



Enhancing
learning in
teaching via
e-inquiries

Thematic areas of the ELITE project STEM teachers' professional learning activities

The ELITE project scenarios for STEM teachers' professional learning correspond to **thematic areas** relating to current challenges for STEM professional teaching and learning, outlined here below:

- Dealing with inclusion and diversity
- Teaching STEM for skill development
- Incorporating RRI in STEM education
- Innovative STEM methodologies (IBL & project work, self-directed learning, computational thinking)
- Opening up school science
- Assessment challenges in STEM
- ICT enhanced STEM learning and teaching
- Confronting challenges of new curricula
- Enhancing teachers-parents collaboration

Input for the selection of the thematic areas has been provided by a) the national requirements for STEM teachers' professional development (documented in IO1 <http://www.learning-in-teaching.eu/index.php/en/intellectual-outputs/io41>) and b) the identified opportunities and challenges for STEM teachers' competence development in the four countries that will implement training activities in the project (documented in IO3: <http://www.learning-in-teaching.eu/index.php/en/intellectual-outputs/io3>).

Thematic map of the ELITE digital scenarios

The chosen thematic areas by each country show common problems and *gaps* in STEM teachers' professional development in different countries, as they are listed in the table below:

Thematic areas	Scenarios in each thematic areas in the national contexts of...			
	GR	NL	BG	ES
Inclusion and diversity	Reflective practice for tackling inclusion and diversity issues in STEM classrooms		<i>Neither sees nor hears, but succeeds</i> /researchers with SEN in school/ Creating a learning design for successful learning through Inquiry based learning approach of pupils with SEN	Dealing with diversity in education: gender differences, learning styles, personalisation,etc.
Teaching STEM for skills development	Promoting students' achievement in STEM: Changing perspectives from knowledge acquisition to skills development	Learning to design Inquiry-based learning with DoJoIBL: an exploration		Design of good IBL activities based on DoJoIBL for teaching and learning
RRI in STEM education	Dealing with controversial socio-scientific issues in contemporary science			Strategies for introducing socio-scientific issues in the classroom: dilemmas, controversies, conversations.

Innovative STEM methodologies (IBL & project work, self-directed learning, computational thinking)	Design and delivery of an interdisciplinary STEM project	Self-directed learning for professionals in Education. An online master-class for teacher, teacher educators and students of master of science in Educational Science interested in the topic of self-directed learning	<i>Detectives in the classroom</i> IBL approach in STEM discipline (how to design, deliver, conduct and evaluate IBL education in STEM)	Overcoming key difficulties of Inquiry Based Learning for STEM teachers
		Computational thinking in the (STEM) classroom and beyond		
Opening up the STEM classroom	Opening-up science education: Taking advantage of the potential of informal science education	Learning and teaching in a seamless way (combining classroom learning with learning in the outside world: an introduction (part 1) and designing seamless learning experiences (part 2))	<i>Open air lessons – myth or not...</i> Design of the open air field IBL education in STEM	Approaching STEM in collaboration with scientific centres, and science museums and other other local institutions.
Assessment challenges in STEM	Confronting challenges on IBL from implementation and assessment perspectives	Assessment of 21 century skills with technology: how do you do that in practice? Viewbrics, a tool for assessment of 21st century skills	<i>Measure three times, cut once:</i> Assessment for success (methods, techniques and tools for assessment IBL project work and team work)	
ICT enhanced STEM learning and teaching		Challenges of Inquiry based learning and how to tackle them using DoJoIBL. A design-oriented course for teachers of secondary vocational education (in STEM related domains)	<i>Dream or Reality:</i> Combining "dreams" (online tools, virtual reality, augmented reality and others) and "reality" (real places for educational visits	Emerging ICT technologies in STEM education: computational thinking, robotics, and game-based learning
				Open Science resources: use, adaptation and design of digital resources for the STEM classroom.

Confronting challenges of new curricula			<i>The challenges in the new ICT curriculum for 8-th grade</i> The scenario is dedicated to familiarize trainees with new challenges there and to prepare them for teaching under its framework	
Enhancing teachers-parents collaboration	Overcoming personal bad experiences of parents for STEM success of their children			
	Supporting gender-neutral approaches to STEM at home			

The mapping of the scenarios thematic areas outlined common issues in teachers' professional development which became a base for collaborative discussions about the weak competences, their origin and how they are presented in different countries. The result is development of teachers training ELITE scenarios, having touching points but reflecting the specific audience, needs and situation in each country. Taking a more general look, the mapping table is a base for formulating assumption that they are European wide issues, related to the STEM teachers' professional development, to which solving the ELITE project can successfully contribute. Even more, as the scenarios deals with complex issues, detailed elaboration of the scenarios' objective, goals and workflow are able to outline much more common issues among participating countries although the difference in policy documents and experience.

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