquiry in which students support claims with evidence, construct arguments, and consider alternative explanations (McNeill, 2011). Also Engaging in scientific argumentation assists students in constructing meaningful science concepts and in understanding how scientists develop knowledge of the natural World (NSTA, 1998; MEB, 2005). For this reason learning science in the laboratory with special attention to scholarship associated with models of learning, argumentation and the scientific justification of assertions, students' attitudes (Freedman, 1997), conditions for effective learning, students' perceptions of the learning environment, social interaction, and differences in learning styles and cognitive abilities (Hofstein & Lunetta, 2004).

Students' learning environment and teaching process should be taken into consideration on behalf of bring students in such a dense and complex skill, behaviour and attitude. Students perform better and have more positive attitudes toward the subject taught when they perceive the classroom environment positively. Also these positive attitudes have very beneficial effects on interest and learning (den Brok et al., 2006; Hofstein & Lunetta, 2004) when students perceived that they are capable, and they think the conceptual change tasks are worthwhile to participate in, and their learning goal is to gain competence, then students will be willing to make a sustained effort and be engaged in making conceptual change (Tuan, Chin & Shieh, 2005).

Students' views or understandings of these practices may be different in their everyday lives compared to science, yet still impact their ability to successfully engage in these practices in the science classroom (McNeill, 2011). When students perceive valuable and meaningful learning tasks, they will actively engage in the learning tasks, using active learning strategies to integrate their existing knowledge with new experience (Tuan, Chin & Shieh, 2005). It is thought that in the sense of science and technology education, taking into consideration of students' choices in teaching process and expectations of methods and events about courses are very important for providing necessary learning states and doing an effective science and technology teaching. So, in research, elementary school students' views about teaching process of science and technology course were received as primary resources about subject.

1.1 The problem of research