

Questionnaire on Physics Education Research and Teacher Education (QPE)

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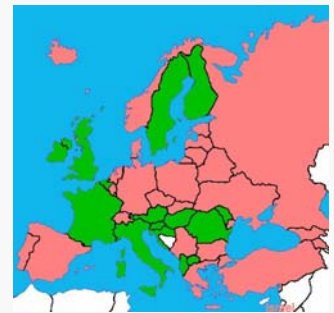
EPS members

Main goals of the QPE

- to clarify the situation of physics education research and teacher education in EPS countries
- to inform about the impact of Bologna process on physics teacher education
- to update a previous questionnaire

Answers to both questionnaires and data analysis downloadable from:

<http://education.epsdivisions.org/documents>



■ answered questionnaires (16)
■ no answers (24)

Preliminary short summary of the analysis:

There are many differences in physics education research and teacher education.

Physics teacher education and educational research (at school level)

About half of the universities offer specific teacher education programs, often after a physics degree. Teachers should have a Bachelor, Master or other degree. The Bologna reform has had no great impact so far but is being implemented increasingly. Specialized lecturers generally take over physics teachers' education, sometimes supported by physicists with interest in this area. Secondary school teachers participate rarely, and then usually as supervisors of "field" activities. There is an insufficient number of professors of physics education; these are found mostly in physics departments. Physics education research on schools is carried out by specifically appointed staff and, in a remarkable percentage, by interested university physicists who devote part of their time to this type of research. Other institutions are rarely involved.

Main tasks of professionals in school-level physics education

Courses in physics and didactic of physics are offered by most countries. The main focus of teacher education is on pre-service programs; in half of the countries, courses for in-service teachers also exist. Visits to schools by professionals are not common. Main tasks are empirical research on the success of teaching concepts and methods, curriculum development, development of new experiments and ICT contributions to physics education.

Research in physics education (at all age levels)

In most countries, the main focus is on secondary school, followed by primary school level and finally university level. The acquisition of research grants for physics education projects is not considered easy. When compared with other fields of physics, answers are divided almost equally between easier and much more difficult. In the last 5 years, the number of PhD students has varied from none in small countries to between 10 and 30 in some of the big ones; globally the number is constant or slightly increasing. Contacts with other physics researchers are few. Some Physics Departments are supportive with resources/positions.

Organization of physics education professionals

Most countries have a physics education community which is professionally organized in about half of them (some in physics or education departments) and informally organized in others. Journals are regarded as an essential resource: Physics Education, The Physics Teacher, International Journal of Science Education, American Journal of Physics, European Journal of Physics. Small and eastern EU countries tend to publish in journals such as Physics Education, The Physics Teacher. Some big countries (France, Germany, Italy) also have journals in their national language. Grants for physics education research come equally from national or EU funds, in some cases from local funds.

Political interest in physics education

No clear trend emerges at ministry and university level; in a few countries, there is growing interest.



Education is a keystone in all EPS activities. The Physics Education Division (PED) was created in 2000 and deals with pre-university and university education:

- Teaching & learning of physics at all levels
- Teacher education and in-service teacher training
- Public understanding of physics/science
- New trends in physics education
- Implementation of the Bologna process
- Differences in EU educational system in physics