The Technology Fair as a University – school partnership promoting students' problem solving skills

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Abstract

Science is not just an unalterable collection of facts but an ongoing process of discovering encompassing all areas of life. Science fair projects have long been used as a mechanism for promoting scientific method skills and emphasizing the learning of science through, "doing." Making observations, asking questions, identifying problems, proposing solutions, and interpreting data are skills students need in school and throughout life. This type of education is an important hand's on science activity that emphasizes understanding of fundamental principles in science (Czerniak & Lumpe, 1996, Duggan & Gott, 1995).

The technology fair is a new idea derived from science fair projects that have been taking place for many years in our Group. Technology Fair initiatives encourage inquisitive students to explore their technical environment in a systematic, rational manner. The rationale is that participation in a technology fair stimulates student's interest in science and technology while simultaneously promoting the development of important life skills such as communication, decision making, evaluation of alternative solutions, and critical thinking.

This paper reports the results of a research study carried out in spring 2004. The sample of the research consisted of 100 undergraduate students of the Department of Educational Sciences, enrolled in a compulsory course on Design and Technology for pre- service primary and pre-primary teachers. The purpose of the study was to investigate the influence on the problem solving skills of undergraduate students of a procedure where they worked with primary and pre-primary school children on the completion and presentation of a technology fair project. More specifically, the purpose of our study is to: 1) Enhance undergraduate students involvement and interest in science and technology, 2) Foster cooperation between the University of Cyprus and local schools and learning communities in developing the scientific and technological potential and in enhancing communication skills of young children, 3) To improve our understanding of processes for developing technological problem solving and decision making strategies.

Pre tests and posts tests were administered to undergraduate students both before and after the preparation of the technology fair. The responses to pre-tests and post-tests were analysed using phenomenographic methods. The analysis of the results indicates that the technology fair contributes to the development of positive values and attitudes in science and technology education and has a small influence on improving students' understanding and application of problem solving and decision making strategies within the area of design and technology.