www.ai4t.eu

@ai4t_project

AI4T

AI FOR TEACHERS

Anthony Kilcoyne (IR)

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

The AI4T project

- Erasmus+ Key Action 3 project

Support to policy development and cooperation

- Duration: 36 months

February 2021 – February 2024

- Participating countries:

France, Slovenia, Italy, Ireland and Luxembourg

- 17 partners

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

AI4T
AI FOR TEACHERS

Partnership and Project organisation

17 Partners
5 WPs

Ministries & National Entities

- France Education International – FEI (FR) – Leader and coordinator of WP0 Management
- Ministère de l'Education Nationale, de la Jeunesse (FR)
- Dublin West Education Centre (IR)
- Ministero dell' Istruzione e del Merito (IT) – (associated partner) Leader of WP1 Experimentation
- Service de Coordination de la Recherche et de l'Innovation pédagogiques et technologiques (LU)
- Ministry of Education (SI) – Leader of the WP4 Dissemination and Communication

Research labs

- Institut National de Recherche en Sciences et Technologies du Numérique – INRIA (FR)
- Université de Nantes (LS2N) (FR) – Leader of WP2 Training architecture and resources
- Université de Lorraine (LORIA) (FR)
- H2 Learning (IR) Leader of the WP5 - Quality assurance
- University of Maribor (SI)
- Consiglio Nazionale delle Riserche – CNR (IT

Evaluators

- Conservatoire National des Arts et Métiers (FR) - Leader of WP3 evaluation
- Dublin City University (IR)
- Istituto Nazionale di Documentazione, per l'Innovazione e la Ricerca Educativa (IT)
- Université du Luxembourg (LU)
- Educational Research Centre (SI)

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

AI4T
AI FOR TEACHERS

The AI4T project

Why?

- Support secondary school teachers in the use of AI in the classroom.
- Create a professional learning pathway that promotes the meaningful use of AI resources in the classroom.
- Address contextualisation, acceptability, relevance and usefulness in an educational context.

For whom ?

Teachers of **mathematics**, **science**, and **modern English** languages with classes of students aged 15-17.

What?

From November **2022 to June 2023**, a total of 1,005 educators from 302 schools in the five countries participated in **the AI4T professional learning pathway** large scale experimentation, which included online sessions, face-to-face meetings, webinars, AI4T MOOC and an open textbook.

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

AI4T
AI FOR TEACHERS

Project overview

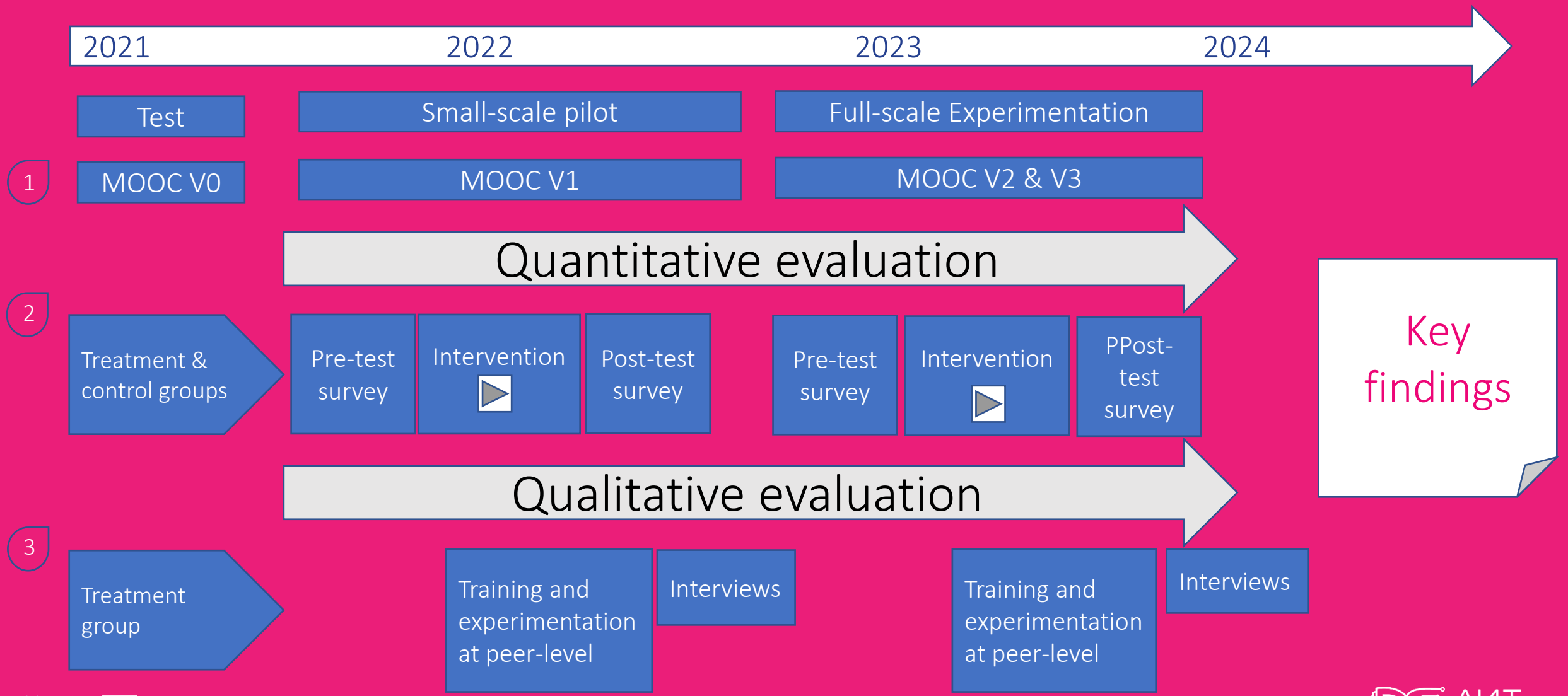
4 Main Phases

- Phase 1: Preparation phase - During the first semester of the project, evaluation tools were prepared and training architecture was created. French IAI MOOC by INRIA and Class'code was adapted to other national contexts.
- Phase 2: A small-scale experimentation took place in the five countries during the school year 2021-202, with a small number of schools
- Phase 3: Large scale implementation 2022-2023
- Phase 4: Impact study. Policy recommendations will be addressed to policy stakeholders.

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

AI4T
AI FOR TEACHERS

Project timeline - Evaluation



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

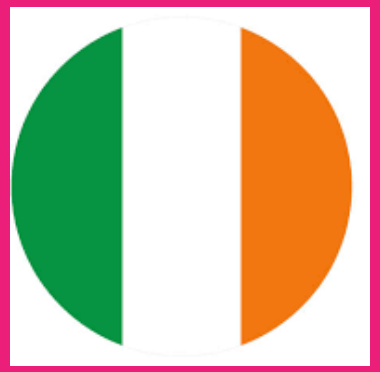
AI4T
AI FOR TEACHERS

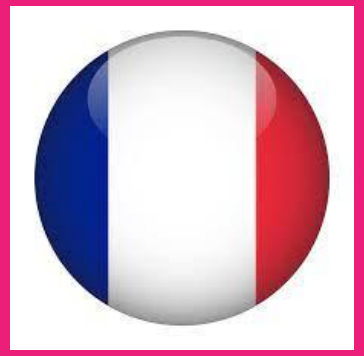
Key elements of Teacher Training

Pedagogical framework

- 5 MAIN OBJECTIVES
  - O1 General understanding of how AI works
  - O2 AI tools for education
  - O3 AI in other software tools(in the classroom and outside)
  - O4 Indirect effect AI can have on education
  - O5 Ethics
- TRAINING PATH: MOOC, textbook, webinars, videos, Zoom_in meetings/networking events
- RESOURCES: common shared proposal of a set of interactive activities for the webinars or in-presence meetings

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





The evaluation

738 teachers

204 school leaders

7551 students completed the questionnaires

88 teachers and 18 school leaders were interviewed.

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

AI4T
AI FOR TEACHERS

The evaluation

The evaluation findings shed light on:

- the state of teachers' knowledge, perceptions and use of AI in five countries at the beginning of the experiment
- the impact of providing professional learning pathways to teachers on their knowledge, perceptions and use of AI in five countries
- the factors influencing the successes or challenges of the intervention and the adjustments that could be made based on teachers' and school leaders' insights

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

AI4T
AI FOR TEACHERS

The evaluation method

- A randomized controlled trial: comparison between a group of teachers taking part in the professional learning pathway and a control group
- A variety of evaluation instruments: surveys, interviews, digital traces

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

Main results

Teachers' pre-experiment perceptions, knowledge and use of AI

- Positive attitude towards AI for education
- Moderate knowledge of AI
- Limited use of AI tools for education

Impact study

- Generally no impact on teachers' perceptions of AI
- Significant impact on teachers' knowledge of AI
- Limited impact on AI use

Feedback from participants

- High level of satisfaction with each part of the professional learning pathways
- Demand for more practical aspects
- Limited access to AI tools

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

AI4T
AI FOR TEACHERS

Sample

		France	Ireland	Italy	Luxembourg	Slovenia	Total
Number of teachers		180	14	275	10	257	**736**
Percentage of teachers per subject	*Math*	55%	50%	31.6%	30%	44.3%	**42.1%**
	Modern language	40.6%	43%	35.6%	50%	35.8%	**37.2%**
	Other	4.4%	7%	32.8%	20%	19.9%	**20.7%**

Particularity: volunteer teachers

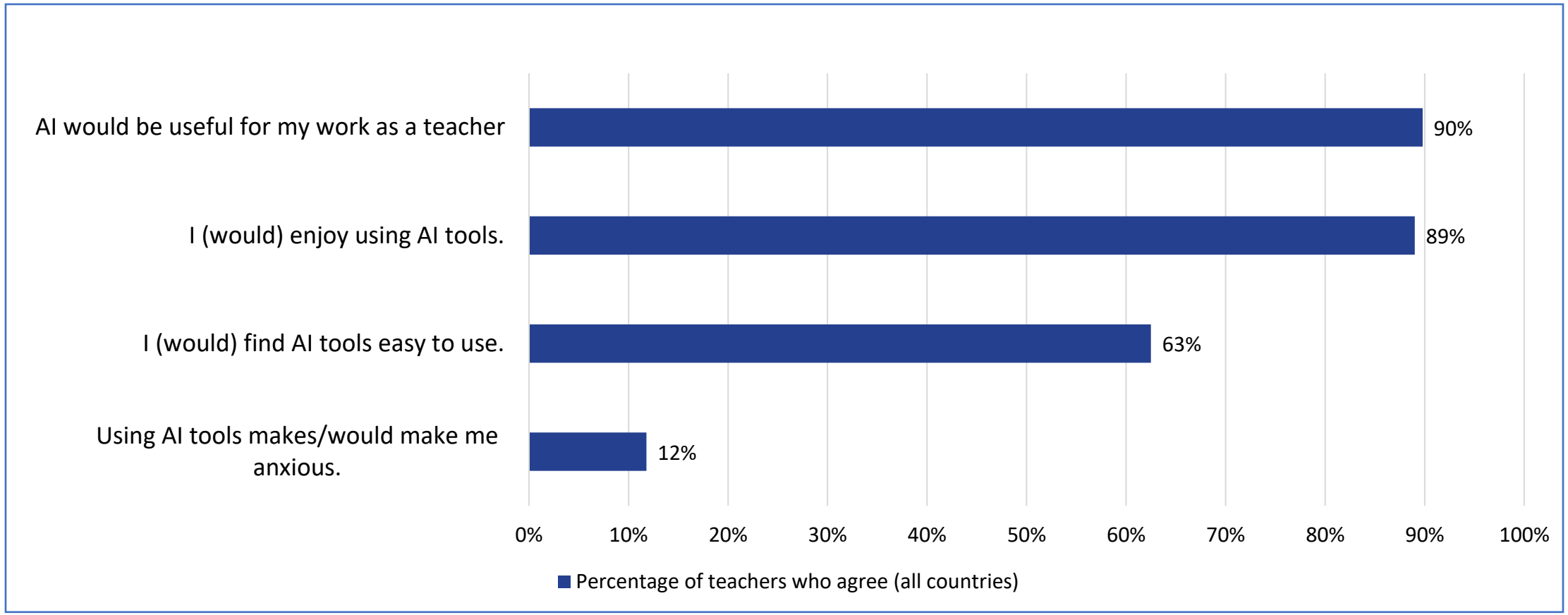
Co-funded by the Erasmus+ Programme of the European Union

Teachers’ pre-experiment perceptions, knowledge and use of AI

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

AI4T
AI FOR TEACHERS

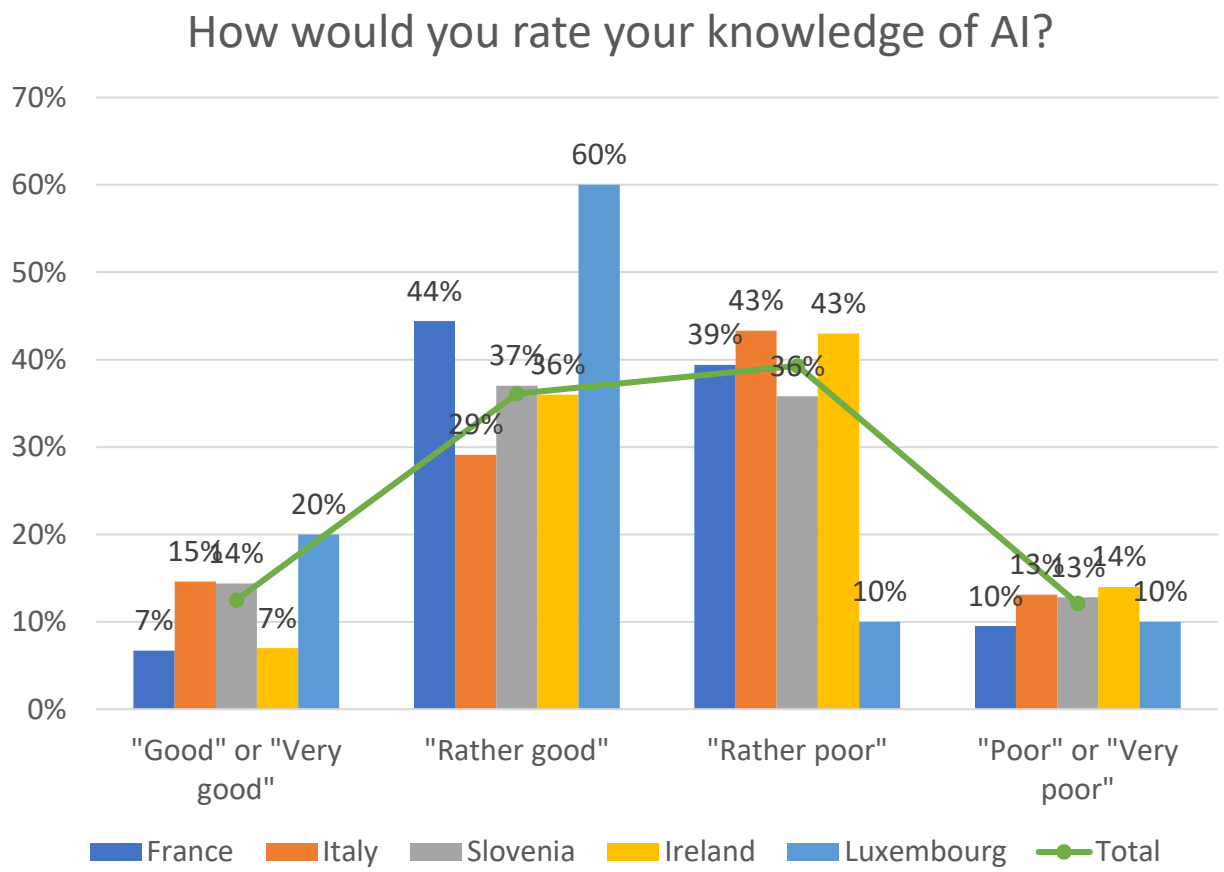
Teachers' pre-experiment perceptions of AI

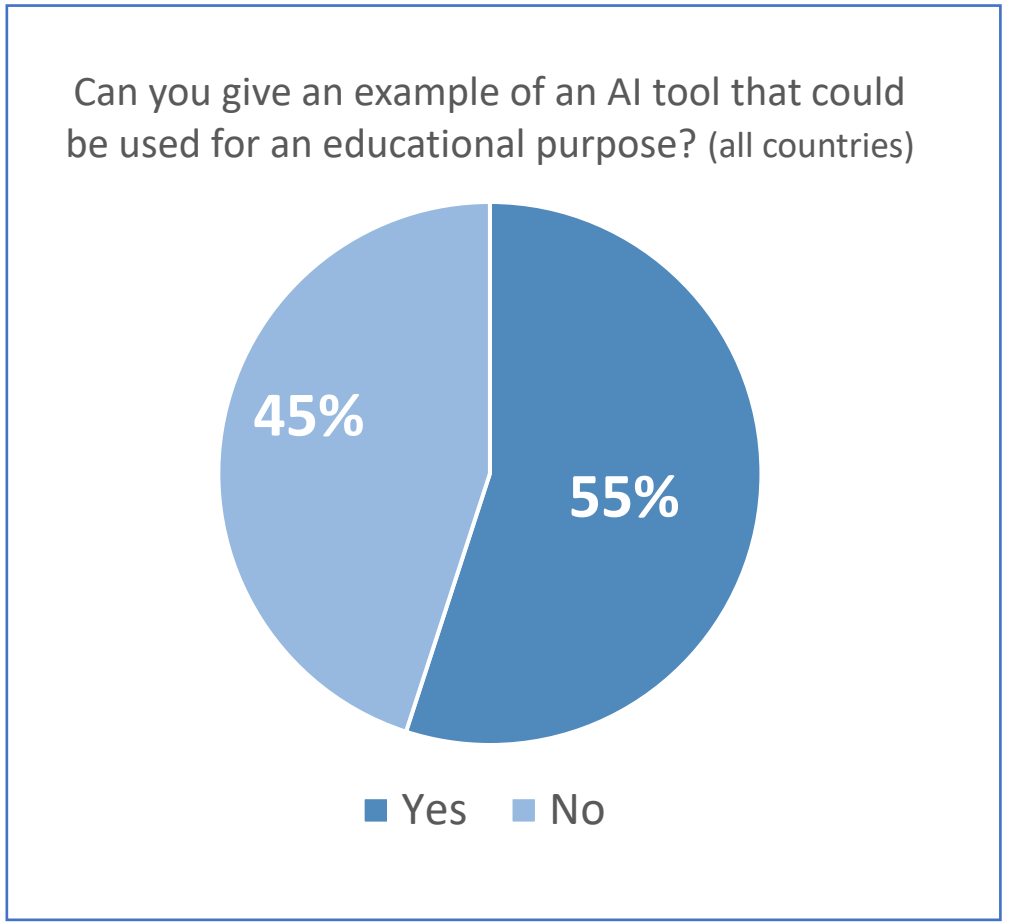


Co-funded by the Erasmus+ Programme of the European Union

AI4T
AI FOR TEACHERS

Teachers' pre-experiment knowledge of AI

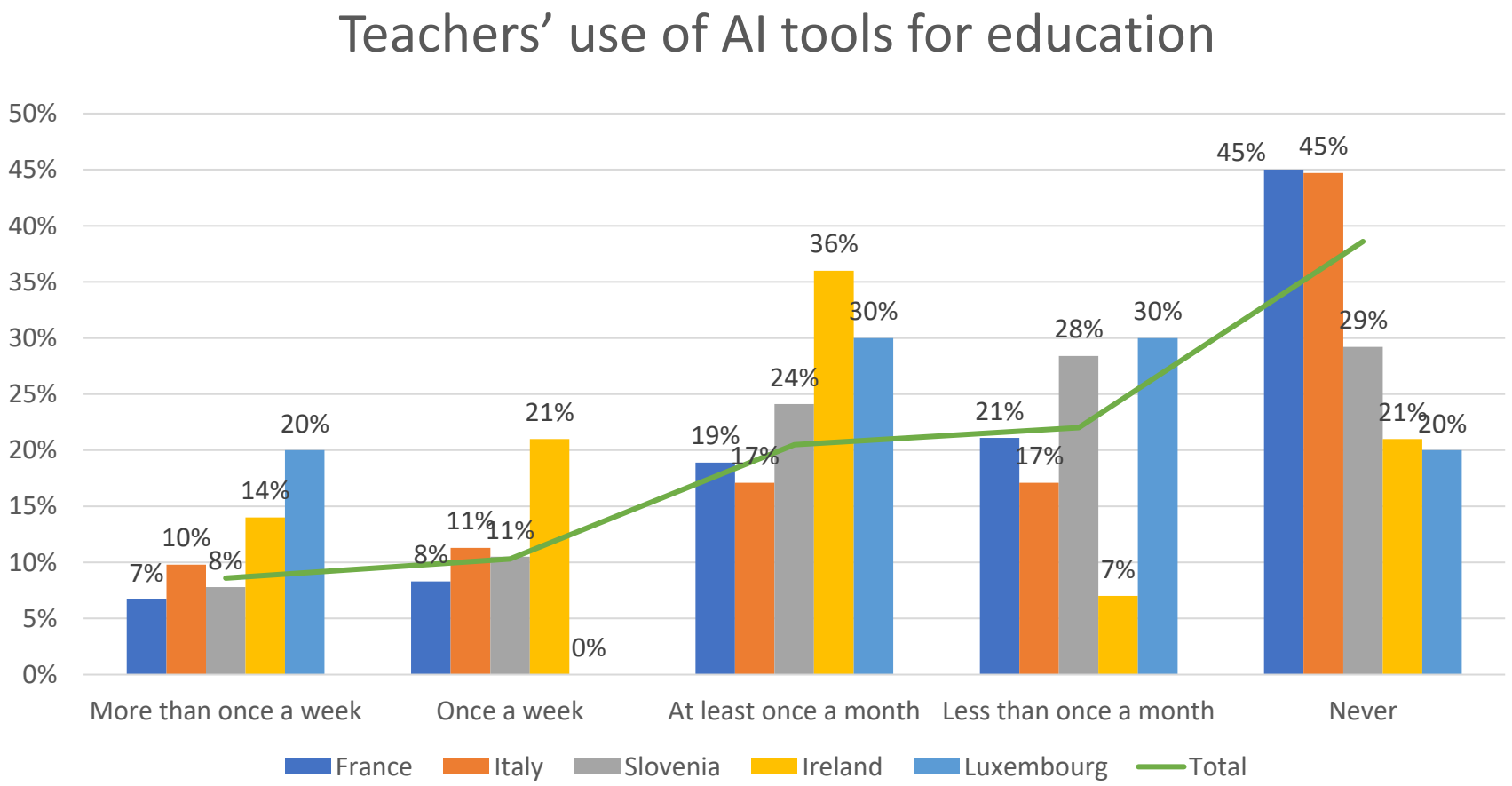




Co-funded by the Erasmus+ Programme of the European Union

AI4T
AI FOR TEACHERS

Teachers' pre-experiment use of AI



33% of Slovenian math teachers used Photomath and 51% asked their students to use it

58% of language teachers used machine translators (all countries)

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

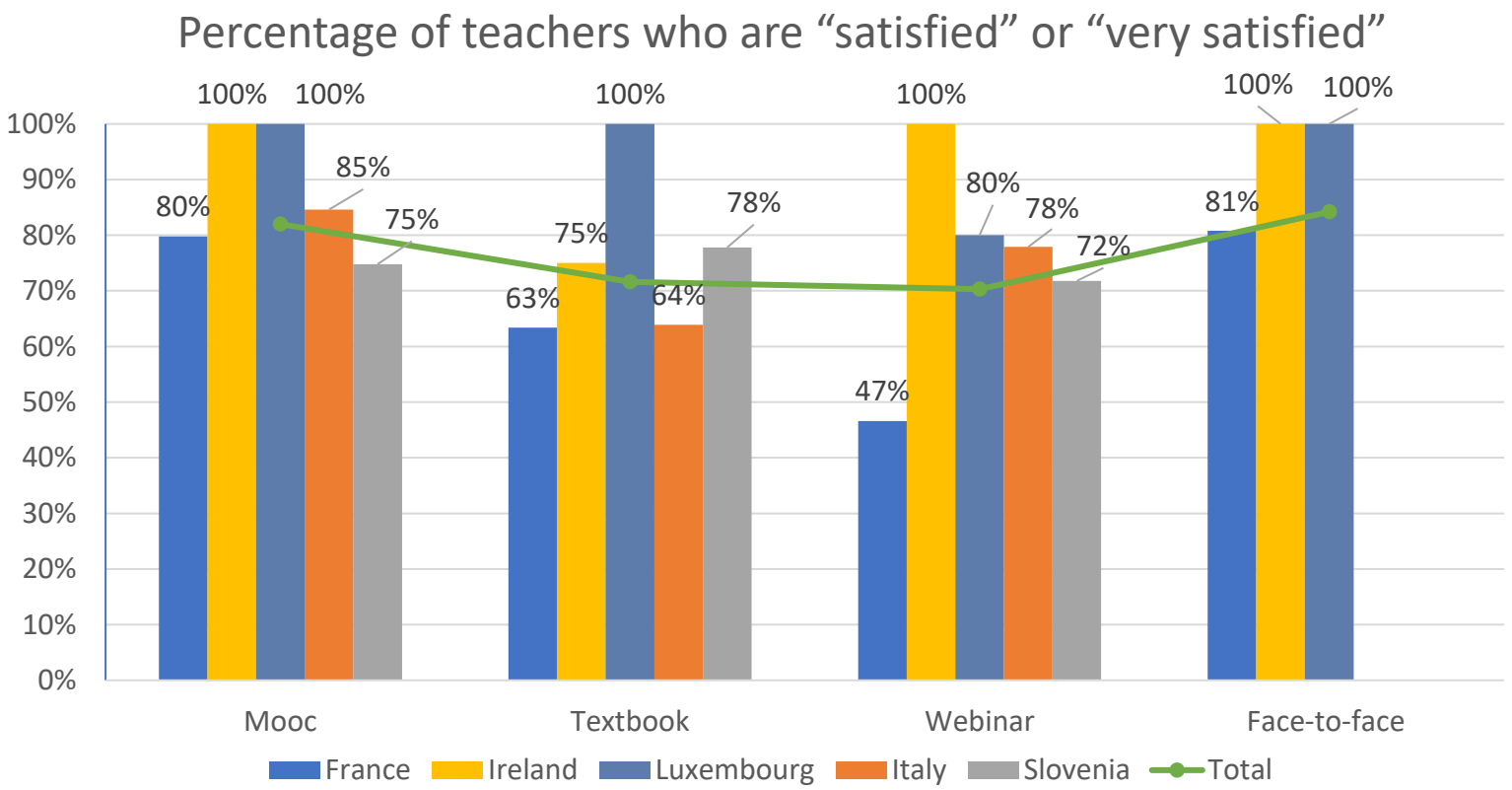
AI4T
AI FOR TEACHERS

Evaluation of the professional learning pathways

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

AI4T
AI FOR TEACHERS

Satisfaction with the intervention



Reasons why teachers were satisfied:

Quality of content
Quality of pedagogical team
Peer-to-peer interactions
Blended-learning (or interactive webinars in Italy)

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

AI4T
AI FOR TEACHERS

Impact of the intervention on teachers' knowledge of AI

Countries*	Self-assessment of knowledge of AI	Knowledge of how AI works	Familiarity with AI technologies	Identification of AI tools as AI
France	↗	n.s*	↗	↗
Italy	↗	↗	↗	↗
Slovenia	↗	↗	↗	↗

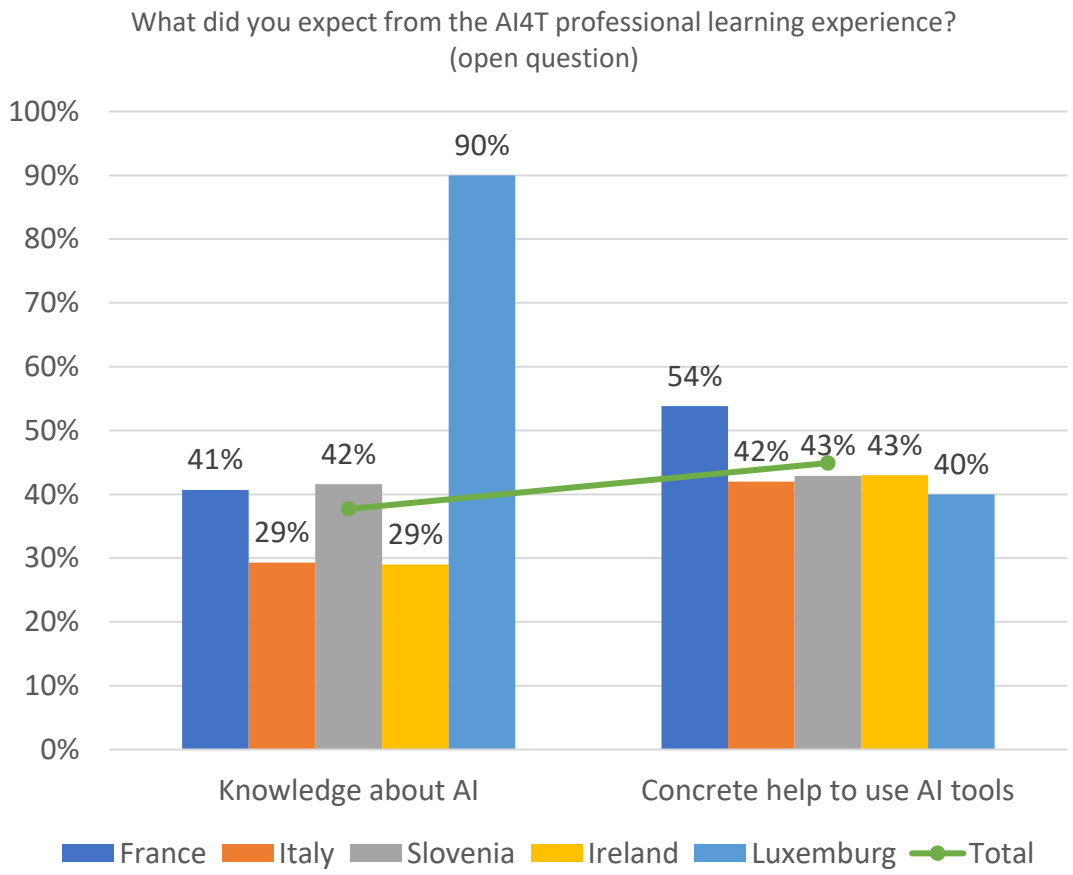
"I learned a lot. What AI is, how it works, how to use it. I've also had a glimpse of the future – where education is going."

*In Ireland and Luxembourg, similar trends are observed on all indicators.
*n.s: non-significant

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

AI4T AI FOR TEACHERS

A demand for more practicality



"I expected more concrete situations from the classroom. How to apply this in a concrete situation. Not so much the theoretical part, although I know we need to know that too. But I would have liked to have been told: in the second year, when dealing with vectors, we can do this and that with the help of AI."

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

AI4T
AI FOR TEACHERS

Main barriers for the use of AI

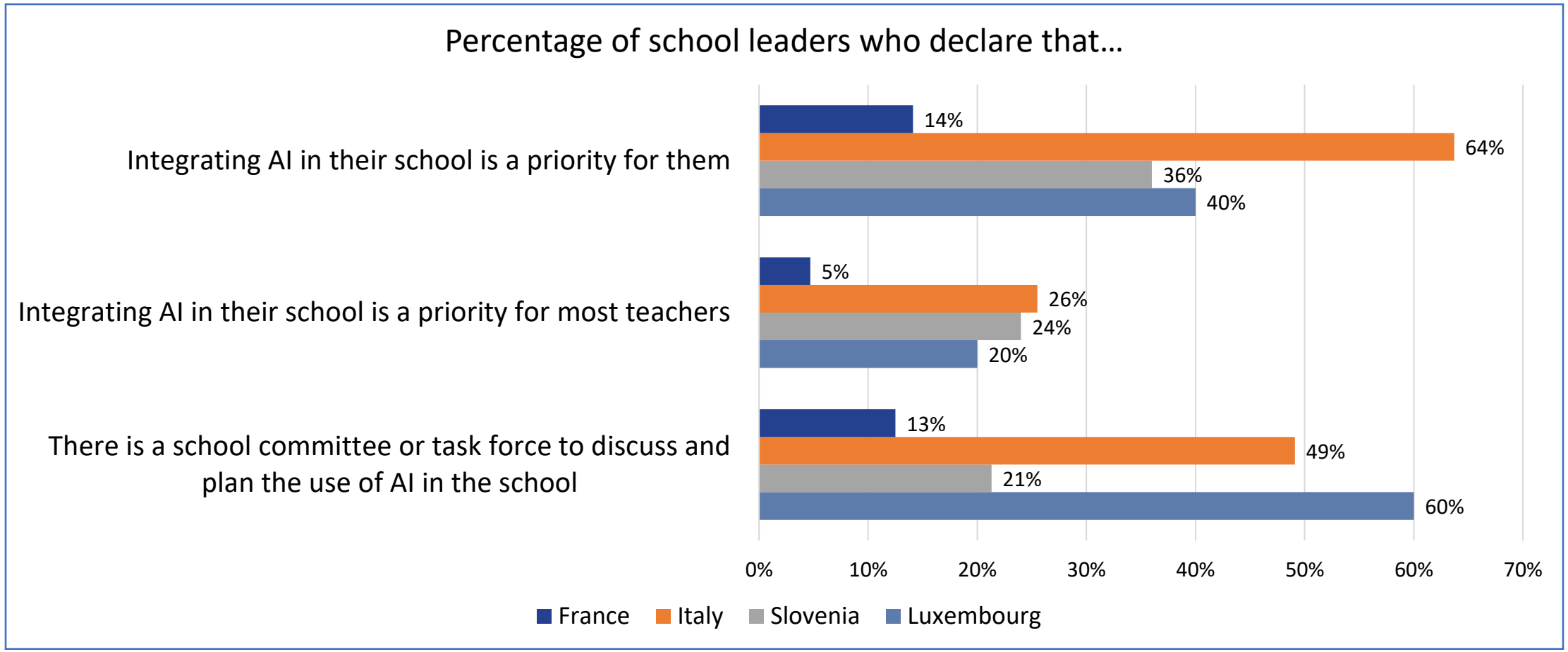
Access to AI tools is complicated by:

- Licence fees
- Non-GDPR compliance and/or directives from administrative authorities prohibiting the use of specific tools
- Tools not tailored to specific school types or grade levels

“We talked about ChatGPT, things like that, but it's a bit delicate to use it. We haven't really discovered a tool that we can use well, authorized by everyone, I believe.”

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

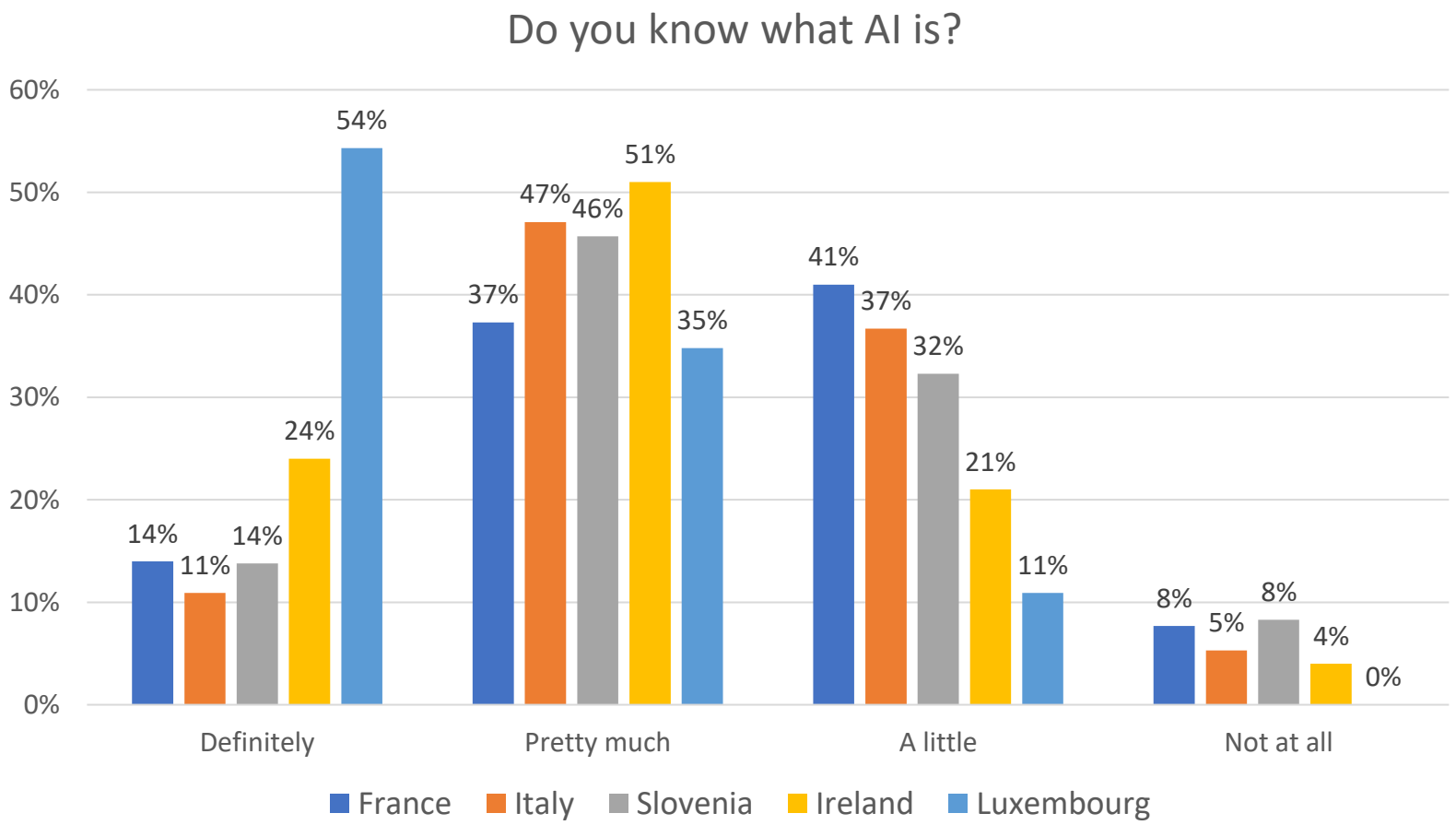
AI integration in the schools



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

AI4T
AI FOR TEACHERS

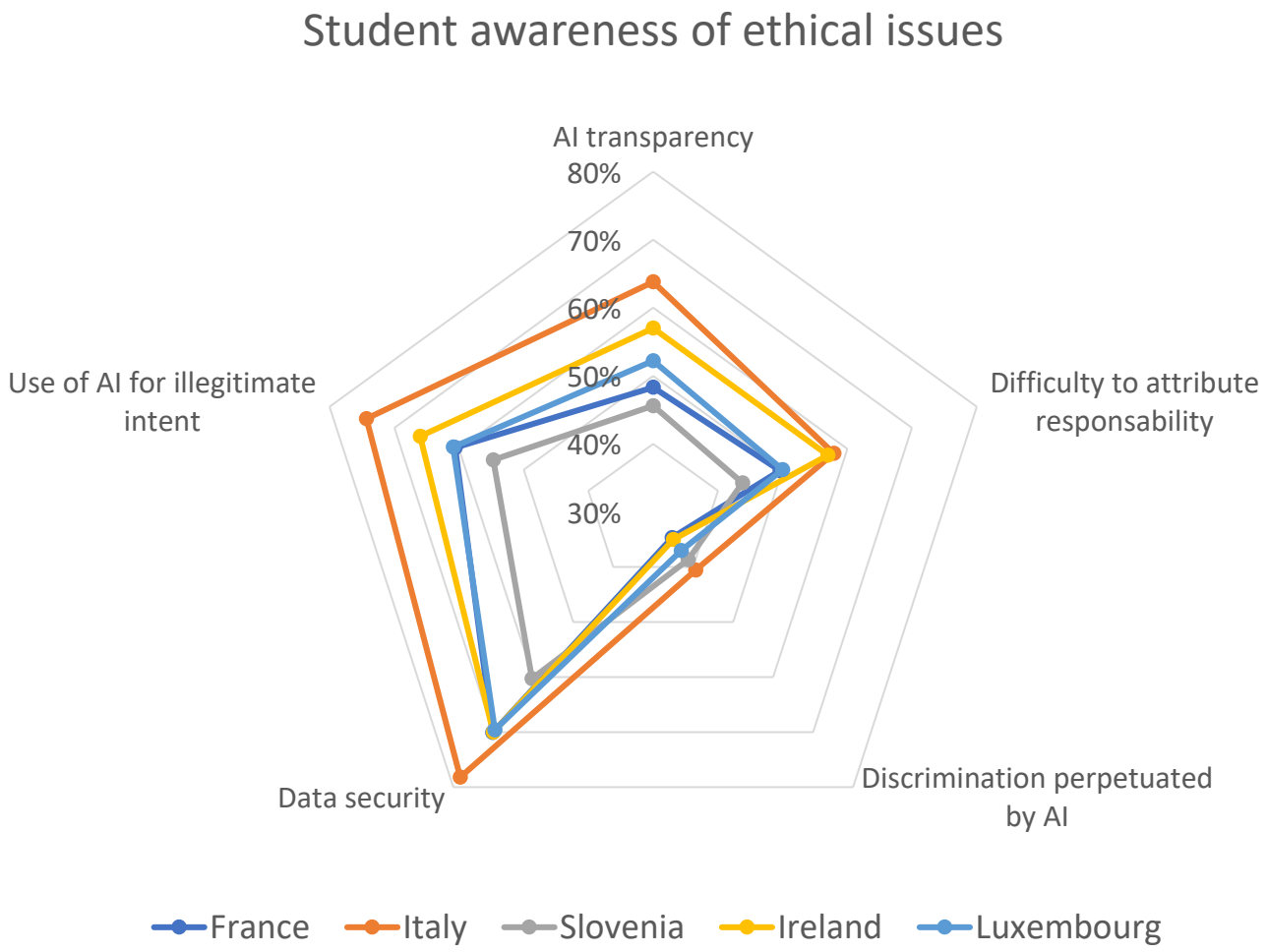
What about students?



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

AI4T
AI FOR TEACHERS

What about students?



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

AI4T
AI FOR TEACHERS

Synthesis – differences between countries

France

Pre-experiment: medium knowledge of AI; low prior use of AI tools
Expectations: practical first
Impact: impact on use limited to math teachers with high levels of self-efficacy for technology
Feedback: high satisfaction

Italy

Pre-experiment: medium knowledge of AI; low prior use of AI tools
Expectations: practical first
Impact: impact on use
Feedback: high satisfaction

Slovenia

Pre-experiment: medium knowledge of AI; higher prior use of AI tools
Expectations: practical & theory
Impact: impact on use limited to teachers with low levels of self-efficacy for technology
Feedback: high satisfaction

Ireland

Pre-experiment: medium knowledge of AI; higher prior use of AI tools
Expectations: practical first
Feedback: high satisfaction

Luxembourg

Pre-experiment: higher knowledge of AI; higher prior use of AI tools
School context: higher school incentives for AI integration
Expectations: theory first
Feedback: high satisfaction

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

AI4T
AI FOR TEACHERS

Insights from teachers and school leaders to support the use of AI in education

- Offering professional development on AI to teachers: prioritizing practical application with theoretical inputs and offering opportunities for interactions with both instructors and peers
- Providing teachers access to AI tools:
  - Access needs to be effective (allowed, free or paid for in the long term)
  - Tools provided should be adapted to school types and grade levels
  - Prioritize tools that alleviate the workload on administrative tasks, lesson creation or correction and that enhance teachers' ability to understand their students, analyse their difficulties and personalise teaching
- Ensuring an ethical setting for the use of AI: data protection and prevention against malicious use (surveillance, influence of private interests, etc.)

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

AI4T
AI FOR TEACHERS

PROJECT BENEFITS

TEACHERS

- Access to professional development training
- Participate in e-community on AI in education
- Develop and share best practices of their professional development

RESEARCHERS

- Research and participate to the further development of AI for teachers
- Cooperate and develop continuous professional development programme plan and resources
- Monitor pilot implementation, collect data and evaluate and disseminate

POLICY MAKERS

- Validated model on teacher training on AI
- Impact evaluation of the pilot and developed model
- Policy recommendations at national and EU level

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

AI4T
AI FOR TEACHERS

Educational Recommendations

AI4T

AI FOR TEACHERS

THANK YOU!

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