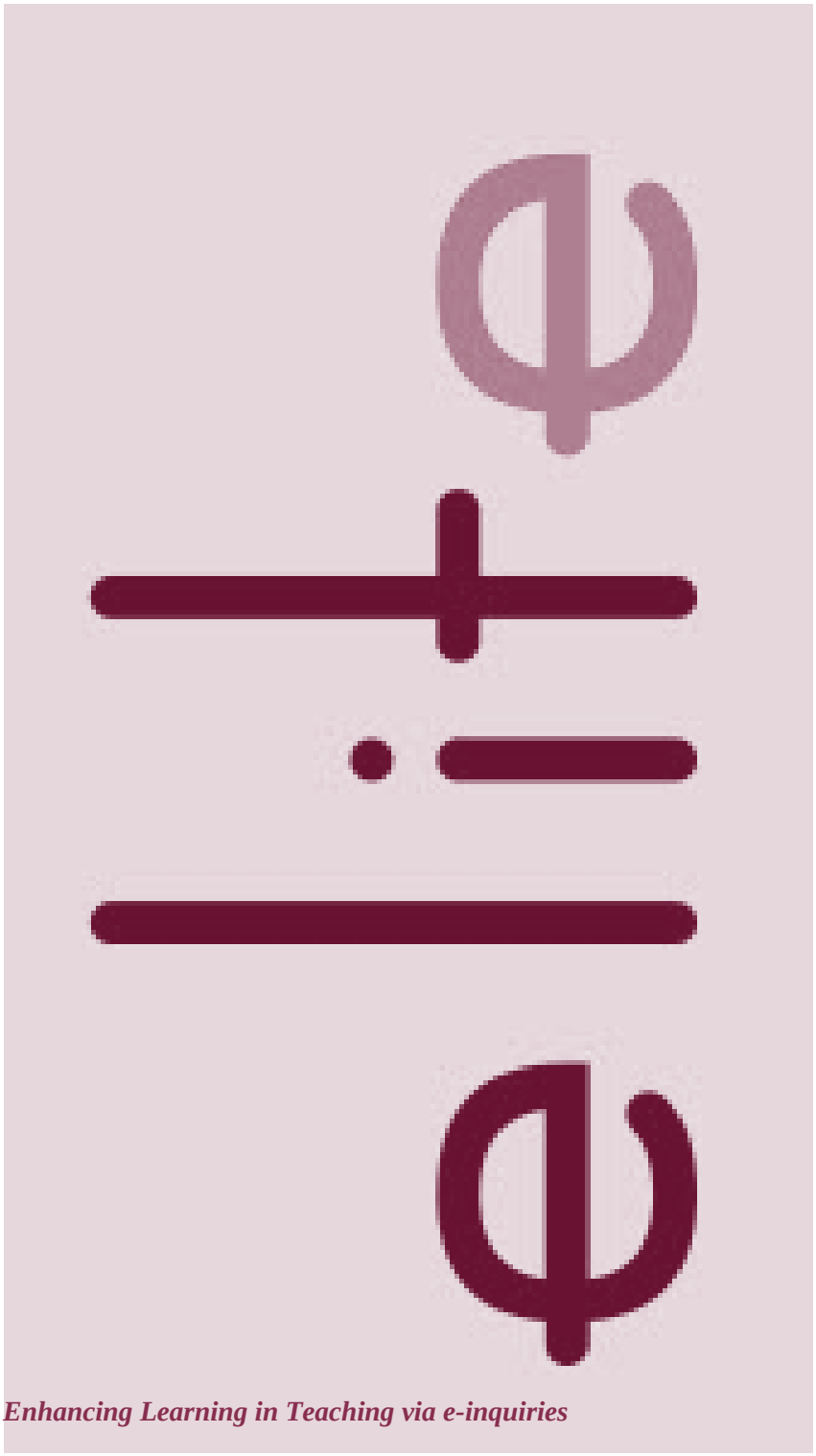

*Enhancing Learning in Teaching via e-inquiries*

Co-funded by the
Erasmus+ Programme
of the European Union

# Key Messages

## Guidelines for STEM teachers' inquiry and reflective practice

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# The ELITe Learning in Teaching via e-inquiries approach

The ELITe (Enhancing Learning in Teaching via e-inquiries) approach supports STEM teachers' professional learning for competence development using an inquiry-based methodology. It builds on the principle that teachers teach in such a way that they were taught.

As opposed to traditional lecture-style, subject-oriented teacher trainings, ELITe provides learner-oriented, flexible professional development embedded in the concept of ***change as professional learning perspective***, that considers teachers as reflective practitioners, responsible for their own learning.

The ELITe project's approach for STEM teachers' professional learning includes the following elements:

- Adopts a place-based approach for STEM teachers' professional learning, taking into consideration national policy requirements and practice needs
- Promotes the adoption of an inquiry-based learning (IBL) methodology in professional learning activities, under the assumption that STEM teachers' training via IBL methodology supports the development of teacher competences
- Proposes such thematic content areas for STEM teachers' professional learning that reflect current policy orientation on the broader aims of STEM education, so as to facilitate teachers to model key competences required (knowledge, skills and attitudes) in order to help students to acquire them
- Is oriented towards facilitating the development of an evidence-based framework for teacher's competence development through IBL methodology

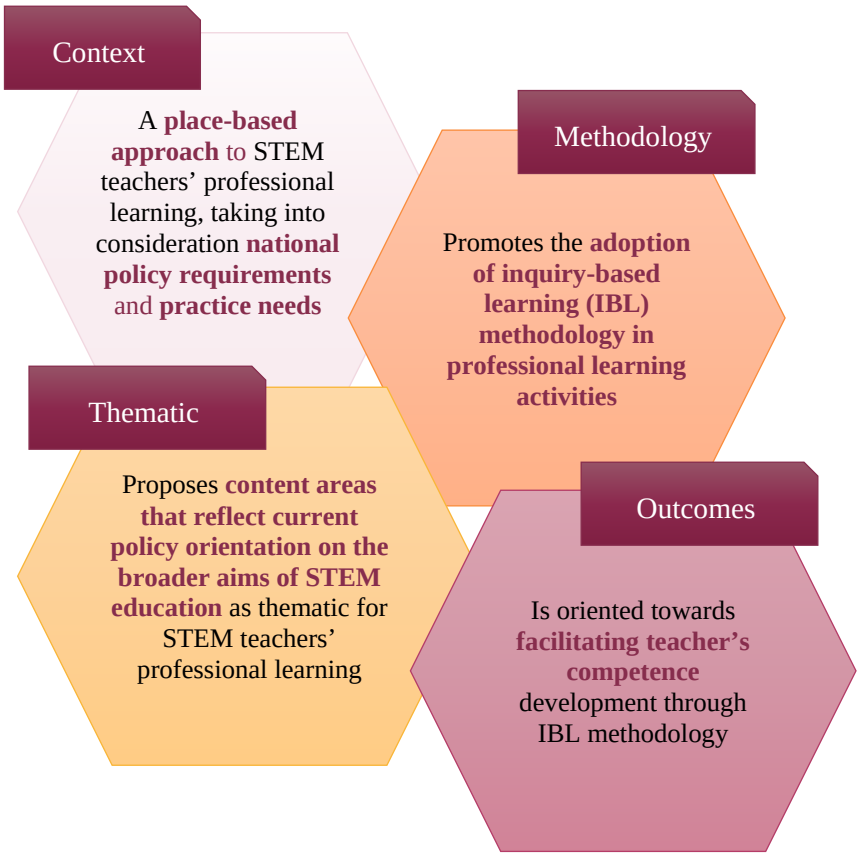



*Fig. 1. Overview of the ELITe's approach for supporting STEM teachers' inquiry and reflective practice in professional learning activities*

The ELITe training methodology supports **inquiry and reflective skills development through inquiry-based learning (IBL)** and provides opportunities for professional development by the use of a free **online platform DojoIBL**, facilitating **personal** and **collaborative** inquiry-based learning. The assumption is that the implementation of IBL methodology in teachers' competence development courses will provide them with real life experience and know-how as well as with a reflection from 'students point of view'.

Teachers' learning activities are structured as learning **scenarios** reflecting the needs and interests of teachers. The scenarios are designed for particular **thematic areas**, representing the fields of teachers' professional development: dealing with diversity and inclusion, fostering students' achievement, teaching cross-curricular skills, student career guidance, teacher–parent relationship and approaches to individualized learning.

The **Handbook with guidelines for STEM teachers' inquiry and reflective practice** provides guidance to:

⇒ **teachers' educators** on how to design, deliver and conduct teachers' professional development trainings ***Enhancing Learning in Teaching via e-inquiries***;

⇒ **teachers** on how to identify needs and corresponding solutions, and how to participate effectively and evaluate the results of an ***ELITe (Enhancing Learning in Teaching via e-inquiries)*** training.

The **best practices examples** facilitate both groups in understanding and following the ELITe methodology as **teacher trainers**, **teachers** and **learners**.

## ELITe Learning in Teaching via e-inquiries process

The ELITe approach considers four levels of inquiry & reflective practice:

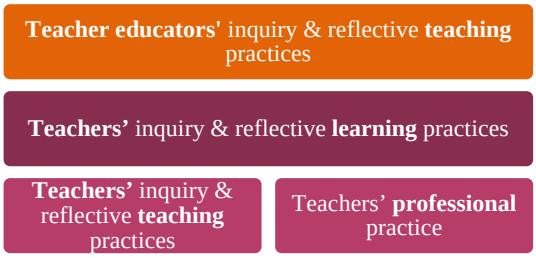



*Fig. 2 Levels of inquiry and reflective practice*

The *Enhancing Learning in Teaching via e-inquiries (ELITe)* process follows the reflective practice cycle **THINK – ACT – VALUE**, looking at reflection as a combination of hindsight, insight, and foresight. It applies an inquiry-based practice of professional development – a reflective practice, covering a variety of qualitative pedagogical research methods – self-study, auto-ethnography, action research, teaching as inquiry, and spiral of inquiry. The inquiry and reflective practice results in critical evaluation of the fast changing teaching context and provides flexibility in professional development during practice. It provides support also by networking opportunities, leading to self-esteem and enhanced team working skills.

The ELITe **path** to developing STEM teachers' inquiry and reflective practice foresees three key stones: **THINK**; **ACT**; **VALUE,** following the **WHAT? SO WHAT? NOW WHAT?** model**.**

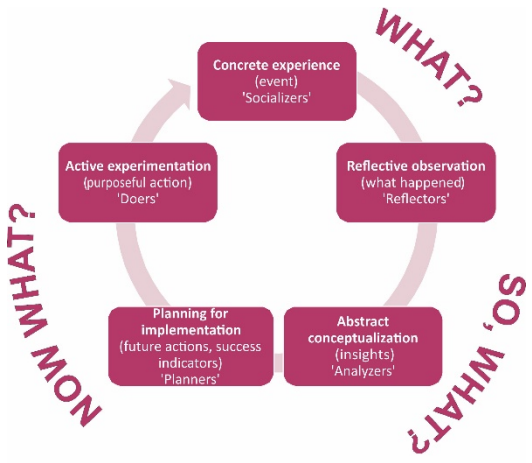



*Fig. 3 Adapted Kolb's model*

**KEY STONE 2: ACT** relates to inquiry-based learning action.

**KEY STONE 1: THINK** is a reflection on the national context.

**KEY STONE 3: VALUE** calls for a self-reflection on lessons learnt.

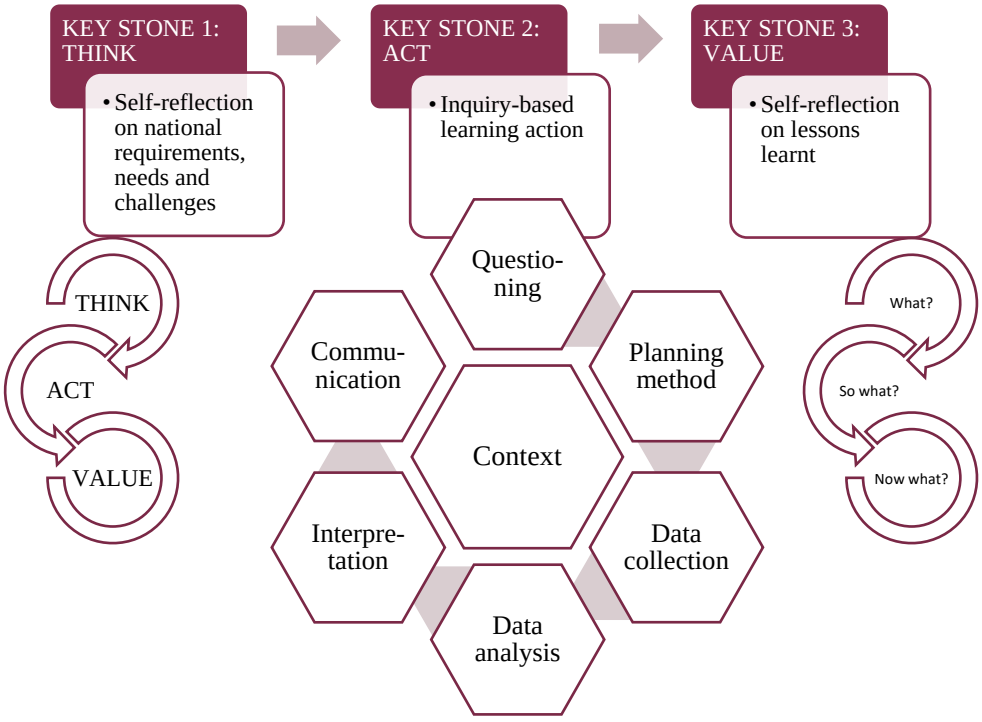


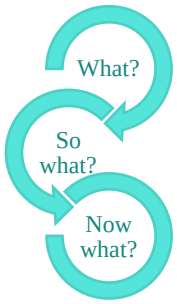

*Fig. 2 Key Stones in the ELITe path for developing STEM teachers' inquiry and reflective practice*

## ELITe Key Messages

### KEY STONE 1: **THINK**

**1**

The ELITe STEM teacher training **design *incorporates interdisciplinary IBL activities for teachers***. Its IBL STEM nature gives flexibility to reflect on different national policies and stakeholder requirements.




**2**

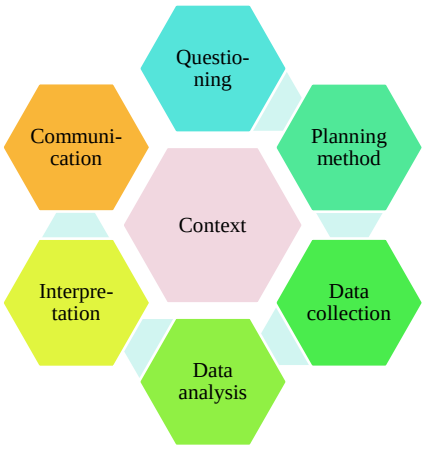
The ELITe **self-evaluation tool** is a powerful instrument:

- For teachers, to evaluate their competences in advance and to choose the most appropriate course. At the end of the training it provides them with a clear picture of their achievements.
- For teacher educators and teacher trainings providers, to evaluate participants' initial professional competences and to adjust the training design in such a way that meets trainees' needs in a most efficient way.

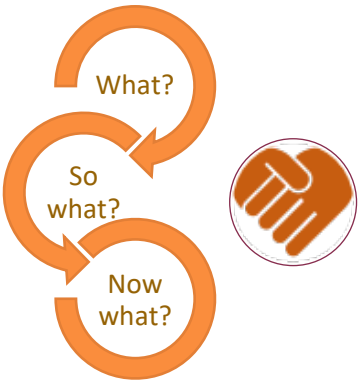
## KEY STONE 2: **ACT**

*3* ELITe STEM teacher training's strength is based on developed **meta-design** involving teachers in IBL process. The full power of the method for teacher educators is reached only when IBL is followed by facilitated reflection.

*4* DojoIBL provides an appropriate **online environment** for effective inquiry and reflective practice for teachers' competence development. Moreover, it plays a powerful role as a resource by implemented examples.




## KEY STONE 3: **VALUE**




*5* **Self-reflection**, facilitated by the ELITe tool is a reliable training assessment method for IBL in STEM teacher training

*6* The ELITe ***Learning in teaching approach via e-inquires*** IBL & Reflective approach provides an environment and conditions for reasonable development of teachers' researcher skills. As an added value, the participation in an ELITe course also leads to development of self-confidence of trainees so that they not only achieve training goals, but can also act as researchers in their own classrooms