Science teachers' training in implementing cutting-edge research topics in science classes

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Research shows that students' interest is attracted and they learn more effectively when scientific topics are up to date, based on current research and related to their everyday life (Ellis et al., 2005; Hodson, 2013). These requirements are in general realized in the project Irresistible with the involvement of students, science researchers and science museums in the process of Responsible Research and Innovation based on cutting edge – research topics (RRI, European Commission 2012).

In the context of the Irresistible project in Greece, in the first phase five highly qualified and experienced in-service teachers of primary and secondary education developed and implemented a teaching module on RRI issues using topics from the fields of Nanoscience and Nanotechnology (NST). The teachers were active members in a "Community of Learners" (CoL) consisting of two science education researchers, two nanoscience researchers and three science museum experts. In a second phase under the supervision of the five teachers of the first phase (expert-teachers) 32 teachers (11 primary teachers and 21 secondary teachers) participating in new CoLs (each one involving one expert-teacher and 5 to 10 (out of the 32) teachers) are called to implement in total three of the Irresistible modules developed in the first phase in Greece and in partner countries: a) NST Applications (Greece), b) Plastic–Bane of the Oceans (Germany) and c) Healthy ageing starts with mammae (Netherlands).

In the present paper we will present a study focused on a CoL implementing two of the Irresistible modules in Greece, in particular: NST Applications (Greece) and Healthy ageing starts with mammae (Netherlands). At the beginning of the current school year a kick-off meeting took place where teachers were informed about the main axes and objectives of the Irresistible project. After the meeting the participants answered to six open ended questions in a questionnaire about their expectations from their participation in the project and their needs to implement the chosen module. Subsequently, CoL meetings took place consisting of three main parts: (1) reflection on teachers' needs (2) clarifying the framework of the modules (3) discussing and working on the teachers' individual needs arising from the implementation of the module in their classroom. In addition to the CoL meetings, the participants also received individual support through one-to-one meetings and e-mail feedback from the expert-teacher. So far six meetings were conducted and the study will be completed in April with the exhibition of students' exhibits. Results about the teacher's training by expert-teachers in implementing cutting edge research-topics taking into account RRI issues and in the process of the development of exhibits by students will be presented in the conference.

References

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