The Role of the Children's Universities in Innovative Learning Activities

Hockicko, Peter, PaedDr., PhD.

Abstract

This paper informs about one of the innovative learning activities organized for the elementary school children by scientists, researchers and university educationists – the Children's University. During the summer holiday the Faculty of Electrical Engineering at the University of Žilina organizes every year since 2005 the Children's University of Žilina. For consolidation of the existing Children's Universities and enhancement of their further growth throughout Europe, EUCU.NET (European Children's Universities Network) was established in this year. The purpose of the Children's Universities is to awaken the interest and the enthusiasm of children and young people, to increase knowledge about science and to promote the interest in science, to improve face to face contact of children and scientists.

Children's Universities - The Idea captures Europe

In February 2009, the 1st International Conference on Children's Universities took place - "Children's Universities - The Idea captures Europe" at the Eberhard Karls University in Tübingen (Germany). More than 120 organizers of the Children's Universities, teachers, researchers, practitioners, sponsors and journalists from all over Europe and even from overseas got together and participated in this event. Two days full of lectures, workshops and vivid discussions depicted an inspiring image of the diversity of the Children's Universities. As some participants said, it was a perfect forum for exchanging experience on running Children's Universities and on the content of lectures, seminars etc., and a perfect occasion to get in touch with other organisers of the Children's Universities. "Quite a number of new thoughts came to my mind in Tübingen", said one of them.

One success of the conference was the international attendance. Most remarkable is the fact that the community of the Children's Universities organizers never had contacts to such an extent. Even within countries some new contacts could be established. Contributors from all over the world participated and learned from each other. This made it possible to discuss a very broad spectrum of issues. Certainly, there was a lot of fruitful discussion. The conference in Tübingen showed the importance of an information network for the Children's Universities as the EUCU.NET - European Children's Universities Network shall be. First results presented during the conference showed almost 200 projects in a running state.

EUCU.NET - European Children's Universities Network

The overriding aim of EUCU.NET is to make Children's Universities more visible. As we could see during conference, there was a diversity of Children's Universities - there is no one model of a Children's University but a broad variety of approaches - depending on local conditions and requirements, on institutional backgrounds and most of all on the overall aims. In this time, more than 100 European universities and institutions have initiated such events. The strategic objective of EUCU.NET is to consolidate the existing Children's Universities and enhance their further growth throughout Europe. It is intended to cement already existing procedures in order to successfully achieve the above aims and to increase interaction among the member countries and to enlarge the extent existing practices in a professional and concerted manner. EUCU.NET wants to contribute to a substantial increase in scientific awareness among children and young people and wants to overcome stereotypes and outdated notions about science in general. It wants to change the perceptions the young people have about the scientific careers in general. All these goals are inevitable prerequisites of fostering the participation of children in all social sectors of society [1].

The objective of the Children's Universities

The objective of the Children's Universities is to improve the contact with the young people in particular and with the public at large. The primary aim here is to undo the reservations the young people have concerning the scientific and academic issues at large. The long-term aim is to awaken the interest and the enthusiasm of children and young adults as well. The main objective of the Children's University is to open up the university campus to the public. There is an innovative fact that the universities specifically aim at the interests of children and young people (older than eight years). Generally the format at all universities is similar. It consists of the organisation of the activities in the form of lectures, exercises, excursions or workshops which are specifically aimed at towards the interests and needs of children. Generally, these activities take place at a university campus either during a specified period of time or as a series of events throughout the year [1].

The objectives of the Children's Universities can be summarized as follows:

- Promotion of the interest in science
- Increased face to face contact of children and scientists
- Increased knowledge about science and scientific careers
- Combating stereotypes and using new technologies

Children's University of Žilina

The Children's university at the University of Žilina [2] endeavors to conduce to solving an extra important public problem – the increase of the education level of the nation with the emphasis especially on the young generation to show the importance of the research and development for the future public improvement. It is necessary to reduce the quantity of encyclopedic knowledge and to underline the requirement of the knowledge depth and creative mind. It is necessary to teach young people to think and not only to absorb presented knowledge, too. The basic aim of the Children's university of Žilina is to bring technical science to the attention of the school age children (8 – 12 years old), to eliminate their respect to such subjects as mathematics and physics, and to near them the meaning of research and the application of its results in everyday life.

The Children's University of Žilina is taking place at regular intervals: once a year, during one week in summer in Žilina and Liptovský Mikuláš. Children attend a series of about 13 lectures. Depending on each single activity, teachers, scientists and researchers prepare for 8 – 12 years old children lectures, exercises, demonstrations and excursions. Our lecturers are the academic staff of universities, especially from the University of Žilina and from the Comenius University of Bratislava (Faculty of Medicine in Martin). For all activities, the venue of the Children's University of Žilina is the institution of higher education: University of Žilina – Faculty of Electrical, Mechanical, Civil, Special Engineering, Faculty of Operation and Economics of Transport and Communications, Workplace of Faculty of Electrical Engineering in Liptovský Mikuláš. We started with this activity in 2005 at the Faculty of Electrical Engineering at the University of Žilina.

Many positive reactions from children which attended Children's University of Žilina were registered in questionnaires. It was absolutely obvious that the laboratory work was most enjoyed [3, 4].

Additional Innovating Activities in the Teaching Process

Slovakia in last few years has been getting through the reform of the educational system. It consists of about two reforms - the first is the reform of regional educational system and the second one is the reform of the university educational system. The main idea of this reform, which appears in the project Millenium, is create a creative – humane educational system with orientation on schoolchildren [5].

To develop the creativity of pupils and improve their relationship to physics, some teachers realize suburban daily camps [6]. In these camps children try to discover famous ideas from school by nontraditional methods.

In grammar school the use of computer simulations seems to be one of the most effective ways to use information technology in physics education. It helps the students to work more actively and supports the developing of their creative thinking [7]. By means of simulations the students can study many situations with different initial conditions.

Some university educators try to change the learning process by setting up supplementary courses of physics and using new modern educational methods such as for example: computer presentations, simulations, animations, experiments and qualitative tasks [8].

Any physics teacher would like to teach the student to use physics, logical and technical thinking that they need in practical life. In order for the students to have positive relation to the study of physics in future the basic idea is to inspire and motivate pupils and young people in such a way that they become interested in science. The Children's University helps us to achieve this goal.

Conclusions

According to the results of the questionnaires [2, 3], children liked the Children's University very much; almost everybody wanted to attend it again. The main reason is the ambition to experience something unique, unusual and not experienced so far. The results of the questionnaires showed that the children's interest in mathematics and natural sciences during the Children's University was much higher than at the elementary schools. It is highly necessary for children to increase the number of the presented experiments, to use multimedia to a larger extent, to develop their imagination and creativity, sense for the team work. Judging by these results from the questionnaires and the children's interest in the Children's University we can suppose that this activity is useful, helpful and inspiring in the learning process of young people. The Children's University is exciting and innovative learning activity and experience outside normal school hours.

Acknowledgement

This work was supported by the Slovak Research and Development Agency under the contract No. LPP-0195-07.

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