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Artificial Intelligence and Young Learners: Interviews with Preschool and Primary School Teachers in Greece

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ABSTRACT

Generative artificial intelligence (AI) is gradually being introduced into preschool and primary education, though its research and implementation at these levels are still in the early stages. This study explores AI's early adoption in Greek preschool and primary school settings, an area underrepresented in current educational research. Through semi-structured interviews with two teachers (one from preschool and one from elementary school) the research investigates AI-enabled classroom activities and teachers' perceptions regarding opportunities, challenges, and expectations. Findings show that while AI use is still emerging, both teachers observed heightened student engagement and curiosity, especially through creative and collaborative tasks. However, concerns were raised about data privacy, overreliance on technology, lack of experiential learning, and insufficient teacher training. The study highlights the need for age-appropriate, pedagogically grounded AI integration, emphasizing experiential learning in early childhood. Implications for policy, teacher training, and educational practice are discussed. This study offers timely insights, and contributes to the international discourse on responsible AI integration in preschool and primary school years.

KEYWORDS

Artificial intelligence; preschool; primary school; teacher perspectives; teacher practices.

INTRODUCTION

Generative Artificial intelligence (AI) evolves rapidly, it is associated with various opportunities, challenges and concerns, but in education most studies refer to the higher education context (Cheah et al., 2025; Nikolopoulou, 2024a). AI is part of digital technology (ICT: Information and Communication Technology) and has gradually started to be harnessed in preschool (early childhood) and primary (elementary) school education, providing opportunities for AI/digital literacy and social interaction (Luo et al., 2024). A small number of studies report on AI in preschool and primary education contexts (e.g., Chen, 2024; Luo et al., 2024; Su & Yang, 2022; Yang et al., 2024). Review studies highlight the potential of AI to personalize learning, and facilitate 21st-century skills such as creativity, literacy skills, and collaborative inquiry (García et al., 2025; Su & Yang, 2022). Potential benefits and opportunities when using AI with young children include personalized learning, tailored learning experiences based on each child's pace, provision of playful learning, and inclusive learning (Cheah et al., 2025; Luo et al., 2024; Nikolopoulou, 2024b; Uğraş et al., 2025). In parallel, the use of AI tools in classrooms with young children is associated with risks, challenges, and concerns such as ethical concerns, inappropriate content, unpreparedness of teachers, possible limitation of hands-on learning (Cheah et al., 2025; Filiz et al., 2025; Luo et al., 2024; Nikolopoulou, 2024b; Su & Yang, 2022).

Empirical evidence on preschool and primary school teachers' practices and perceptions on AI is still limited (e.g., Cheah et al., 2025; Luo et al., 2024; Uğraş et al., 2025). Thus, the following research questions were addressed:

- What types of ICT-related educational activities are implemented in the classroom, and how do children respond to them?
- Which AI-enabled learning activities are utilized in the classroom, and what are children's reactions to these experiences?
- What are teachers' perspectives on the opportunities, challenges, risks, and expectations associated with the use of AI in education?

This paper primarily focuses on the second and third research questions. The first question, which pertains to digital technology (ICT), is included to provide a smooth transition towards AI-related activities, as AI is a subset of digital technology. ICT's incorporation in classrooms with young children has been researched for the last decades (e.g., Alzahrani, 2025; Bay & Hartman, 2025). The significance of this study is that it contributes insights into the underexplored area of AI integration in early childhood and primary education, within the Greek context. It highlights teachers' emerging practices, and perceptions, providing timely evidence as Greece prepares for nationwide AI-related teacher training. The findings support international discourse on AI in early years' education, while emphasizing the importance of age-appropriate approaches.

Literature Review: Evidence on Teacher Practices – Perspectives on AI Use with Young Children

A review (Su & Yang, 2022) indicated that preschool teachers hold both positive views on ChatGPT (e.g., useful educational tool for lesson planning, pedagogical knowledge, 21st century skills), and negative views such as lack of resources, technical problems and concerns about the tool's accuracy. Similarly, a recent review on the integration of AI in primary education (García et al., 2025), revealed

teachers' positive perceptions (AI as a tool to enhance critical thinking, problem-solving, and student engagement) and perceived challenges (implementation is limited by insufficient training, resources, and institutional support). The need for continuous professional development and clear policies (to safeguard privacy, promote AI literacy and equality) is highlighted by the researchers. For instance, despite positive perceptions of AI's potential educational benefits, only a minority of primary school teachers have implemented AI tools like ChatGPT in their classrooms, often due to a lack of training, readiness and knowledge (Galindo-Domínguez et al., 2023).

In Turkey, Uğraş (2024) indicated that preschool teachers who received training consider ChatGPT as appropriate for preschool education (personalized activities, creative activities, content creation, and game and story suggestions), while concerns such as learning misinformation, technological addiction, decreased social interaction, and the possibility of creating age-inappropriate content were also identified. Uğraş et al. (2025) indicated that integrating ChatGPT into early childhood STEM education facilitated the educational process, offering teachers greater flexibility in planning and promoting equality among children. Teachers' perceived benefits regard ChatGPT's possibility to provide lesson plans (saving time in planning), instant feedback and personalized content suggestions, encouraging creativity, and boosting children's motivation. In parallel, challenges include technical issues, student-related difficulties, and a need for more security knowledge. In the same country, another study (Filiz et al., 2025) which included preschool and primary school teachers (they participated in a professional development program on AI-enhanced teaching) revealed that participants value AI for its interactivity, material/content generation, and adaptability. Within the training course teachers designed and implemented learning activities using predominantly ChatGPT, followed by MagicSchool, Canva, and Gamma. Barriers/concerns such as technical issues, curriculum misalignment, ethical concerns, and cultural barriers were also identified. Additionally, another study from Turkey (Kölemen & Yıldırım, 2025) revealed that preschool teachers consider AI appropriate for preschool (to improve children's skills, such as AI literacy and computational thinking), but they do not feel sufficient regarding Al competencies; privacy and security concerns were also expressed.

In the USA, elementary school teachers tend to use AI for out-of-classroom duties (i.e., lesson preparation, assessment, and administrative tasks) rather than for real-time teaching and learning; perceived barriers include doubts about AI's ability to manage risks, reduced human interaction in teaching, ethical considerations, and the absence of policies (Cheah et al., 2025). STEM elementary school teachers' views (Cheah & Kim, 2025) were both positive (strong beliefs on the importance of equipping students with AI-related knowledge and skills) and negative (challenges include teacher resistance and lack of awareness among school leadership as to implementing AI professional development). In the same country, elementary school teachers' perceptions-practices of creative mathematical writing with the generative AI-powered technology revealed perceived benefits such as fostering creativity and understanding in mathematics, AI literacy, and affective domain (Song et al., 2025).

In New Zealand, primary school teachers' beliefs of using ChatGPT to support their practices were investigated (Ashby, 2024). Teachers, in general, perceive ChatGPT as beneficial-useful tool to support their educational practice (e.g., for planning, finding ideas and reducing their overall

workload), and they also report strong ethical concerns (e.g., reliability and accuracy of responses, weakening of critical thinking and creativity, algorithmic bias).

With regard to student feelings, primary school pupils enjoy learning via AI-modified material (Jauhiainen & Guerra, 2023); pupils in Uruguay, who participated in lessons where content, text, figures, and exercises were generated and modified using ChatGPT, used this tool to personify learning material.

From the above studies, it is revealed that the empirical evidence in preschool and primary education levels is still limited, while evidence derives from a small number of countries (e.g., the USA, Turkey, New Zealand). To the authors' knowledge, there is no similar study in the Greek context. With regard to AI in Greek K-12 classrooms, there is not (yet) official policy, it is not included within the curriculum, while a few teachers may use it occasionally out of their own willingness. The Ministry of Education announced the commencement, from the academic year 2026-27, of a large scale teacher training program; the aim is to develop teachers' knowledge and equip them with the skills to implement AI effectively and ethically within their educational practices. Considering the limited evidence on the topic and the Greek context, this study was initiated.

METHODOLOGY

Sample

Two female teachers were participants in this study. Teacher 1 (T1) teaches at a preschool, and teacher 2 (T2) teaches at an elementary school, in Attica, Greece. In Greece, children aged 4-6 years attend preschool, while children aged 6+ attend elementary school. Table 1 indicates the demographic characteristics of the teachers and of their class. They both work in public schools, with similar socio-economic background. They use ICT in class for about 5-10 years, while they both started to use AI in class during the academic year 2024-2025. T1 has recently attended an AI-related module (as part of a general education postgraduate program), and she uses AI in her class for 2-3 months, as she reported, "Now, in the last two months or three months, we have started to slowly introduce it". T2 mentioned she has started to use AI in the classroom during the last academic year: "I have started to gradually integrate it over the last year. Although I have not yet attended a seminar on AI, I have researched it quite a bit on my own, and I try to use it in simple ways, appropriate for the children's age. Overall, it is a tool that can enrich the lesson and make it more interesting". T2 also uses AI for out-of-classroom duties, in particular, for lesson plans and organization of educational tasks; such uses have been reported in the relevant literature (e.g., Cheah et al., 2025; Su & Yang, 2022).

Table 1. *Characteristics of teachers and their class*

	Teacher 1 (T1)	Teacher 2 (T2)
Educational level	Preschool	Elementary school
Years of teaching experience	1-10	11-20
Years of ICT use in class	5-10	5-10
Time-duration of AI use in class	3 months	(about) 1 year
Training in ICT	basic level	basic level
Attendance of AI seminar	no	no
Children's ages	3,5-5,5	9-10
Number of children in class	15	21

Procedure and Research Instrument

The data were collected via semi-structured interviews, in May 2025. Qualitative types of approaches are suitable and are often used in preschool and elementary school settings. The participants were obtained using the convenience sampling technique, due to considering the accessibility and willingness of respondents for taking the interview (Fink, 2011). The teachers were willing to take the interview, their participation was voluntary and ethical issues were considered; they were assured that, should they wish to participate in the research, their comments and input would remain anonymous. The interviews were conducted face-to-face, at time and place that did not distract their teaching duties. The average interview duration was 15 minutes.

The interview questions were guided by information emerging from international research, and were in line with this study's research questions. The main interview questions were as follows: What ICT related educational activities are mainly carried out in your class? What is children's response to ICT activities? How long have you been using AI in class? What AI-enabled learning activities do you integrate in the classroom? Which AI-based tools have you used? Are there any specific teaching strategies that you consider as more effective for AI integration in class? How do children respond to the AI-enabled activities? What educational opportunities, challenges, and concerns, arise when using AI in the classroom? What are your expectations with regard to AI use in the classroom with young children?

Content-thematic analysis was used, and the codes for the data analysis were descriptive. Through the process of coding, patterns of responses were used to inform themes and categories generated in line with their relevance to the research questions (Creswell, 2012). Teachers' responses were thematically grouped into those which related to the pre-determined themes of teachers' practices and perspectives.

RESULTS AND DISCUSSION

This section is organized according to the three research questions of the study. Examples of excerpts are particularly highlighted, because participants' quotations enrich the findings, offering real-world perspectives.

Main ICT-related Educational Activities and Children's Response

ICT Related Educational Activities

As mentioned earlier, the focus of this paper in not on ICT but on AI. Thus, ICT-related activities are briefly presented, in order to then move smoothly to the AI-enabled/mediated activities. Table 2 shows indicative examples of ICT educational activities in the classroom. Both teachers harness ICT in the classroom, by integrating activities such as video watching, using online educational games, and searching for information and/or images.

Table 2. *Indicative ICT educational activities in the classroom*

T1	T2
Video watching, projection, creation	Video projection
Creation of games, online tales	Creation of activities/games (e.g., interactive quizzes)
Search for photos, etc.	Search for information
Online games	Online educational games

The preschool teacher (mainly) uses ICT to support and enhance her children's experiential learning and hands-on experiences. Such practices are in accordance to young children's developmental stages, where multisensory experiences and playful learning remain fundamental. As she reported, "to watch videos, to play an online game, or to create a collage. And children themselves play educational games online… Everything related to videos. We watch various videos, see photos, search for example for geographical areas or customs, depending on each activity". She also observed that such activities attract children's interest, as shown in the following expert: "In kindergarten, showing a video or using a game certainly helps children a lot to acquire this knowledge. And they certainly find a video or a fairy tale, which will be online or will describe something, more interesting".

The primary school teacher has a more systematic and pedagogically documented way of utilizing digital technology. ICT, in her case, is not used simply as an aid, but as a building block/tool of the learning process; a tool that encourages collaboration, active participation, and an investigative attitude. As she shared, "I have been using ICT quite a bit in my classroom in recent years. It helps me make the lesson more interactive and interesting for the children. I use it to show videos and create activities and games for the children, such as interactive quizzes… I try to incorporate them in ways that enhance creativity, collaboration, and active participation of students. For example, children search the internet on their own and find information about a topic we are studying. I also use various websites with educational games to make learning more enjoyable". Through ICT educational activities such as interactive quizzes, she seeks not only to engage students but also to continuously understand their progress. For example, she pointed out, "Through the quizzes, I try to see what the children have understood and where I need to insist more".

The role of ICT in fostering the learning and development of young children and primary school children has been documented, for several years. Indicatively, a recent review (Ruijia et al., 2025) emphasized the need for context-specific implementation strategies, development of tailored digital resources, and the evaluation of long-term impacts.

Children's Response to ICT Activities

Children's response to AI-mediated educational activities, in both preschool and primary school levels, was reported as positive; most children seem to be are engaged, motivated, and enthusiastic. As T1 described, "Something that I've seen over the years that kids like, is to get an image, any concept that we're going to see. Let's say we're doing something about space, watching a video about space, seeing what things are like. Concepts that are very abstract". And she elaborated, "They like it (ICT) a lot, it's also something that's part of their everyday life. Children have contact with computers, tablets, and mobile phones, so it's something very natural and something they seek out. In other words, the fact that we listen to music through YouTube or through any application every day is part

of the fact that ICT has come to stay". With regard to children's response, T2 noted, "Their response to all activities that have to do with computers is always very positive. Now, at these ages, children are very familiar with technology and use it every day. Therefore, when learning is done through the computer, it creates great interest and more willingness to pay attention. They see it as something different from the traditional lesson and they get excited. They, even, tell me to put songs on YouTube, search for images, and use the computer for many activities we do in class".

AI-enabled Learning Activities in the Classroom and Children's Response

AI-enabled Educational Activities (and Relevant Tools)

Table 3 indicates AI-enabled/supported educational activities in the classroom, and indicative AI tools that have been harnessed. As indicated earlier in Table 1, AI was applied only during the last academic year 2024-2025 (time duration ranges from 3 months to a year).

Table 3. *AI-supported activities in the classroom (and tools used)*

T1	T2
Generation of an image	Generation of images (in History, Physics, etc.) Exercises adapted to children's need Creation of small AI-empowered project Lesson preparation, ideas for exercises
AI tools used - harnessed	
ChatGPT, Perplexity (for creation of an image)	ChatGPT (for creative writing, text editing) Canva (for creation of images) Khan Academy Kids

The preschool teacher reported that she has only used AI tools (ChatGPT and Perplexity) for image generation; i.e., to describe a picture/image, enter the description into an AI program to then generate an image - visualization of descriptions. Although she has positive views towards AI, she is closer to the research-experimentation stage with the use of AI in her classroom. As she shared, "So far, all we've managed to do is describe an image and by passing it to an AI program, it can show us what it looks like, e.g., the cyclops". However, she is willing to use (experiment with) more AI-based tools to carry out other educational activities. For this point, she mentioned, "there is also Canva (tool) which has not been used yet, but in the future I would like to use it to create our own stories, whether animated or whatever".

On the other hand, the primary school teacher integrates AI to a greater extent in her classroom, with different learning activities such as generation of images, exercises adapted to children's need, and creation of small AI-empowered project. An example of an excerpt was: "I have started using various activities with AI, because I have seen that children really like them. For example, we create images by giving descriptions of something we want (to make) more illustrative. We usually use it in History lessons and maybe in Physics, to make it more visual. I see that such activities attract children's interest and create opportunities for discussion". T2 harnesses AI's characteristics for personalized learning, as she voiced, "I have also tried applications with exercises tailored to the needs and (individual) characteristics of each student. Oh, we also create small projects with the help

of AI, where children do research, write, create images and present their final work". T2 also mentioned collaborative learning as a core strategy, when AI is included. The use of AI does not function, in this case, simply as a tool, but as a catalyst for student activation and creativity, offering stimuli for the development of collaboration, expression and imagination skills. She articulated, "A strategy that works very well is collaborative learning, using AI. For example, in an activity we did on the theme 'Cities of the Future', the children utilized, among other things, AI tools, in which they wrote descriptions of the cities they imagined and the application created the corresponding images. This activity activated all the children, even those who are usually hesitant to express themselves, and at the same time strengthened their cooperation with each other and their contact with the computer".

With regard to the AI tools used for classroom activities, T2 noted, "The most common is ChatGPT, which I use for creative writing activities and simple text editing. Canva is also a really cool tool that gets kids excited, because we make images and sometimes posters that we need for our various events. For the personalized learning, I use Khan Academy Kids". Creative activities, interactive games and stories have been reported as appropriate by preschool and primary school teachers (Filiz et al., 2025; Uğraş, 2024), while in agreement with a recent study (Filiz et al., 2025), ChatGPT is a predominant AI tool in the classroom. Finally, T2 uses AI tools for lesson preparation, and in order to obtain ideas for exercises. As she remarked, "When it comes to preparing for my class, I often use AI tools to get ideas for creative exercises that I can adapt to the level of children. It helps me, in the context of specific subjects, such as language, mathematics, etc., to create exercises, short texts or comprehension questions, especially when I need differentiated material. Sometimes I have also used AI to help me structure a lesson".

Children's Response to AI-enabled Activities

Likewise, to ICT related activities, children's response to AI-enabled/mediated educational activities, was reported as very positive. More specifically, T1 remarked, "In kindergarten, showing a video or using a game certainly helps children a lot to acquire this knowledge. And they certainly find a video or a fairy tale, which will be online or will describe something, more interesting". And she continued, "When AI tools were used to generate an image, they (children) really liked it and were excited to describe something in words and see it take shape in that moment (instantly)".

In the same direction, T2 observed, "Every time we use AI, the response from the kids is extremely positive. Since I started using it, I've seen that the kids are more engaged and more actively participating. They like the idea that they can create something just the way they have it in mind". Children's interest was also expressed as follows by T2, "The great interest of children in how AI works. Some children asked me 'how does AI think', if it 'understands' and 'how can it do so many things'. These questions gave me the opportunity to have some very interesting discussions with children about technology". Children's enthusiasm seems to be linked with their active participation, as stated, "The enthusiasm and commitment they have when handling AI programs is much greater than when I present something to them, and they are not so active participants" (T2).

Preschool and primary school children's positive responses to AI-enabled activities support empirical studies (e.g., Filiz et al., 2025; Jauhiainen & Guerra, 2023) in which teachers observed that AI tools can capture students' attention and enthusiasm, enhancing interaction and engagement.

Teacher Perspectives on AI Opportunities, Risks/Challenges/Concerns, and Expectations

Table 4 indicates teachers' perceived AI-related opportunities, risks/challenges/concerns, and expectations.

Table 4. *Teachers' perceived AI opportunities, challenges/concerns, and expectations*

T1	T2
Perceived opportunities	
A tool we now discover…	Collaboration among children (e.g., in groups)
	Children's active engagement, participation
	Personalized learning, inclusiveness
	Skill development (creativity, critical thinking)
Perceived risks, challenges, concerns	
Insufficient teacher training	Lack of appropriate training
Reliability, correctness of information	Quality, reliability of information
Loss of experiential learning	Overreliance on technology
	Reduction of human interactions
	Technical infrastructure
	Personal data/information safety
Perceived expectations	
Teacher training	Teacher training
Children need experiential, multisensory learning	Skill development (e.g., creativity, collaboration, digital/AI literacy)
	AI not to replace/substitute the teacher
	Human interactions/contact essential
	Inclusive learning

Teachers' Perceived Opportunities About AI

The preschool teacher (T1) had difficulty to express potential opportunities of AI use in the classroom. She is experimenting with AI in the classroom, since she pointed out, "…I don't know. So far, at least for us, it's something quite new. We haven't seen to what extent it can be used, nor how it can be used…it's a tool that we're discovering in the field of education".

On the other hand, the primary school teacher (T2) mentioned children's collaboration, active engagement, and participation, as well as AI's potential for personalized learning, inclusiveness, and development of various skills (e.g., creativity, critical thinking). With regard to the opportunities/benefits of collaboration, participation and inclusiveness, she highlighted, "AI in general offers many opportunities for collaboration, as most activities are done in groups, in order to discuss and create a common outcome. I also believe that AI works inclusively in a classroom, providing many opportunities for participation". T2 reported on AI's potential for personalized learning, inclusiveness, and development of various skills, as follows: "I believe that it initially supports personalized learning, as it enables us to adapt activities to students' needs and monitor their progress in a more targeted manner. It can even support students with learning difficulties and enhance inclusion in the classroom. In addition, it cultivates creativity, children participate more actively, develop critical thinking and become little researchers…I think it has the potential to help children think differently, experiment and use technology to their advantage".

Part of the findings confirm recent research on teachers' perceived benefits and opportunities. For example, personalized activities/learning (Filiz et al., 2025; Uğraş, 2024; Uğraş et al., 2025), development of 21st century skills such as AI literacy, and creativity (Kölemen & Yıldırım, 2025; Song et al., 2025), as well as the potential of AI tools to facilitate equality among children (Uğraş et al., 2025), have been expressed by preschool and elementary school teachers.

Teachers' Perceived Risks, Challenges, and Concerns About AI

Insufficient (or lack of) teacher training and reliability/quality of information constitute concerns shared by both teachers. For example, T2 stated, "Something that concerns me is the possible lack of training for teachers around AI…need for proper use and appropriate training. The biggest challenge for me, and for all educators, is the lack of appropriate pedagogical training around the use of AI. We don't always know which tools are appropriate for the age of the students and how to integrate them into the classroom". With regard to the reliability of generated information, T1 shared, "with the information that is received, whether it is correct. Now for kindergarten children, at least for the use that we want, I think things are a little safer"; although she expresses a potential risk, she considers it safer with preschoolers in comparison to older students. T2 pointed out, "Regarding AI tools, something that concerns me is the quality and reliability of the information. That is, AI can give impressive answers, but not always accurate or pedagogically appropriate. Especially for young children, teacher guidance is necessary so that the information is properly evaluated". These concerns are in alignment with relevant studies which indicated insufficient training and institutional support (Cheah & Kim, 2025; García et al., 2025), and AI tools' inaccuracy/misinformation (Su & Yang, 2022; Uğraş, 2024; Uğraş et al.; 2025) as teachers' perceived concerns.

Other specific concerns expressed by T2 regard: technical infrastructure ("Also, something that worries me quite a bit is that the infrastructure we have in schools is not suitable to welcome these types of changes"); overreliance on technology that may diminish human contact ("I'm afraid that children will start to rely too much on it and thus not exercise their thinking and will be limited to using technology, resulting in the loss of human contact"); safety of personal information ("Where the information goes is something that worries me... Is all this information we provide recorded somewhere? And if so, is it protected in some way?"). The preschool teacher voiced fewer concerns, but she highlighted the importance of experiential learning for young children ("Children should be exposed to experiential learning"). There is some alignment with recent research which revealed teachers' concerns, such as: lack of resources (García et al., 2025; Su & Yang, 2022); ethical, and privacy concerns (Ashby, 2024; Cheah et al., 2025; Filiz et al., 2025; Kölemen & Yıldırım, 2025); decreased social and human interaction (Cheah et al., 2025; Uğraş, 2024).

Teachers' Expectations Regarding AI Integration in Education

Teachers' expectations are, at some points, associated with their perceived opportunities, risks, challenges and concerns (see Table 4). Initially, teacher AI-related training (a perceived concern) is an expectation expressed by both teachers. For instance, T1 voiced, "Teacher training would definitely help, so that there is a guidance. Another world opens up by using it (AI). Anyway, we have started to use it, more generally, in our lives. I think we need some guidance on how we can use this".

T1's concern about experiential learning, results in her expectation of a balance between technology and hands-on activities (since experiential learning is vital for preschool children). She

highlighted, "By integrating it (AI) into education, I think it is something important… to be applied in moderation (without excess) …Children should also be exposed to experiential learning, because yes, it's certainly great to see things, but we also need to experience them, to use our other senses. So, a balance is definitely needed, especially at these ages". Relevant research studies report that ChatGPT is a useful tool to support and enhance the educational practices (Ashby, 2024), while it is essential to maintain a balance between AI-enabled technology and hands-on, experiential activities (Nikolopoulou, 2024b).

T2 (who mentioned children's skill development as potential opportunity), described her expectation for children's skill development, as follows, "AI should not function as a substitute for the teacher, but as an educational tool for children's thinking, creativity and collaboration… Another expectation of mine is that through the controlled, of course, use of AI, children will acquire critical thinking about technology and digital literacy skills, which will prove useful to them in their lives". T2 also highlighted inclusivity and AI being a motive for children. According to her words, "Children can express themselves more freely, making learning more inclusive. I hope that by using it, we will be able to better respond to the needs of each child, provide support to those who are struggling and at the same time offer stimulation to those who are progressing more quickly". Finally, T2 remarked the role of the teacher, considering AI as a supportive-complementary tool, that will not replace the teacher: "Some (teachers) also fear that it may replace their role in the future. In general, I believe that it takes time to realize that this is a tool that enriches learning and does not replace the teacher".

LIMITATIONS AND IMPLICATIONS OF THE STUDY

The study is limited by its small sample size, focusing on only two teachers from Greece. While their insights are valuable, the findings cannot be generalized to broader populations or different educational contexts. Additionally, the short duration of AI use (three months to a year) and lack of formal training among participants, may have constrained the depth and scope of their AI integration experiences.

The study has some implications for policy, teacher training, and educational practice. First, it underscores the need for structured, ongoing professional development to equip teachers with both technical and pedagogical skills for integrating AI tools effectively and ethically. Teacher training on AI may facilitate effective implementation via creating interactive learning environments (Filiz et al., 2025; Uğraş, 2024). This study's participants expressed strong interest in using AI to enhance creativity, personalized learning, and student engagement, but also raised concerns about information accuracy, loss of experiential learning, and data privacy. Secondly, the findings suggest that AI can support inclusivity when appropriately adapted to young learners' needs. However, the early-stage experimentation observed in classrooms highlights the necessity of guidance, curriculum alignment, and reliable infrastructure. In parallel, the positive children's responses suggest that well-designed AI activities can foster motivation, curiosity, and collaboration (even among hesitant learners). Yet, this enthusiasm should not overshadow the need for balanced, hands-on learning experiences, especially in preschool education.

Overall, this research informs future national and international initiatives, offering early evidence that can guide training programs and policy development. There is a need for international education policies to prioritize age-appropriate and ethically grounded integration of AI in early childhood and

primary education. As teachers globally begin experimenting with generative AI, the lack of structured professional development emerges as a barrier. Training programs must equip educators with not only technical competencies but also pedagogical frameworks to ensure developmentally appropriate, inclusive, and safe use of AI. Policymakers could invest in reliable digital infrastructure and create clear guidelines on data privacy, accuracy, and ethical use of AI tools with young learners.

CONCLUSION

This study contributes valuable, insights into the emerging use of generative AI in Greek preschool and primary education (i.e., educational levels that research and implementation are still in the early stages). The findings reveal an early yet promising adoption phase, with teachers cautiously experimenting with AI tools like ChatGPT, Perplexity, Canva, and Khan Academy Kids. Both educators observed that AI-enhanced activities increased children's engagement, creativity, and collaborative skills. Particularly in primary education, AI was harnessed for personalized learning and inclusive practices, showing potential to address diverse learner needs. However, the integration of AI is not without challenges. Teachers expressed concerns regarding the reliability of AI-generated content, limited technical infrastructure, privacy risks, and insufficient pedagogical training. The preschool teacher emphasized the importance of balancing AI use with multisensory, experiential learning, which is foundational for early childhood development. This highlights the critical need for age-appropriate approaches that respect the cognitive, emotional, and social needs of younger learners.

Teacher feedback from Greece mirrors relevant global findings. While AI enhances engagement, creativity, and collaboration, concerns remain about overreliance on technology, loss of hands-on learning, and insufficient safeguards. Therefore, AI should be seen as a complementary tool, not a replacement for human interaction, particularly in early education. Cross-national collaboration is needed to share best practices and co-develop AI curricula tailored to young learners' needs. As AI enters classrooms worldwide, responsible implementation will require alignment between policy, teacher preparation, and developmental priorities.

The importance of this study is also linked with its contextual relevance. As Greece plans a nationwide AI training initiative for educators, these early findings can inform curriculum design, teacher support systems, and policy development. By capturing teachers' lived experiences, the study underscores that effective AI integration must be based in school realities, developmental appropriateness, and pedagogical intentionality. In doing so, it advocates for a future where AI complements (rather than substitutes) human interaction, fostering inclusive, engaging, and developmentally sound learning environments for young children (Nikolopoulou, 2025). Future empirical studies need to investigate, for example, how diverse educational contexts can adopt AI to enrich learning while preserving essential human and developmental dimensions.

Conflicts of Interest

The authors declare no conflicts of interest.

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