Recognition and Utilization Status of Laboratory Tools and Materials by the Primary School 8th Class Students

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Abstract: In this study it was conducted in terms of recognition and use status of tools and materials in the experiments that are conducted with respect to the issues of biology and studied under the title of “Science,” by 8th class students of the primary schools. Being prepared with regard to the subject, questionnaire forms were delivered to the students in various primary schools in Ankara. According to the outcome of the assessments of the data obtained from the survey, status of the students regarding the recognition and use of biological laboratory tools and materials is in a better state than those who recognize and use the chemicals laboratory tools.

Key words: Primary education • The teaching of science • Laboratory tools and materials

INTRODUCTION

The concept of education is defined as “a deliberate behavioral change instituted by the individual toward specific targets via his/her own lives, or a development of the individual capabilities appropriately and steadily for the individual and for the community from various aspects,” in the contemporary sense. In the case of a specific interaction, the activity that occurs between individual and its environment is referred to as “life”. Behavioral change of the individual rendered by lasting impression products of life is identified in the contemporary sense as "learning". Teaching is considered to be the use of the appropriate personnel, tools, materials, methods and techniques aiming at reaching the predetermined goals most effectively during the course of a specific learning [1].

One of the basic conditions to reach the objective of the teaching event in the best way is to make to ensure that the laboratory equipment used for teaching are primarily recognized by students. In the education of Science, it is aimed that the children understand the environment in which they live. In majority of the methods utilized in the education of science, teaching tools play an important part. It is obvious that the technique or method merely on paper is not sufficient to teach Science.

In the education of Science, experimental narration method is one of the leading methods. In this method, students would not only hear but also are able to see at the same time. As a result, this method creates a mental image in the mind of the student. Student experiments are fundamental in learning by making and living [2]. In the education of Biology, it is significant to get to know the experiments conducted to make the teaching-learning process more effectively in shorter durations as well as the tools and materials that are the basic factor in understanding of the said experiments. [3, 4]. Therefore, by means of this study, it was aimed at determining the tools and materials utilized by the primary-school level students in the experiments with regard to the subject of biology that is studied under the title of “Sciences.”

MATERIALS AND METHODS

While the survey forms that are in relation to the research topic were being prepared, materials (microscope, lancet, lam, lamella, test tube, dropper etc.) that are used in the experiments of Biology [5, 6, 7] in the primary 6th, 7th and 8th Science class curriculum and chemicals (iodine solution, methylene blue, ethyl alcohol, etc.) were taken into consideration.

Prepared survey forms were delivered to 1200 students studying the 8th class in 30 primary schools in Ankara and data obtained were evaluated as % and shown in Table 1 and 2.
RESULTS AND DISCUSSION

In the scope of the research, 240 of the students (20%) participating in the survey stated that they had never heard and known the materials used in biology laboratories and 192 of the students (16%) underlined that they had known the materials but never seen how they were used in the experiments. 468 (39%) of the total students indicated that they had seen the materials being used in experiments but they had not used them individually and 300 of them (25%) said that they had themselves used these materials in the experiments.

In the scope of the research, 420 of the students (35%) stated that they had never heard and known the chemicals used in biology laboratories and 408 of the students (34%) underlined that they had known the chemicals but never seen how they were used in the experiments. 276 (23%) of the total students indicated that they had seen the chemicals being used in experiments but they had not used them individually and the others, 96 (8%) of which said that they had themselves used these materials in the experiments.

According to the result of this study conducted in Primary Schools in Ankara, ratio of the students that utilize or that have seen biology laboratory materials (microscope, lancet, lamell, test tube etc.) utilized is 80%. Recognition and utilization status for the chemicals used in experiments in relation to the biological topics (iodine solution, methylene blue, ethyl alcohol, etc.) of the students that have personally used them or seen them used in the experiments is 65%. For that reason, status of the students regarding the recognition and use of biological laboratory materials is in a better state than those who recognize and use the chemical laboratory tools in the associated experiments.

In Primary Education, biological topics handled under the name of Science are usually based on research, analysis, observations and experiments. Despite the fact that all the materials and chemicals are available in most of primary school laboratories of our country, the students do not know well these materials due to lack of conduct or insufficiency application for the experiments by the teachers. A research conducted with regard to the experimentation status of teachers in the 1978-1979 school year demonstrated that the number of Science teachers who conduct researches at all times is 45%, 50% occasionally and 5% hardly ever [8]. According to the results of similar research on the subject, application of biology classes in laboratories with practices yet failed to achieve adequate levels [4]. Failure by the teachers to conduct biological education based on experiments causes the students not to know the laboratory tools and materials sufficiently.

REFERENCES