

University Support Activities Towards Teachers of STEM

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Abstract

The central mission of the STEM popularization is to inform public and state policymakers on the critical role that STEM education plays worldwide competitiveness and future economic prosperity and to advocate for policies that will improve STEM education at every level, not only at university level or be focused only on high education and talented students.

We try to stress an importance of hands-on, inquiry-based learning activities, such as learning about the engineering and how to motivate young people to study and understand STEM subjects. Our task is to promote science and technology and encourage teachers of STEM to use new methods in teaching to motivate students [1].

1. Introduction

The need to improve teacher education, as well as develop and implement inquiry-based learning methods in this area is very important. The transition from school life to working life is an important aspect of several of the initiatives. One approach to reach the objectives is to invite STEM professionals or university students to schools to encourage younger learners' interest, while another is to enable teachers and students to visit STEM work places [2].

2. Popularization activities

The Institute of Chemical Technology Prague (ICTP) cooperates with research and educational institutions (universities, research centers and schools) in Czech Republic and worldwide, works closely with the private sector, as well as with the media. This cooperation is very useful for popularization activities towards target group.

At the same time we cooperate with the wide public and have an excellent network for cooperation with schools and pre-schools all around the country. With them we have already worked on many projects to promote science and raise awareness of the importance of science and innovation in everyday life. For example Science fair, Science night, Science camps for secondary and primary schools students, ICTP also cooperates with Chemistry Olympiad and many other activities.

3. Public activities to promote science

Last Science fair 2014 was held in September at Prague. There were more than 10 000 pupils, students and general public. It was focused to show science as an interesting and wonderful subject for studying.



Fig.1: *Rousing success of outdoor activities*

Science night is smaller activity, but it also has its tradition. Scientists and lectures of ICT Prague show to visitors what science is and motivates students to study it. The main aim of this activity is to fill in the gap between world of scientist, researchers, science teachers and their students.

Science camp was developed for students who are motivated to science and want to deepen their knowledge. Students get there contacts to scientist and can cooperate with ICTP before they finish secondary school. ICTP get every year great feedback for their science teachers.

4. Activities for teachers



Fig.2: Summer school for chemistry teachers

In 2014 year was 28th Summer school. It was visited by more than 120 chemistry teachers. The ICT Prague organized three days program. There were lectures, labs and excursions and networking activities for teachers and small group of its students.

- ICTP has also organized teacher's trainings and trainings for science communicators and science journalists.
- Regular workshops for teachers are held 4 times per year. The topics of workshops are dependent on the requirements of the teachers.
- Open University days take place every 6 months with special program for teachers and talented students.

ICTP cooperate and had experience with many EU projects (CIAAU, CIAAN, Popuch, STEP, STEP by STEP etc.), European school net organization, with Amgen foundation etc. to promote science to students and motivate them to studying chemistry.

5. Conclusions

We can provide concrete references on dissemination and communication results on the website: step.vscht.cz [1].

National and regional actions include curricular reform favoring inquiry based learning, the establishment of networks of teachers and other stakeholders, teacher trainings, campaigns and competitions targeting students, as well as initiatives encouraging the uptake of STEM careers and the participation of women. The long term goal is to develop a sustainable scientific culture, deep rooted in society, to ensure Europe's contribution to and benefit from a bright future of scientific and technological innovation.

Acknowledgmen

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References

- [1] step.vscht.cz
 [2] http://spice.eun.org/c/document_library/get_file?p_l_id=16294&folderId=16435&name=DLFE-9323.pdf