The Science Fair at the 1st Primary School of Sotera as a Means for Developing Investigative Skills

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Abstract. *This report refers to the investigations implemented by 5th-graders at the 1st Primary School of Sotera in Famagusta Cyprus, for the purposes of a school science fair. The activity was organized in collaboration with the Learning in Science Group at the University of Cyprus, as part of an ongoing program for exploitation of the science fair as a mechanism for promoting scientific thinking skills.*

Keywords. Formal, non-formal and informal educational activities, investigations, science fair, scientific thinking skills.

1. Introduction

The Science Fair at the 1st Primary School of Sotera was organized in collaboration with the Learning in Science Group at the University of Cyprus. The curriculum used for the purposes of this instructional activity was drawn from the ongoing research program: *"The Science Fair as a means for developing investigative skills in elementary school"* [1, 4].

According to this approach, the science fair is exploited as an activity for promoting scientific thinking skills through a combination of formal, informal and non-formal educational activities. The science fair at the 1st Primary School of Sotera was organized for two further reasons. Firstly, there was a need for encouraging students to become involved in issues related to science and hence, developing positive attitudes towards science learning. Secondly, the activity was an opportunity for parents to contribute in the learning process.

2. The Science Fair at the 1st Primary School of Sotera

Fifty-two (52) 5th-graders of the school contributed to the science fair. In total, seventeen (17) groups, consisting of 2 to 4 students, were engaged in a process of undertaking and reporting on authentic investigations related to phenomena from everyday life.

Figure 1. General view

The intervention was organized into three parts.

2.1. 1st part: The teaching intervention

The first phase of the activity took place in a formal classroom setting during January 2005. The students were engaged in initial activities aiming at the development of investigative skills. The available teaching material consisted of a handbook for teachers and a student's workbook [1, 3, 4].

2.2. 2nd part: Preparation for the Science Fair

After the teaching intervention, pupils were asked to participate voluntarily in a school science fair. Firstly, they had to choose a topic related to their interest and work collaboratively to formulate answers. They could choose a topic from a given list or suggest a different one. They could also look for ideas on the program website [4].

Figure 2. General view

In this part of the activity, the students were engaged in a process of designing valid experiments, collecting data and formulating answers to their questions. They also described their procedures in an investigations' booklet [2].

In preparation for the science fair, the pupils created posters for displaying their investigative procedure and their results. Moreover, they designed interactive activities, aiming at the involvement of visitors to the science fair in their investigations. Parents and teachers contributed to childrens' efforts during this phase in informal ways.

The students' projects undertaken for the purposes of this science fair focused on investigating factors that influence for example the growth of plants, the stability of hands, the flight of paper-made airplane models or the distribution of sound in guitars made by simple materials of daily use.

Figure 3. Which factors influence the characteristics of sound produced in music bottles?

2.3. 3rd part: The Science Fair

The Science Fair took place on the 21st of April 2005. A special invitation was prepared for inviting students from other schools, educators, parents and the general public to our Science Fair.

Figure 4. The invitation

During the science fair day, pupils interacted with the visitors in a non–formal way. They presented to them their investigative procedures and their results. Whenever it was possible, the students illustrated their experiments to the public. In some cases, ongoing investigations were implemented with the participation of the

public (e.g. Which factors influence the stability of hands?).

Visitors were also engaged in interactive activities organised by the students in order to explain the investigative procedures they had followed or their results. The students often encouraged visitors to become involved in their investigations by giving them nominal prizes and award points. Hence the visitors became engaged in a contest of collecting points.

Figure 4. A general view

Figure 4. Which factors influence the flight of paper-made airplane models?

3. References

[1] Constantinou, C. P. & Learning in Science Group. The Science Fair as a Means for Developing Investigative Skills. Teacher's Handbook (in Greek). Nicosia: Ministry of Education and Culture, Cyprus; 2004.

[2] Constantinou, C. P., Kyriazi, E. & Learning in Science Group. The Science Fair as a Means for Developing Investigative Skills. Investigations' Booklet (in Greek). Nicosia: Ministry of Education and Culture, Cyprus; 2004.

[3] Constantinou, C. P., Papaevripidou, M. & Learning in Science Group. The Science Fair as a Means for Developing Investigative Skills. Students' Workbook (in Greek). Nicosia: Ministry of Education and Culture, Cyprus; 2004.

[4] Kyriazi, E., Kyriazi – Kefala, P. Constantinou, C. & Learning in Science Group, University of Cyprus. The Science Fair: Organizing Science Fairs for Elementary School; 2002. http://www.ucy.ac.cy/lpg/sciencefair/index.html