Key Action 2 – Strategic Partnerships for school education

ELITe: Enhancing Learning in Teaching via e-inquiries

Agreement No. 2016-1-EL01-KA201-023647

STEM teachers' competence development in Greece

Key messages to be discussed at the Greek multiplier event

The background

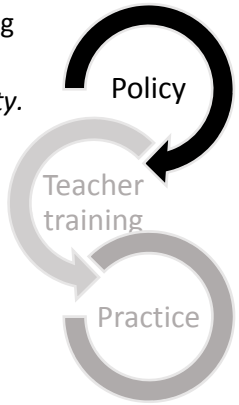
The discourse articulated at EU policy level on ***improving the quality of teacher education*** - expressed for example in EC (2005) [1] - seems to be one the basic drivers of current educational change in the Greek context of secondary teachers' education and training. The issue of ***improving teachers' competences*** is inscribed in both the rhetoric of contemporary political discourse on education (for example in the frame of the establishment of the "***Certificate of pedagogical & teaching competency for secondary teachers***"), and the recent attempted reform initiatives of the 'New School- Student First' (Ministry of Education, 2009) and the 'Social School' (Ministry of Education, 2014).

Against this background, this document reports on the ***key issues*** emerged from the analysis of the ***state of affairs in Greece in terms of Science, Technology, Engineering and Mathematics (STEM) teachers' competence requirements and development,*** conducted in the frame of the ELITe ERASMUS+ project. A ***systemic approach*** has been followed for the analysis, which provides insights in terms of teachers' competences requirements as evident ***explicitly*** in ***policy documents*** (policy level), in ***teacher training curricula*** (teacher training level) and ***implicitly in students' STEM curricula*** (practice level). Prominent issues for consideration that emerged from the analysis are outlined here below.

Prominent issues for consideration on STEM teachers' competence development in Greece

At macro level (policy), new initiatives in terms of teachers' competence development are in line with EU policy frameworks on the issue (EC, 2005; EC, 2013[2]). Major aspects of competences (knowledge, skills and attitudes) that are identified in the Greek reform for teachers' initial training and professional development include:

Knowledge & Understanding: Subject matter knowledge is less emphasised as it is considered as a prerequisite for attending the Programme for acquiring the "*Certificate of pedagogical & teaching competency for secondary teachers*"; most focus is given on building "*professional knowledge*", constituting of PCK, Pedagogical knowledge and curricula knowledge; issues of *inclusion and diversity.*

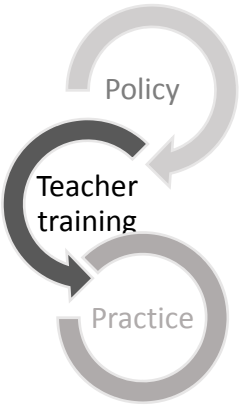


Skills: Most emphasis is given on**:** *using, developing and creating research knowledge* to inform practices; *reflective, metacognitive and interpersonal skills* for learning individually and in professional learning communities; inquiry skills, *collecting, analyzing and interpreting evidence and data* for teaching/learning improvement; using teaching materials and *new technologies*. Some emphasis is given on *collaboration and negotiation skills* with colleagues and parents.

Dispositions, beliefs and attitudes: Most emphasis is given on: dispositions to *change, ongoing learning*; *critical attitudes* to one's own teaching; *transferable* skills; *epistemological awareness.* Some emphasis is given on collaboration and team-working.

Prominent issues for consideration on STEM teachers' competence development in Greece

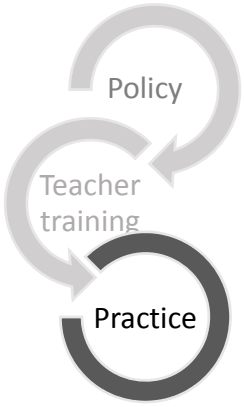
At meso level (teacher training institutions), until very recently the curricula of the undergraduate programmes in science departments were not oriented in educating prospective teachers, but concerned mainly the special scientific field with few references to education and pedagogy (Finnish Institute for Education Research, 2009) [3]. The definitions of competences that teachers are required to possess as evident in teacher training curricula are currently neither explicit nor being detailed described, and tend to be diverse (EC, 2012) [4].



Recent legislation concerning secondary teachers' pedagogical competence is at an early stage of implemeмation by university departments. New curricula are currently developed. Efforts so far neither provide evidence on competence oriented learning outcomes- as teacher curricula remain subject oriented- nor give any insights on innovative methodologies that have the potential to support teachers' competence oriented objectives.

At micro level (students' curricula): There is a high level of coherence between the competences required by teachers and the competences that students are aimed to develop via STEM studies.

Major skills emphasised in students curricula under the current education intended reform 'Social School' (Ministry of Education, 2014) are: Lifelong learning skills; Skills for Responsible citizenship; Reflective and metacognitive skills; Critical thinking; Creativity; Problem solving skills; Risk estimation; Decision making ; Team working; Digital skills.



Main theme for the Greek multiplier event

In relation to STEM teachers' competence development & requirements in Greece, there is a need for **coherence** between was is envisioned in policy rhetoric and what is evident in teacher training curricula. **The role of innovative training methodologies** – as a means towards **supporting teachers' competence oriented objectives** - should be re-considered by teacher training institutions. This could be a step towards bridging the gap between what is envisioned in theory and is implemented in practice.

Structure of the Greek multiplier event

Raising issues	Negotiating	Structuring
Opportunities and challenges in STEM teachers training and professional development for competence development	Propose recommendations for effective STEM teachers training for competence development (take advantage of opportunities and confront obstacles)	Mapping the issues and recommendations onto the onto the EC competence framework and the Greek educational reform framework

References: ***[1]*** EC(2005) Common European principles for teacher competences and qualifications ; ***[2]*** EC (2013) Supporting teacher competence development for better learning outcomes; ***[3]*** Finnish Institute for Education Research (2009) 3 studies to support School Policy Development, Lot 2: Teacher Education Curriculum in the EU, Final Report. ***[4]*** EC (2012) COMMISSION STAFF WORKING DOCUMENT Supporting the Teaching Professions for Better Learning Outcomes