M{AI}L

Bridging challenges, enhancing education

A comprehensive understanding of the current use, challenges, and opportunities of AI and ML in the educational sector.

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Introduction

The M{AI}L project aims to integrate AI and Machine Learning technologies, specifically tools like Teachable Machine, into classroom teaching to enhance educational outcomes. A crucial step involves understanding teachers' experiences, challenges, and support needs in adopting such technologies. To gain insights into the practical application of AI in education, data was collected through questionnaires and focus groups with teachers from **Italy, Portugal, Greece** and **Turkey**.

This analysis compares teachers' perceptions of integrating AI and ML into their teaching practices across different countries. The findings reflect the unique contexts and challenges faced by educators in each region, providing a comprehensive understanding of how AI tools are currently used in classrooms, the difficulties teachers encounter and their suggestions for improving the integration of AI into the educational process. The aim of this report is to inform the development of tailored resources and strategies that will better support teachers in using AI technologies to improve student learning outcomes.

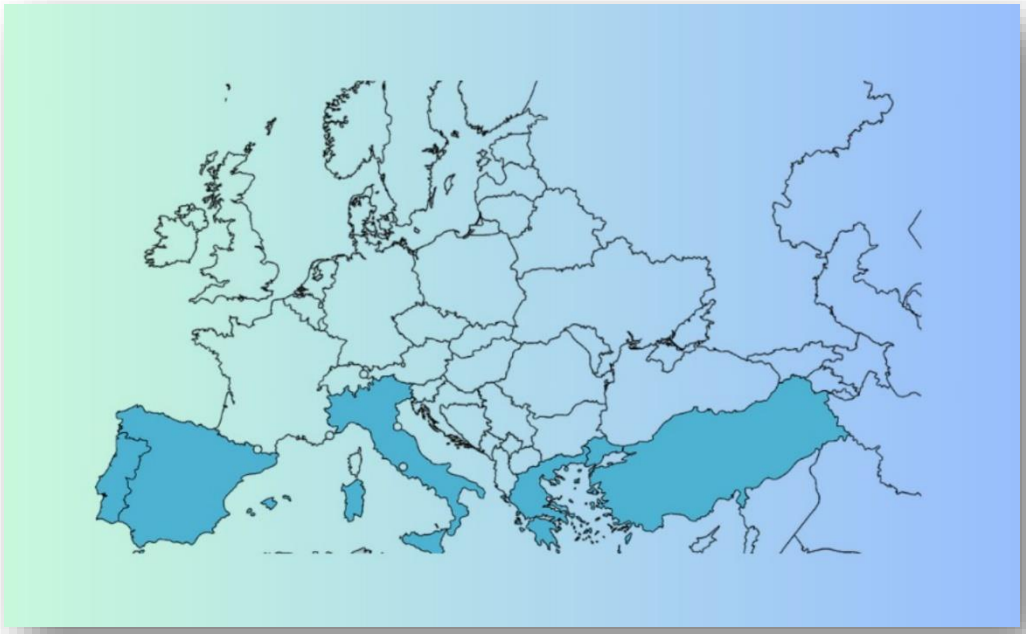

Figure 1 – Project partner's countries

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Questionnaires

Survey Analysis

Objectives

The following chapter presents an analysis of the survey responses gathered from educators in different countries. The survey aimed to:

Explore — the current usage of AI/ML tools in classrooms, particularly how educators are incorporating these technologies into their teaching practices to enhance student engagement and learning outcomes.

Identify — the challenges and barriers faced by teachers, such as lack of access to technology, insufficient training, and concerns regarding AI ethics and its application in education, to provide actionable insights for overcoming these obstacles.

Gather — practical suggestions from educators on how to improve training programs, access to AI tools, and school infrastructure to facilitate the successful integration of AI/ML in the educational environment.

Methodology

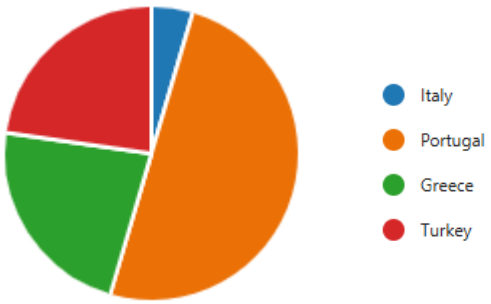
These surveys were held in person at four educational institutions between early and mid-May 2025, involving a **total of 22 teachers** from various subjects and grade levels.

In these surveys, INOVA+ played a central role in coordinating and executing the project by developing and overseeing the guidelines for collecting data from teachers. As the coordinator, INOVA+ ensured that the data collection process was standardised across all involved schools. The guidelines established by INOVA+ served as the framework for the associated schools to follow in gathering information. Additionally, INOVA+ was responsible for analysing the collected data, interpreting the findings, and applying them to achieve the objectives of the project. The associated

schools, including **Istituto Tecnico Economico e Tecnologico "Girolamo Caruso"**, **Agrupamento de Escolas José Estevão**, **Chania Directorate of Primary Education**, and **Özel Fide Ortaokulu**, were tasked with collecting data from their educators in line with the guidelines provided by INOVA+. These schools played a crucial role in the success of the project by ensuring that the data was gathered accurately and consistently.

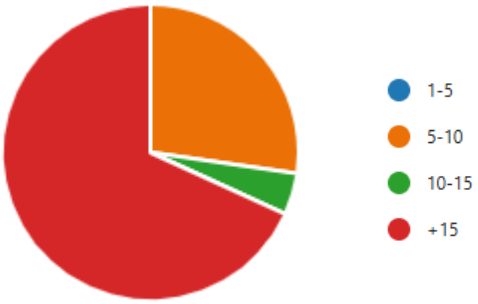
Key findings

1. **Country**



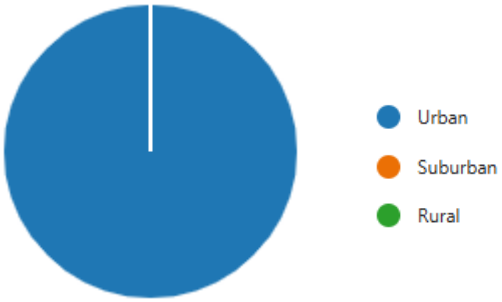
The responses to Question 1 show that **Portugal** has the largest share of participants, with 11 respondents, making up 50% of the total responses. **Greece** and **Turkey** each have 5 respondents, representing 23% of the total responses, while **Italy** has the smallest participation with just 1 respondent, accounting for 5% of the total.

2. Years of Service in Teaching



The responses to Question 2, regarding years of service in teaching, show that most respondents have more than 15 years of experience, with 15 respondents accounting for 68% of the total responses. The second-largest group consists of those between 5-10 years of experience, making up 27% with 6 respondents. There is 1 respondent (5%) with 10-15 years of experience.

3. School area

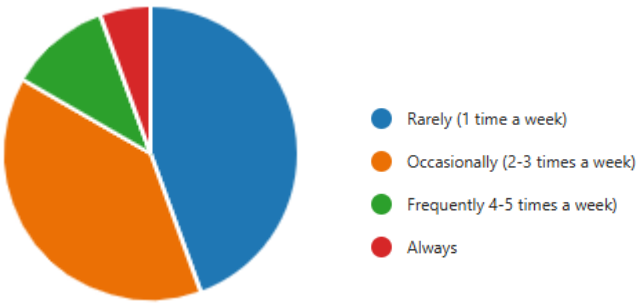


The responses to Question 3, regarding the school area, show that most respondents are from urban areas, with 22 respondents accounting for 100% of the total responses. There are no respondents from suburban or rural areas.

4. **Do you use any AI/ML tools in class?**

The responses to Question 4 show that most respondents (18 participants) use AI/ML tools in class, representing 82% of the total responses. A smaller group, with 4 respondents (18%), do not use AI/ML tools in class.

5. **How often do you use AI or ML tools in your classroom?**



The responses to Question 5 show that the majority of respondents use AI/ML tools rarely (1 time a week), with 8 respondents accounting for 44% of the total responses. The second-largest group uses AI/ML tools occasionally (2-3 times a week), with 7 respondents, representing 39%. A smaller group uses them frequently (4-5 times a week), with 2 respondents (11%), while only 1 respondent (6%) uses them always.

6. **Which AI/ML tools do you currently use in your classroom?**

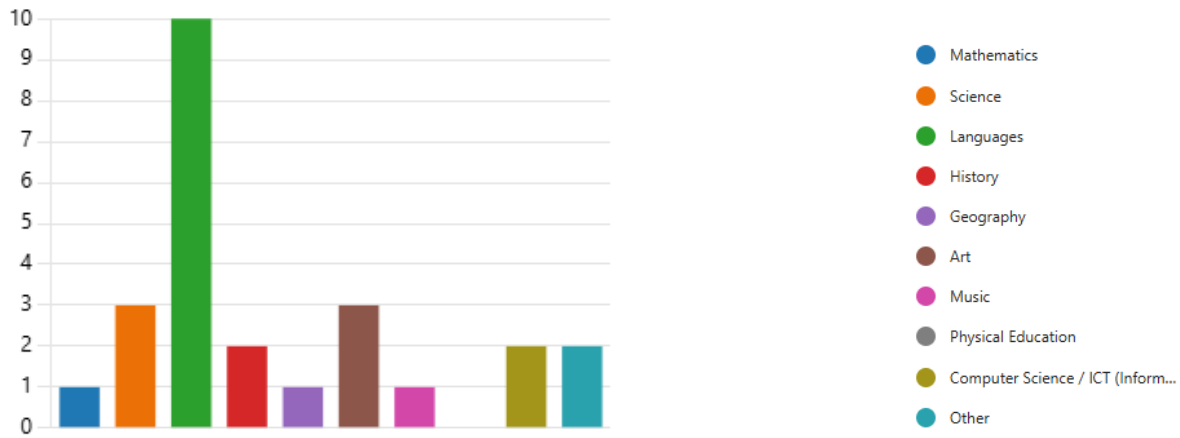
Tool/AI/ML Solution	Number of Mentions	Percentage of Total Responses
ChatGPT	13	72%
Copilot	6	33%
Canva AI	3	17%
Suno	2	11%
Dall-E2	2	11%
Magic School AI	2	11%
Bing Image Creator	2	11%
Padlet	2	11%
Synthesia	1	6%
Scratch + AI Extensions	1	6%
Tome	1	6%
Gamma	1	6%
WordArt	1	6%
WordCloud Generator	1	6%
Diffit	1	6%
QuillBot	1	6%
SlidesAI	1	6%
Meta AI	1	6%
Photomath	1	6%
Geogebra	1	6%

Interactive Manuals	1	6%
Kahoot	1	6%
Teams	1	6%
Class Notebook	1	6%
Virtual Assistant	1	6%
Google Docs/Translate	1	6%
Virtual Reality	1	6%

The analysis is based on 18 responses to Question 6, where respondents were asked which AI/ML tools they currently use in their classrooms. ChatGPT is by far the most widely used AI tool, with 13 mentions, making up 72% of the total responses. Copilot follows with 6 mentions, accounting for 33%. Other tools such as Canva AI, Suno, Dall-E2, and Magic School AI were mentioned by 2 respondents each (11%), while a variety of other tools, including Padlet, Synthesia, Scratch + AI Extensions, and more, were mentioned by 1 respondent each (6%). This shows that while ChatGPT and Copilot are the most popular, there is still considerable diversity in the AI/ML tools used in classrooms.

To conclude, the responses to Question 6 highlight that ChatGPT and Copilot are the most used AI tools in classrooms, with ChatGPT leading by a significant margin. While these two tools dominate, there is still notable diversity in the tools being used, including options like Canva AI, Suno, and Dall-E2, among others. This reflects a growing but varied adoption of AI/ML tools in education.

7. **In which subjects do you use AI/ML to support teaching? Select all that apply?**



The responses to Question 7, based on 25 responses, show that Languages is the most common subject for using AI/ML tools, with 10 mentions, accounting for 40% of the total responses. Science, Art, and Computer Science/ICT each received 3 mentions (12%), while History, Geography, Other, and Physical Education were each mentioned 2 times (8%). Mathematics was mentioned once (4%). This suggests that AI/ML tools are most frequently applied in language teaching, with moderate use in Science, Art, and Computer Science/ICT, and less frequent use in other subjects.

To conclude, the responses to Question 7 indicate that Languages is the most common subject for using AI/ML tools, with the highest level of adoption. While Science, Art, and Computer Science/ICT also see moderate use of these tools, subjects like History, Geography, Other, and Physical Education have relatively less frequent use. Overall, AI/ML tools are primarily applied in language teaching, with varied adoption across other subjects.

8. **How do you integrate AI/ML into your lesson planning and execution?**

The responses highlight a wide range of ways in which AI/ML tools are used in the classroom. **Lesson planning** and **student guidance** are common applications, with tools like **ChatGPT** being

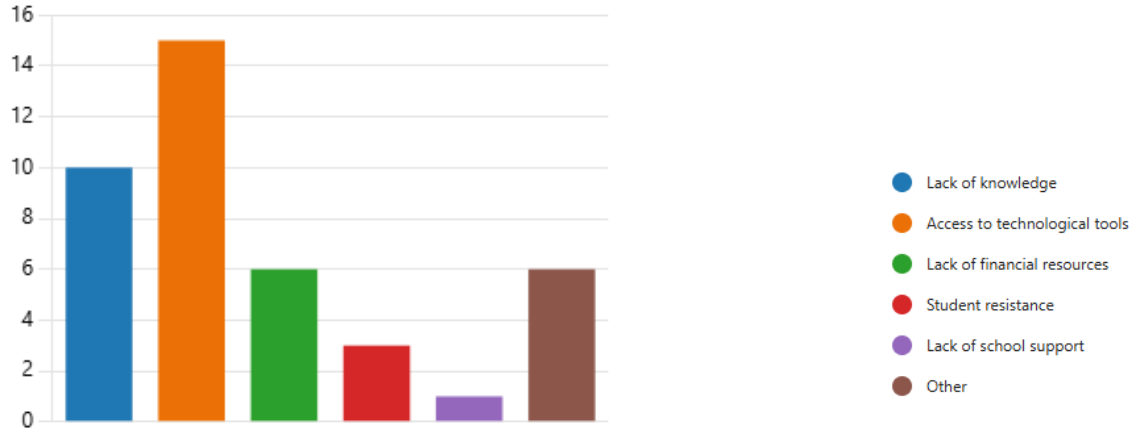
used to select resources and assist in creating engaging activities. Many educators use AI to enhance **content creation**, such as creating **presentations**, **videos**, and **visuals**, or even generating **songs** with tools like **Suno** to engage students. AI also plays a role in **personalising learning**, such as generating **videos**, **quizzes**, and **infographics** tailored to specific student needs.

Additionally, AI is used for a variety of other tasks, including **creative writing**, **research** projects, and **teamwork** activities. Teachers also rely on AI for **differentiating texts, exams, and visuals** and improving classroom engagement through tools that offer instant feedback and facilitate **oral presentations**. The integration of AI is seen as a way to stay **current with technological advancements** and to avoid losing students' interest in a fast-evolving educational landscape.

Finally, some respondents emphasised the importance of using AI in **project-based learning** (PBL) methodologies to create new learning experiences, such as developing stories, analysing texts, and reinforcing vocabulary. Overall, the responses reveal that AI/ML tools are being applied in a variety of innovative ways to support **creative thinking**, **research**, and **language proficiency** in the classroom.

To conclude, the responses to this question reveal that AI/ML tools, particularly ChatGPT, are widely used in various aspects of lesson planning and execution. Teachers use AI to enhance lesson ideas, engage students in creative activities, and create personalised learning materials. Additionally, AI supports teamwork, research, oral presentations, and language proficiency, showcasing the tools' flexibility in improving teaching methods and student engagement.

9. What are the biggest challenges you face when using AI/ML in the classroom?

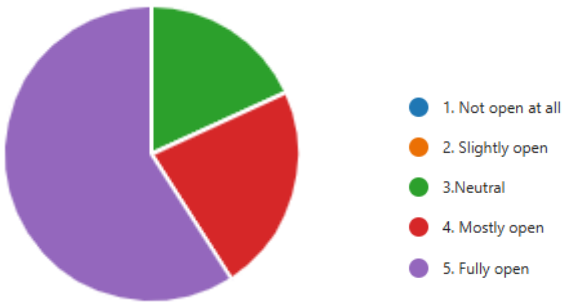


The responses to Question 9, based on 41 responses, show that the biggest challenge teachers face when using AI/ML in the classroom is access to technological tools, with 15 mentions (37%). The second most common challenge is a lack of knowledge, mentioned by 10 respondents (24%), suggesting a need for more training or information to better utilise AI/ML tools. Lack of financial resources was identified by 6 respondents (15%), pointing to budget constraints in adopting these technologies. Other challenges were cited by 6 respondents (15%), indicating additional issues not captured in the predefined options. Student resistance and lack of school support were each mentioned by 1 respondent (2%), pointing to more specific, less widespread challenges. These results highlight that access to technology and knowledge gaps are the primary barriers, with financial limitations and support from the school also contributing to difficulties in integrating AI/ML in classrooms.

To conclude, the responses to Question 9 highlight that the biggest challenge teachers face when using AI/ML in the classroom is access to technological tools, with knowledge gaps also being a significant issue. Financial constraints and the lack of school support are additional challenges, while student resistance remains a less widespread concern. These results suggest

that improving access to technology and providing more training for teachers are key steps in overcoming the barriers to AI/ML integration in classrooms.

10. How open do you feel the school leadership (e.g., directors) is to integrating AI and ML technologies into the classroom?



The responses to Question 10, based on 22 responses, show that most of the school leadership is perceived as highly supportive of integrating AI/ML technologies into the classroom. 13 respondents (59%) feel that leadership is "fully open", while 5 respondents (23%) consider leadership to be "mostly open". Only 4 respondents (18%) selected "neutral", and no respondents chose "slightly open" or "not open at all". This suggests a generally positive attitude among school leaders towards the integration of AI/ML technologies in education.

To conclude, the responses to Question 10 indicate that school leadership is generally supportive of integrating AI/ML technologies into the classroom. Most respondents view leadership as "fully open" (59%) or "mostly open" (23%), with only a small percentage expressing a neutral stance. This reflects a positive attitude among school leaders towards adopting AI/ML in education.

11. How do you deal with technical difficulties when using AI/ML?

The responses highlight a variety of strategies used by teachers to handle **technical difficulties** when using AI/ML in the classroom. Many teachers rely on **IT support**, either from the ICT teacher or IT department, and some escalate issues when needed. Others take a more independent approach, such as conducting personal **research** online or asking AI for help with

specific difficulties. While some teachers face **software failures** and **security issues**, many emphasise the importance of having a **Plan B** and adapting tasks, particularly when faced with challenges like **internet access problems**.

Teachers also expressed the value of staying **calm** and **resilient**, with some adopting a **structured approach** to overcome technical challenges. **Ongoing practice** and **constant learning** were seen as necessary to navigate these obstacles effectively. Collaboration is another key theme, with many teachers seeking **peer support**, consulting **tutorials**, and asking for **guidance** from colleagues with **technical skills**.

Overall, the responses show that while **technical difficulties** remain a barrier, teachers are proactive, resourceful, and persistent in finding solutions and ensuring that AI/ML tools are successfully integrated into their classrooms.

To conclude, the responses to this question highlight that teachers face various technical difficulties when using AI/ML, but they adopt a range of strategies to address these challenges. The most common approach involves seeking help from IT specialists or colleagues, while others focus on adapting tasks and having a Plan B for students. Teachers also emphasise the importance of staying calm and being patient. Despite common issues like internet access problems and software failures, teachers are resourceful and persistent in finding solutions, often relying on research and cloud-based resources.

12. What additional resources or training do you believe would be helpful to improve your use of AI/ML in the classroom?

The responses emphasise the need for **comprehensive training** and **better resources** to support the integration of AI/ML in the classroom. Teachers are seeking **training on key AI/ML tools**, as well as **open access** to these tools to improve their use. Many respondents highlighted the importance of **long-term seminars** with specific goals for gradual classroom implementation and **practical training** on AI tools. Additionally, there is a demand for **more resources** such as **tablets**, **virtual reality glasses**, and **updated equipment** to facilitate AI usage.

Respondents also suggested the need for **guides**, **sample curricula**, and **training materials on AI ethics** to support teachers in using AI responsibly. **Online resources** such as webinars and

local meetups are seen as crucial for fostering collaboration and idea-sharing among educators. Furthermore, some teachers pointed out the value of **peer learning**, noting that students could play a role in helping their teachers learn about AI.

There is also interest in using AI to enhance lesson content, such as the **use of video generation AI** for lesson resources. Overall, responses point to a clear need for **ongoing training**, **specialised workshops**, **ethical guidelines**, and **improved equipment** to ensure that AI/ML tools can be effectively integrated into the educational environment.

To conclude, the responses to Question 12 highlight that teachers are seeking a variety of training resources to improve their ability to integrate AI/ML into the classroom. Key needs include training on AI/ML tools, better equipment like tablets and virtual reality glasses, and long-term seminars. Teachers also emphasise the importance of practical training, including sample curricula, online courses, and workshops. There's a strong focus on understanding AI tools, using AI in the classroom, and ethical AI usage, as well as the value of peer learning through online groups or meetups. Overall, the responses suggest a clear need for more structured training, hands-on experience, and updated technology to effectively implement AI/ML in education.

13. What do you think is necessary to improve the implementation of AI/ML in your teaching environment?

The responses highlight several key areas that need attention to improve the integration of **AI/ML** in the classroom. **Infrastructure** is a recurring theme, with many teachers pointing to the need for **high-tech resources**, such as **reliable internet access**, **updated devices**, and **larger classrooms** for better interaction. There is also a strong call for **technical support**, including **peer support** and **IT department involvement**, to help students better understand and use AI/ML tools effectively. Additionally, teachers stressed the importance of **training** and **mentorship**, with a focus on both **teachers** and **students**. Many respondents highlighted that **ongoing training** is necessary to stay up-to-date with **AI/ML tools**, with specific calls for **specialised training** on how to use these technologies in the classroom.

Another significant point raised is the need for **student-focused projects**, **ethical training**, and **security guidelines** to ensure that AI/ML tools are used responsibly. Teachers also

emphasised the importance of having **school management initiatives** to support AI/ML integration, ensuring that there is a **school-wide digital policy** in place that encourages the responsible use of these tools. Lastly, the responses show that **time for planning**, along with the **creation of a culture that embraces AI**, is crucial for successful implementation. Overall, there is a clear need for **more resources**, **collaboration opportunities**, and **technical support** to make AI/ML tools more accessible and effective in the classroom.

To conclude, the responses to Question 13 emphasise that improved infrastructure and training are key to better AI/ML integration. Teachers highlighted the need for better technical support, reliable internet, and updated devices, along with hands-on training for both teachers and students. Supportive school policies, peer collaboration, and student-focused projects were also mentioned. Overall, there is a clear consensus that upgraded resources and school management support are essential for effective AI/ML integration.

14. What types of AI/ML tools would you like to have more access to for use with your students?

The responses reveal a broad interest in using **AI/ML tools** across different aspects of classroom activities. Many educators mentioned using **AI assistants** like **ChatGPT** and **digital assistants** to support classroom management and lesson delivery. Specific tools, such as **Diffit**, **Google Gemini**, **Quizizz**, and **Magic School AI**, were noted for enhancing student engagement, while others highlighted **AI for image/video production**, **creative writing**, and **storytelling** as valuable resources for fostering creativity.

Teachers also expressed the need for **AI-powered platforms** that support **personalised learning**, such as tools for **adjusting reading levels**, **vocabulary recommendations**, and providing **instant feedback** on student writing. Additionally, there was interest in **adaptive learning systems**, **intelligent tutoring**, and **automated grading tools** to improve learning outcomes.

Despite the wide range of tools mentioned, some educators felt uncertain about which tools would be most useful or indicated that while they had access to AI tools, they lacked sufficient **familiarity** to use them effectively. There were also calls for more **training** to become more proficient with these tools. Furthermore, many teachers emphasized the need for **better**

equipment, such as **computers** and **tools for running models**, to enhance the teaching experience.

To conclude, the responses to Question 14 show that teachers see a wide range of AI/ML tools as crucial for improving classroom integration. Key tools include AI assistants like ChatGPT, personalised learning tools, and creative applications for tasks like image/video production and coding. Teachers also highlighted the importance of adaptive learning platforms and intelligent tutoring systems to create a more personalised learning experience. There is a strong desire for better access to tools, specialised training, and improved technical support to effectively implement AI/ML in the classroom.

15. What additional support would you like to receive to increase the effectiveness of AI/ML in teaching?

The responses indicate that teachers seek a broad range of **training** and **resources** to better integrate AI/ML tools into their classrooms. There is a noticeable emphasis on **general and specific knowledge** regarding the use of AI tools, with many teachers requesting both **basic and specialised knowledge** on how to use these tools effectively in their teaching practices. Some respondents specifically mentioned the need for **pre-planned lesson materials**, such as **handbooks** or **manuals**, to guide their lessons and help them incorporate AI tools into their existing curricula.

Additionally, there is a strong demand for **practical, hands-on training** that enables teachers to work directly with AI tools. Teachers also expressed the need for **ready-to-use lesson templates** and **ongoing mentorship** to build their confidence and skills in utilising AI in the classroom. The responses underscore that simply knowing how to use the tools is not enough—**guidance** and **support** from experts and peers are crucial to making the integration process smoother.

Furthermore, respondents expressed a need for **interactive materials**, as well as **AI-based software** that supports the teaching and learning process. **Training materials on AI ethics** were also highlighted as essential, indicating that teachers want to ensure AI tools are used in an ethically responsible manner. There was also a recurring theme of the importance of **IT support**,

particularly in schools lacking dedicated IT departments. Many respondents noted that the **lack of IT support** makes it more challenging to implement AI tools effectively, and support from the **IT department** would be beneficial.

In terms of accessibility, many teachers mentioned the need for **free access to digital tools** and **application licenses** to reduce the barriers to adopting AI tools. **Free tools** and **time to explore AI/ML** were also requested, highlighting the importance of **resources** that are not only cost-effective but also accessible to teachers with varying levels of experience.

Specialised training in specific subjects, such as **physical education**, was another key area mentioned by some teachers. This suggests that there is a desire to understand how AI can be used across various fields, beyond just core subjects like **language** or **science**. Some respondents also noted the importance of **training with specialised technicians**, indicating that technical issues are a common challenge that could be alleviated with expert support.

Lastly, there was a strong emphasis on the need for **ongoing training** to ensure that teachers remain up to date with the rapidly evolving AI/ML landscape. This included calls for **workshops**, **online courses**, and **seminars** to provide continuous professional development. Teachers also expressed interest in **collaborative platforms** where they could share their experiences, best practices, and challenges with their peers. This suggests that a **community-driven approach** to AI/ML integration would be beneficial for teachers to feel supported in their learning journeys.

To conclude, the responses to Question 15 emphasise that training is crucial for improving AI/ML implementation in the classroom. Teachers seek detailed guidance on AI/ML tools, pedagogical approaches, and hands-on training with ready-to-use lesson templates. Better infrastructure, including stronger internet, updated devices, and IT support, was also highlighted. Additionally, teachers called for specialised training, free access to tools, and ongoing professional development. The responses suggest that improving resources, technical support, and pedagogical guidance is key to effectively integrating AI/ML in education.

16. Suggestion/Comments

One respondent mentioned that it would be easier if AI tools did not require separate sign-ups and logins, suggesting that a school-specific login would be more convenient, especially for younger students who struggle with remembering usernames and passwords. There was also appreciation for the survey, with some expressing gratitude and noting that they have no further comments. One teacher expressed interest in exploring the possibilities of using AI tools in physical education classes, and another indicated they had nothing to add.

Conclusion

The survey highlights that while there is a strong interest in integrating AI/ML tools into education, there are several areas where support is needed. Most teachers are already using AI tools like ChatGPT for lesson planning, content creation, and student engagement. However, the frequency of use varies, and many teachers are still in the early stages of incorporating AI into their classrooms. Training is the most requested need, with educators seeking both general knowledge and specialised training on AI tools, as well as hands-on support.

There is also a clear demand for ready-to-use resources, such as lesson templates and ethical AI guidelines. Teachers also expressed the need for better infrastructure, including updated devices, reliable internet, and IT support, to effectively implement AI/ML tools. Despite the enthusiasm for AI, challenges such as limited access to technology, knowledge gaps, and technical issues remain. Teachers also face difficulties related to security and software failures, particularly in schools with limited IT support. To address these issues, respondents emphasised the importance of ongoing professional development and collaboration through peer support networks.

In conclusion, while AI/ML tools are seen as a valuable resource for enhancing education, successful integration will require targeted training, improved infrastructure, and stronger support for both teachers and students. With these in place, AI has the potential to significantly transform the teaching and learning experience.

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Focus Group

Survey Insights from teachers on the integration of AI and ML in the classroom.

Objectives

The following chapter present an analysis of the focus group discussions held with teachers from Italy, Portugal, Greece and Turkey. Focus group sessions were conducted to:

Explore teacher's experiences with the integration of AI and ML in teaching practices, particularly the use of tools like Teachable Machine, to understand how these technologies are being applied in classrooms.

Identify challenges and barriers faced by teachers, including issues like lack of adequate training, limited infrastructure and ethical concerns, in order to provide practical solutions for improving the adoption of these technologies.

Gather concrete suggestions from teachers on how to improve manuals and training programmes, with the goal of creating more effective support tools to facilitate the successful application of AI and ML in the educational environment

The analysis explores the key challenges, barriers and support needs identified by educators, as well as their suggestions for improving the use of AI in teaching.

Methodology

Focus groups were held in-person at three educational institutions between early and mid-May 2025, involving a **total of 25 teachers** from various subjects and grade levels:

Country	Participants	Subjects
Portugal	8 teachers	ICT, Maths, Sciences, Literature, Arts
Greece	12 teachers	Computer Science, English, French, Music, Language, Science
Turkey	5 teachers	English, Turkish, Social Sciences, Maths, Science

Each session was moderated by an assigned facilitator, following a semi-structured format focused on teachers' experiences with AI/ML tools, the manual's usability, and prospects.

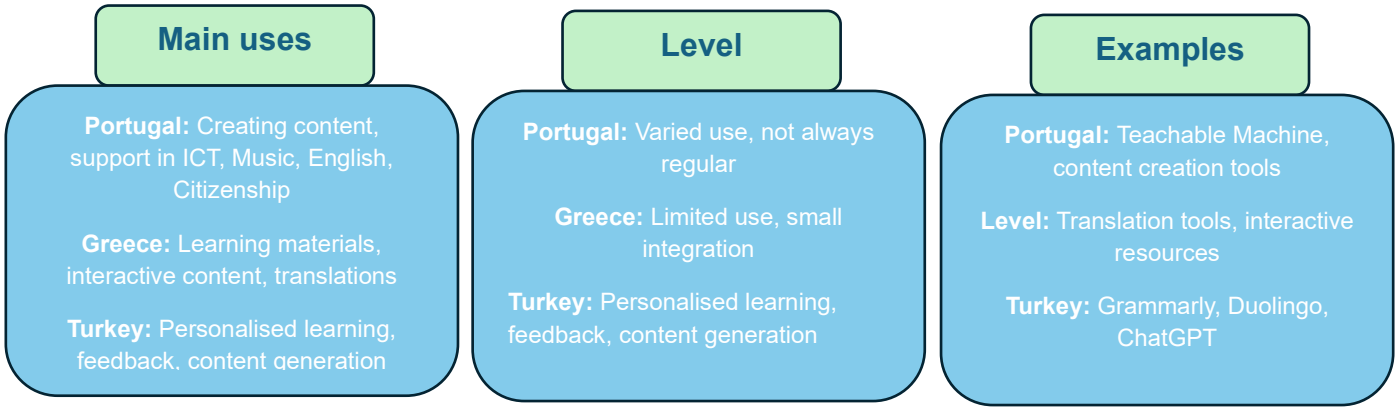
Key findings

1.Current use of AI/ML in teaching

In **Portugal** (Agrupamento de Escolas José Estêvão), teachers reported a diverse use of AI tools across various subjects, such as creating educational content (texts, images) and using AI tools in subjects like English, Citizenship, Music and ICT. However, the integration of AI is not uniform, with some teachers using it regularly and others just beginning to explore its potential.

In **Greece** (15th Primary Education) AI and ML tools were used mainly for creating learning materials, interactive content and automatic translations. AI tools were seen as versatile, with the potential to enhance differentiated instruction and support learners with disabilities. However, many teachers still used AI tools on a small scale, with limited integration into the curriculum.

In **Turkey** (Fide schools), teachers reported a limited but growing use of AI tools such as Grammarly, Duolingo and ChatGPT for personalised learning, feedback and content generation. Most uses were teacher-led, such as administrative support, and AI was viewed as a supplementary tool rather than an integrated part of the teaching process.



2. Challenges and barriers

In **Portugal**, teachers from the Agrupamento de Escolas José Estêvão identified several significant challenges in adopting AI in education. Key barriers included the **lack of training**, which hindered teachers' ability to effectively use AI tools, and **limited internet access**, which posed an additional obstacle in classrooms where connectivity was unstable. Teachers also pointed to **insufficient infrastructure**, making it difficult to integrate AI tools on a broader scale. Furthermore, resistance to AI adoption was noted, primarily due to a **lack of understanding** of the technology. In response to these challenges, teachers called for increased **leadership support** to help overcome these barriers and facilitate AI integration in schools.

In **Greece**, the challenges reported by teachers were similar to those in Portugal, including **lack of training** and **limited access to resources**. However, Greece's teachers also raised concerns about the **ethical use** of AI, particularly regarding the suitability of AI tools for younger students. There was specific worry about AI tools being too complex or inappropriate for younger learners, as well as the risk of **misuse by students**, such as **plagiarism**. These ethical concerns were deemed important to address to ensure the responsible use of AI in educational settings.

Teachers in Turkey, similarly, faced challenges related to **technical limitations**, particularly **unreliable internet** and the **lack of devices** in schools. These issues created significant barriers to using AI effectively in classrooms. In addition to these technical difficulties, teachers in Turkey expressed concerns about the **ethical implications** of using AI tools, particularly around **misuse by students**. They also highlighted time constraints as a key challenge, with teachers struggling to adapt AI tools to the needs of younger students, given the **tight schedules** and **curricular demands**.

Despite the differences in their respective contexts, all three countries identified a **lack of training** and **limited access to technology** as major obstacles to the successful adoption of AI in education.

> ***"The lack of training is a major barrier to the effective use of AI in education."***
> — Agrupamento de Escolas José Estêvão

3.Support and training materials

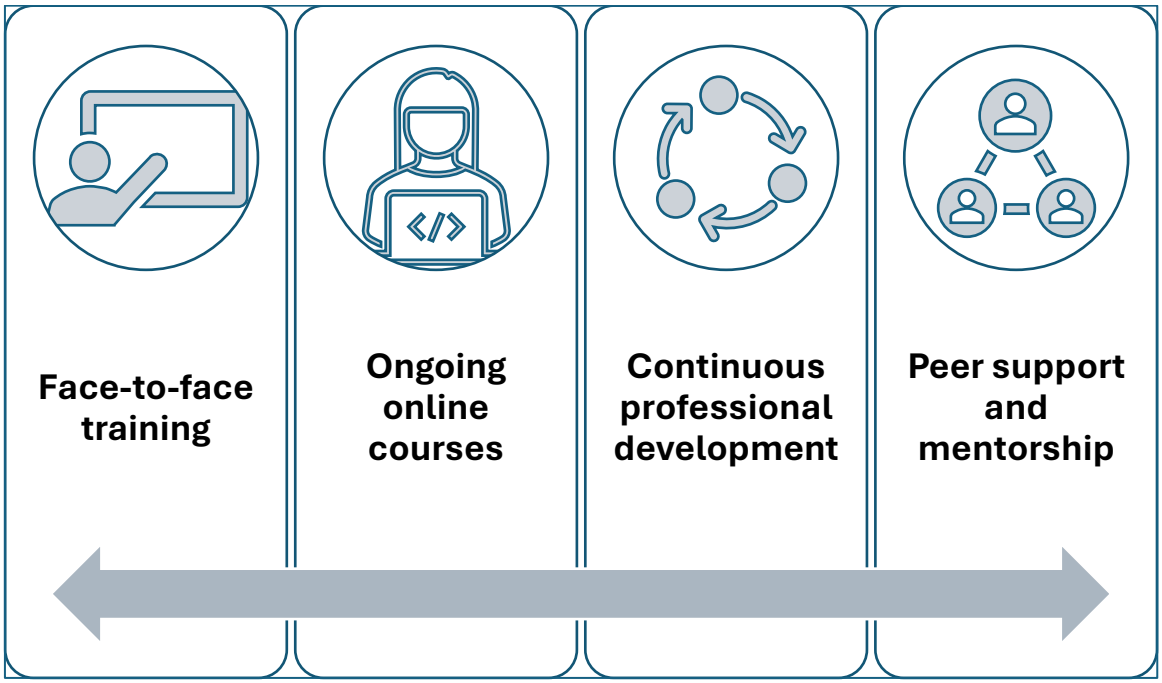
In Portugal, teachers from the Agrupamento de Escolas José Estêvão highlighted the importance of **targeted training** on AI tools, particularly through **practical workshops** and **peer support**. They emphasised the need for **face-to-face training** during the initial adoption phase of AI tools, with the suggestion that **online courses** be offered for more **specialised and ongoing training**. This approach would allow for a balance between foundational learning and more advanced, subject-specific knowledge.

Teachers in Greece, from the 15th Primary Education, expressed a similar need for **subject-specific workshops** and **mentorship** from more experienced educators. They placed a strong emphasis on **continuous professional development** (PD) to ensure that teachers remained up to date with the latest AI tools and practices. In particular, there was a call for resources to be made available, especially **AI tools suitable for younger learners**, to facilitate the integration of AI into classrooms and ensure that it was accessible to all students.

In Turkey, teachers called for structured, **hands-on training** that was tailored to specific subjects. They also suggested appointing **AI mentors or coordinators** within schools to provide on-demand support and guidance, allowing for real-time assistance as teachers began to

incorporate AI tools. Additionally, teachers in Turkey recommended regular in-service training focused on the **ethical use** of AI tools, ensuring that teachers could guide students responsibly when using AI technologies.

> ***"Teachers requested guides or toolkits to help evaluate which AI tools are safe, effective, and developmentally appropriate for their learners."*** — Fide Schools



1. 4. Suggestions for improvement

In **Portugal,** teachers from the Agrupamento de Escolas José Estêvão emphasised the need for **user-friendly AI tools** that are specifically tailored for educational purposes. They also stressed the importance of providing continuous professional development (CPD) to help teachers keep pace with evolving technology. They also suggested fostering peer collaboration to encourage the sharing of best practices and promote mutual learning among educators. The teachers also emphasised the importance of **strong leadership support** in creating a culture that promotes AI adoption within schools.

Teachers from the 15th Primary Education in **Greece** called for increased funding for AI tools and the hiring of additional educators to ensure that the integration of AI is both effective and sustainable. They also recommended appointing a dedicated **AI coordinator** in schools to oversee AI-related initiatives and provide support as needed. The teachers also stressed the need for **multilingual AI tools** to cater for students' diverse linguistic backgrounds, which would improve accessibility. They also noted the importance of peer-sharing platforms, as these would allow teachers to exchange resources, ideas and experiences related to AI implementation.

Teachers from Fide Schools in **Turkey** proposed the development of **subject-specific AI training modules** to better align AI tools with the curricula of individual subjects. They also recommended appointing AI coordinators in schools to provide support and guidance on integrating AI tools. Furthermore, the teachers emphasised the need to allocate time during professional development sessions for teachers to explore AI tools and familiarise themselves with their practical applications. They also suggested incorporating **AI literacy** into the student curriculum to prepare learners for a future in which AI technologies will play a central role.

> ***"The lack of "AI is not going anywhere. We must learn how to guide students in using it ethically and creatively."*** *— Fide Schools*

A comparison of the three countries reveals that, although they all recognise the importance of training and support, their specific approaches reflect their unique needs. Portugal emphasises fostering a culture of leadership support, to integrate AI more organically into the school environment. Greece, on the other hand, highlights the logistical challenges of funding and accessibility of resources, particularly emphasising the need for multilingual tools to ensure inclusivity. Meanwhile, Turkey focuses on practical, subject-specific training and integrating AI literacy for students, reflecting a more hands-on, long-term approach. These differences suggest that, although the overall goal of AI integration is shared, each country is navigating its own set of contextual challenges relating to leadership, resources and practical classroom implementation.

Challenges and suggestions

Challenge	Suggestions/Recommendations
Lack of practical training	Develop hands-on, age and subject -and subject-specific training modules
Limited access to devices and the internet	Improve infrastructure and ensure equitable access
Time constraints for AI integration	Allocate dedicated professional development for AI workshops
Ethical concerns and lack of policies	Incorporate ethical guidelines and AI usage policies
Low digital literacy and confidence	Provide mentorship and peer-sharing platforms
Monitoring student misuse of AI	Train students on responsible AI use and plagiarism awareness

Conclusion of the focus group

The focus group sessions conducted with teachers from Portugal, Greece, and Turkey revealed diverse perspectives on the integration of AI and ML tools in teaching. Most participants highlighted the challenges faced due to a lack of practical training and insufficient technological infrastructure in schools. Resistance to adopting AI was noted in some cases, primarily due to a lack of understanding of the technology and concerns around ethical issues, such as the risk of plagiarism and misuse of tools by students. However, most teachers recognised the potential of AI tools to improve personalised learning and support students with special educational needs.

Among the most common challenges identified were the lack of adequate training and the scarcity of resources, such as devices and quality internet access. To overcome these barriers, teachers suggested implementing continuous training programmes, focusing on practical workshops, mentorship support, and fostering a school culture that encourages responsible AI use. The need for clear ethical guidelines on AI usage was also emphasised, particularly to ensure the tools are appropriate and safe for students.

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Conclusion

Questionnaires and focus groups

The analysis of data from both the **questionnaires** and the **focus groups** provides a comprehensive view of the current state and challenges of implementing AI/ML in education. Both sources of data revealed **strong engagement with AI tools**, especially ChatGPT, which was widely used for content creation, lesson planning, and engaging students. However, the frequency of use varied significantly, with many teachers still in the early stages of integrating these technologies.

The questionnaires indicated that while many teachers already use AI in various subjects, the integration is not uniform across schools and countries, reflecting the diversity in available infrastructure and training. The focus groups further explored these issues, identifying common barriers such as a lack of practical training and limited infrastructure, which hinder the widespread adoption of AI tools. In addition, teachers emphasised the importance of continuous support, whether through in-person training, mentorship, or the creation of resources that can be directly used in the classroom, such as guides and adapted lesson plans.

Both the questionnaires and the focus groups highlighted the need to improve access to AI tools and enhance practical training. The most common recommendation was to offer more targeted training programmes that focus on the real needs of teachers, along with creating platforms for sharing best practices to promote collaboration among educators. These findings point to a clear need for ongoing support, improved infrastructure, and tailored educational resources to ensure that the integration of AI/ML in schools becomes an efficient and sustainable practice.

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