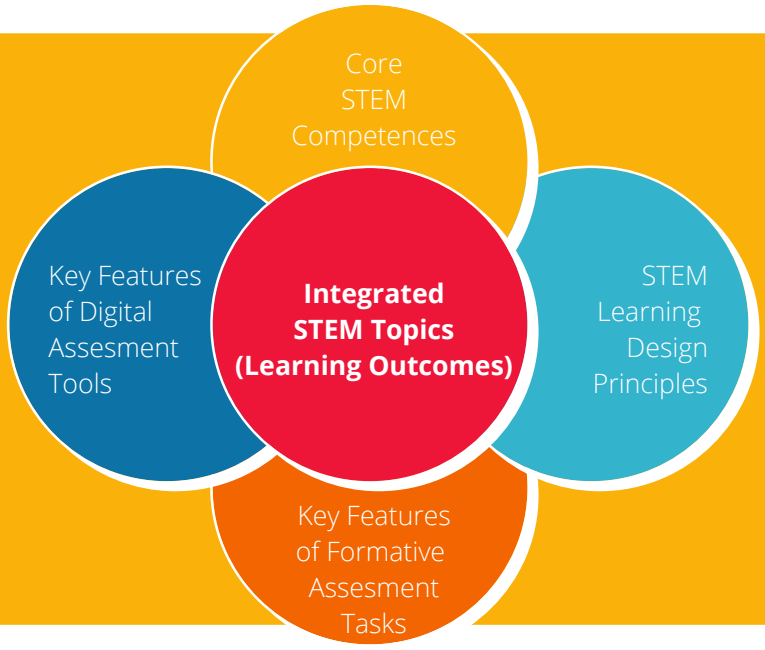
ATS STEM

Assessment of Transversal Skills - Executive Report Summary

This research is part of the European project "**Assessment of Transversal Skills in STEM (ATS-STEM)**", reference: 606696-EPP-1-2018-2- IE -EPPKA3- PI, and documents the research process followed **to evaluate the results obtained in the implementation of the teaching method ATS-STEM** in primary and secondary schools in **7 European countries**.

The research developed focuses on evaluating **the effectiveness of the use of tools and digital support** in the implementation of ATS-STEM educational projects (learning cycles) **in primary and secondary schools** in order to facilitate their implementation and thus the achievement of the core competences ATS-STEM of primary and secondary students. The main objective of the evaluation is to verify **how the support provided by digital tools contributes to the development of transversal competences in students**.



www.atsstem.eu **#atsstem @stem_ats**

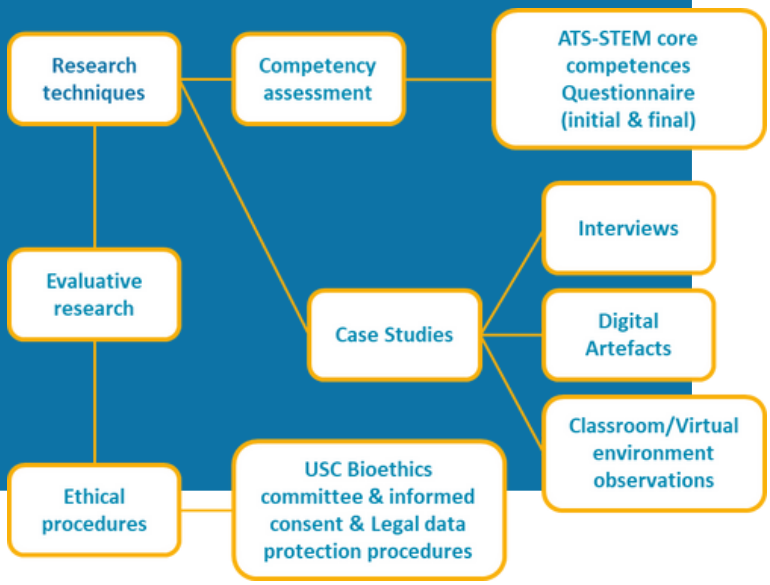
Co-funded by the Erasmus+ Programme of the European Union

METHODOLOGY AND PHASES OF THE STUDY

The ATS-STEM project had a final duration of 3 years and 3 months (from February 2019 to May 2022).

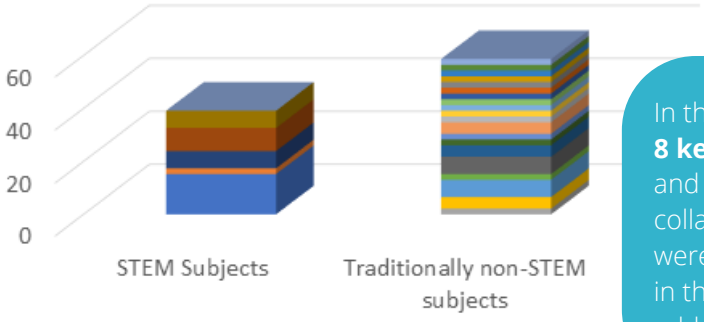
DATA COLLECTION INSTRUMENTS

For the development of **evaluative research, 4 types of instruments** were developed to collect quantitative and qualitative data: The **evaluation test** of the 8 basic competences of the ATS-STEM model, the **interviews**, the **digital artefacts** produced by the students and the **observations in the classroom** and the **activities developed** in the virtual learning environments created for the lessons.



STUDY SAMPLE

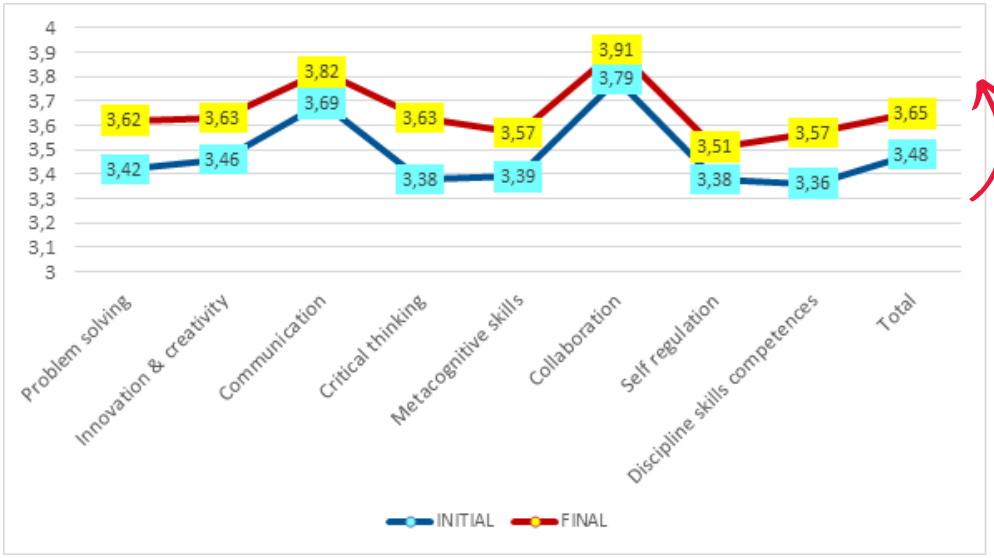
A total of **295** Primary and Secondary School **teachers**, **2925 students** and **88** European **schools** participated in the ATS-STEM pilot.



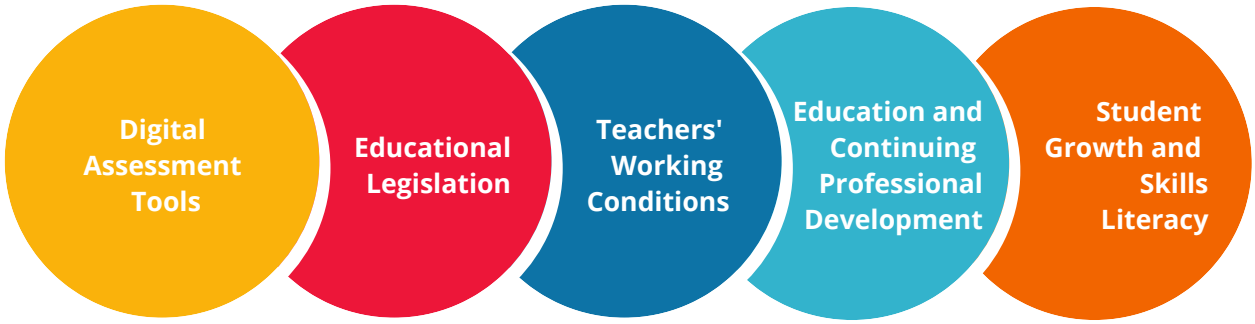
In the ATS-STEM education projects carried out in European schools, the **8 key ATS-STEM learning competences** (problem solving, innovation and creativity, communication, critical thinking, metacognitive skills, collaboration, self-regulation and disciplinary skills and competences) were worked on, although not in the same way or with the same intensity in the different countries. The figure shows which competences were addressed in each country and with what intensity.

In line with the interdisciplinary and globalised learning approach, ATS-STEM educational projects have been carried out in schools in several subjects, both those traditionally considered STEM and, with greater intensity, non- STEM subjects in the humanities, arts and social sciences.

RESULTS on terms of improvement of students' core ATS STEM learning competences



Proposals and RECOMMENDATIONS for stakeholders and agents involved



Digital assessment tools should:

Guarantee **digital autonomy for all students**: using sufficient and relevant (1:1) technology.
Promote the development and availability of digital assessment tools in all schools that are aligned with active, applied and collaborative teaching methods and formative assessment approaches.
Be **institutionally supported** and respond to real pedagogical criteria and educational needs.
Digital assessment tools should include **functionalities** that:

- allow **flexibility.**
- systematise/organise **relevant information** (for teachers and students).
- **guide students** on usage.
- remind users of learning tasks and deadlines for progress in the **learning process**.

Educational legislation and teachers' working conditions should:

Align **national curricula** with active and collaborative approaches of teaching towards **competency approaches**.

Incorporate in the educational legislation of the Member States **formative assessment**, **interdisciplinary and global teaching** at all educational levels as a structural pedagogical principle.

Incorporate **educational innovation** at all levels of educational planning and ensure the necessary structural conditions for its generalisation in EU education systems. There should be:

- recognition of the **time and effort** involved in teachers' daily work.
- recognition in the assessment of **teachers' performance**.
- introduction of **flexible criteria and procedures** for school organisation.

Incorporate **cooperative teaching** between teachers and "pair work in the learning process".

Commit to the **transfer and sustainability of successful and evidence-based results** from publicly funded European educational research and innovation projects in member states.

Education, professional development, and training for teachers should:

Include **methodological models** and **teaching practices** in teacher training plans, strategically due to their potential for transformation of:

- training in criteria for **selecting educational technologies**, in particular digital assessment tools from an educational perspective.
- training for the **integration and use of digital assessment tools** as a suitable resource to support the teaching-learning process.
- **changing attitudes** and building confidence in digital assessment tools and practises.
- Training in **collaborative teaching strategies** ("peer teaching").
- Training for the implementation of **global teaching methods** and **project work**.
- Training for the **implementation of formative assessment approaches**.

Intensify **educational digitalisation plans and training in digital competence** for teachers.

To ensure student growth and skills literacy all stakeholders must:

Include in compulsory education curricula the **training of students in transversal learning strategies and skills**:

COLLABORATION - TEAMWORK - LEADERSHIP - REFLECTIVE AND CRITICAL THINKING - ORAL AND WRITTEN COMMUNICATION SKILLS - ACTIVE PARTICIPATION, FEEDBACK.

Include **digital competences in compulsory school curricula**:

SAFETY - RESILIENCE - ONLINE COLLABORATION - DIGITAL COMMUNICATION - DIGITAL CREATION - INFORMATION SEARCH - CRITICAL THINKING, ETC...