Reasons Of Failure In Science And Technology Lesson And Proposals For Solving According To Teachers

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Abstract

The aim of this study is to determine the reasons of failure and to make proposals to eliminate this failure in science and tecnology course according to teachers' views. The study is carried out with 11 science and tecnology teachers in Erzurum city in2009-2010 academic year. The data of this study has been provided from semi- structured interviews. The interviewees of the study are teachers. All teachers were interviewed individually by one of the reseachers. The transcripts of the interviews are analyzed with content analysis. In this study, reasons of failure in science and technology course and ways to eliminate this failure were examined in the contexts of teachers, students, parents, and the general structure of the schools. As a conclu- sion the reasons of failure according to the teachers are the allocated time period for activities in cirruculum is not enough and the units are too long parents are indiffer- ence to students' studies, teachers are not knowing enought the cirruculum students, do not have the oppurtunity to apply the activities individually, and cirruculum do not consider the radiness of the students in some units. Furthermore, majority of the teachers stated that they have difficulties in the teaching mathematics science relat- ed science topics and abstracts subjects. Consequently teachers proposed to using different techniques and methods in the lessons highlighting visual lessons, leading students to have goals for the further to encourage students readindg books, and the provide school-parents cooperation to prevent failure and ensure success.

Key Words: Science education, science success, reasons of unsuccess.

EXTENDED SUMMARY

Purpose

It is aimed that the individuals develop both in-class and outside the class as a whole with the goals of teaching program of science and technology course. Science and technology course taught in the schools gain importance from this point of view since the achievement in science and technology course will be affecting the development of the society in every field. Science and technology course in primary schools consists of physics, chemistry, and biology so the teachers encounter some problems in teaching science and technology course which is a combination of these there different majors. The researches carried out revealed that the achievement in science and technology course was not at a desired level, the course was not liked, and even it was the most difficult course (Bakaç, Kesercioğlu, Durmuş & Akçay, 1996; Demircioğlu & Geban, 1996; Ayas, Çepni, Johnson & Turgut, 1997; Bakaç & Kumru, 1998; Gürdal & Sağırlı, 2002).

When the studies conducted were analysed, it was found that a lot of researches were carried out to determine the difficulties encountered during the implementation of the renewed teaching program. However, during the development and alteration process of the teaching program, one of the most important factors is that taking into consideration the teachers' opinions about the programme will contribute the teaching program to be reliable and effect the success of the students. The biggest inconvenience for the studies of program development to be insufficient in our country can be listed as not getting enough feedback from the teachers who are the practitioners of the program throughout the process and having little knowledge about the implementation (Güneş, Dilek, Hoplan & Güneş, 2012). It became more of an issue to try to find solutions to the reasons for failure by taking the opinions of the teachers who are the practitioners of Teaching Program of Science and Technology Course in 2004-2005 about the content, implementation and failure of the program.

Method

Qualitative research method was used in the study. Qualitative research is a method of inquiry where data is produced without any statistical operations or any other numeric means (Altunışık, Coşkun, Bayraktaroğlu & Yıldırım, 2005).

Sampling

Purposeful sampling method is used in the study. In qualitative researches, the size of the sampling group is small for in-depth study of the sampling. Because of this, purposeful sampling is preferred in place of choice of sampling (Miles & Huberman, 1994). The sampling of this study consisted of 11 experienced science and technology course teachers teaching the 6^{th}, 7^{th}, and 8^{th} grades in four different schools in the centre of Erzurum in 2009-2010 education year. The teachers were coded as Ö1, Ö2, Ö3…Ö11 in the study.

Data Collection Tools

Semi-structured interviews were used in the study as data collection method. The questions are determined in advance and the data is tried to be collected with these questions in semi-structured interviews (Karasar, 1998). The data of the study was collected via 20 or 25 minute interviews conducted with one-to-one with each teacher. Semi –structured interview questions prepared by the researchers were used for the interviews of the study.

Data Analysis

The analysis of the data collected with the interviews conducted with the teachers was done by the researcher by using content analysis.

Results

The findings obtained from each question asked to the teachers were presented below.

Interview question 1: *"How much of the topics you explained in Science and technology course are understood by the students? What is the reason for it? "*

The answers given to the question 1 by the participants can be categorized under three main topics: the understanding rate of the topics in view of the previous program, the advantages and disadvantages of the program. Four participants stated that the program was effective and one participant said that it was more effective than the old one. When the negative sides of the program were analysed, while it was determined by two participants that the new teaching program of Science and Technology course was at a higher level for the low ability students and the teachers were still not ready for the program, one participant stated that the concept maps were too complicated, the visual materials were insufficient for some topics and the active participation of the students were not provided yet. Moreover, two participants complained about having too many activities.

Interview question 2: *"What are the topics which the students have the most difficulty in understanding? What is the reason for it? "*

The answers given to the question 2 by the participants can be categorized under three main topics: Topics in the Curriculum, the Prejudices of the Students, Lack of Motivation- Not Studying Enough. The topics which the students have the most difficulty in understanding can be listed as the topics based on mathematics, abstract and formula based topics, topics which are not visual, and the topics which include mostly the physics course. According to the teachers, among the reasons for students having difficulty in understanding these topics are the prejudices they have, lack of motivation and not studying enough.

Interview question 3: "*What are the reasons for the low net average of science and technology course in SBS and DPY exams?"*

Can you evaluate it depending on a) curriculum, b) student activity, c) teacher, d) the other factors?

The answers given to the question 3 by the participants can be categorized under four main topics: Student, Teacher, Curriculum and the other factors.

Interview Question 4: "*It was found in the last SBS that the net average of science course was 5,25 in the 8th grade, 5,29 in the 7th grade, and 6,39 in the 6th grade. Is this net average enough? What are your suggestions to raise the net average?*"

The answers given to the question 4 by the participants can be categorized under three main topics: Competence, the duty of the teacher and the duty of the parents. All of the participants stated that the success level of the students was unsatisfactory for science and technology course. Most of the participants thought that the success of the students in science and technology course depended on the teacher and the student. Five participants stated that the teachers were required to use different methods and techniques for the students to be successful, two participants said that the visuality should be placed in the foreground, two participants said that the students should be planted with goals and two participants said that the teacher should encourage the students to read books, but one participant stated that the parents should collaborate with the school and the counsellor and make their children read books.

Interview question 5: *"Does the way to teach science and technology course have an effect on the students' understanding the topics?"*

The answers given to the question 5 by the participants can be categorized under three main topics: whether the way to teach has an effect or not, the way to teach and the other factors. All the teachers who participated in the study stated that the teachers' teaching method was effective for the success of science and technology course.

Discussion

According to the results obtained from the study, a great majority of the teachers thought that the topics explained in science and technology course were not understood completely. When the concepts in science and technology course are taken into consideration, theoretical and abstract concepts make their teaching difficult (Tekbıyık & Akdeniz, 2010). The teachers stated that the reasons for this were the course's being abstract and the unexplainable topics' being especially related to mathematics. The teachers within the context of the study stated that the responsibility for the low net average in national exams such as SBS and DPY mostly belonged to the students, then to the problems with the teaching programs, and least to the teachers. Apart from that, the teachers in the study stated that lack of interest of the parents, prejudices and indifference of the students, inadequate course hours, the school and the environment caused the success to fall. Moreover, one of the results revealed was that the way to teach science and technology course had a direct effect on the topics' being understood. It can be stated that this result shows similarity with the result of the study conducted by Avcı (2006). Another result obtained is that the students attended the lesson without being prepared and therefore they could not acquire the desired achievement.

Conclusion

Such suggestions can be made according to these results of this study:

1. The more visual science and technology course is taught, the more the students' levels to understand the topics and relate them to the daily life will increase, so the lessons can be taught visually as far as possible.

2. Different methods and techniques were suggested when the topics were taught in the renewed primary education curriculum. These methods and techniques should be taken into consideration. The teachers can be made to learn these methods and techniques.

3. The success of the students depends on the conscious family environment. Thus, the school administrations can organize various activities in order to be in communication with the families of the students regularly.

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