

Artificial Intelligence in Kindergarten: A Qualitative Exploration of Teachers' Experiences

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Introduction and Theoretical Framework (I)

Artificial Intelligence (AI) has been around for a long time now, some argue since 1950 (Chen, Chen & Lin, 2020) and specifically research on the use of AI in Education (AIEd) has been conducted for more than 30 years (Zawacki-Richter et al., 2019).

It wasn't until recently when ChatGPT appeared in November 2022, that its use has been extensively discussed and questioned.

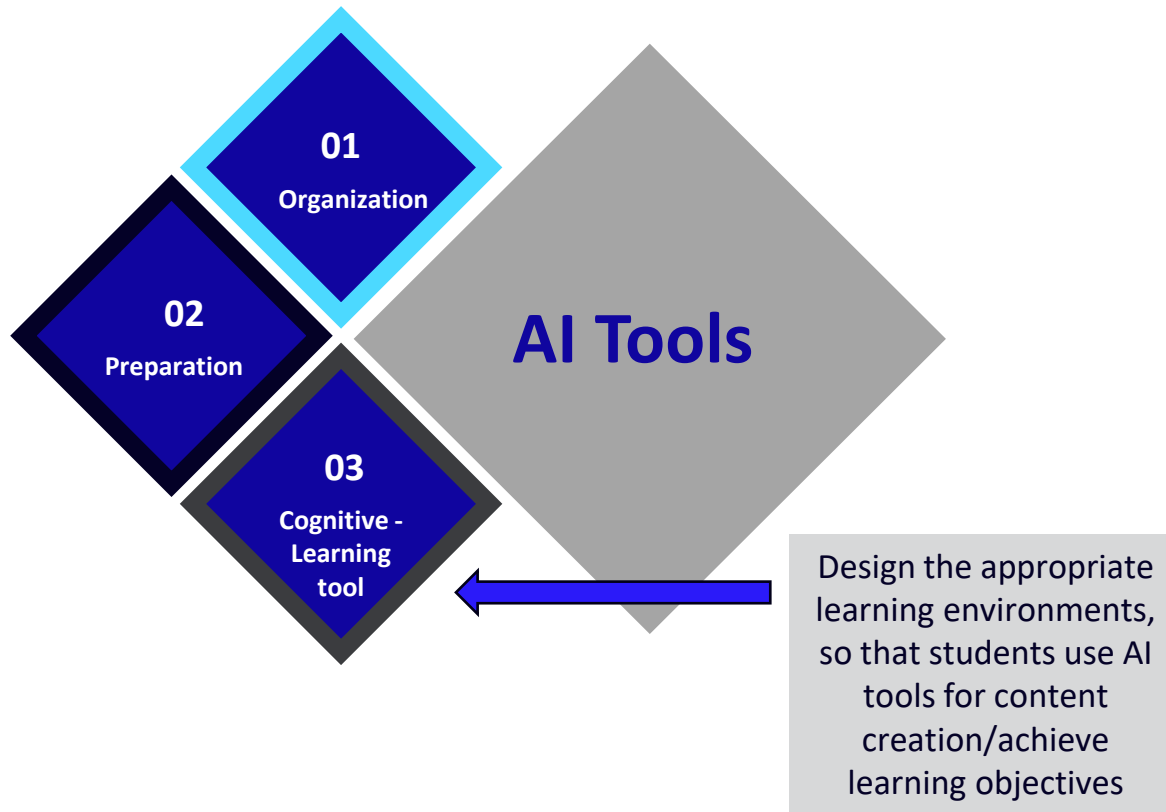
The past five years AI was considered to be a great development in the field of educational technology and is expected to grow even more (Educause, 2018, 2019).

AIEd will have a tremendous raise in various solutions, applications and uses (Zawacki-Richter et al., 2019).

Given the explosion of AI uses, the education sector has to face a number of challenges, with consequences for teaching and learning.

These developments heavily influence teaching and learning in many levels and requires numerous decisions to be taken for educators and students to appropriately and effectively use AI applications.

AI Tools Uses in Education



For each of one of the aforementioned purposes AI can be employed in various ways, such as:

- collaborative learning,
- student forum monitoring,
- continuous and automatic assessment,
- learning companions,
- teaching assistants,
- automatic feedback and scoring,
- tutors,
- simulation-based instructions,
- **educational material and content development,**
- proctoring

(Chassignol, Khoroshavin, Klimova, & Bilyatdinova, 2018; Devedžić, 2004; Kahraman, Sagioglu, & Colak, 2010; Peredo, Canales, Menchaca, & Peredo, 2011).

Categories – AI Tools

Writing tools

Content Creation tools

Images Generation Tools

Video Generation Tools

Logo Generation Tools

Art Tools

Spreadsheet Tools

Coding Tools

Productivity Tools

Transcriber Tools

Text to speech Tools

Youtube Tools

Daily life tools ChatGPT

Chatbot Tools

Music tools

Twitter Tools

Start up Tools

SEO (Search Engine Optimization) Tools

Chrome extensions

Sales Tools

All Ai Tools

Massive list of 72 AI Tools

Writing Tools

1. Notion AI
2. Monica
3. Compose
4. Othersideai
5. Analogenie
6. Penelope

SEO Tools

1. LongShot
2. SEO Content AI
3. SEO GPT
4. Cyborg Content
5. Rübiq
6. Rytar

CodingTools

1. Codeium
2. Replit
3. MarsAI
4. Safurai
5. GitFluence
6. Phind

Startup Tools

1. Durable
2. Namelix
3. Bizway
4. Tekmatix
5. RhetorAI
6. Validator

Logo Generator Tools

1. Looka
2. Namecheap logo
3. Logoai
4. Make Logo AI
5. Designs AI
6. Brandmark

Image Generator Tools

1. Stable Diffusion
2. SeaArt
3. Lucidpic
4. Pebblely
5. Synthesys X
6. DALL-E2

Spreadsheets Tools

1. SheetAI.app
2. Arcwise AI
3. Excel Formula Bot
4. ParallelGPT
5. FormulaChatGPT
6. Vizly

Art Tools

1. Midjourney
2. NightCafe Studio
3. Playground AI
4. Pixelicious
5. PlayArti
6. Fly Studio

Text To Speech Tools

1. Descript
2. Audyo
3. Synthesys Studio
4. Voxwave AI
5. Murf AI
6. Ai Sofiya

Productivity Tools

1. Bright Eye
2. Audioread.com
3. GitMind AI
4. Magical
5. Taskade
6. Google Bard

Transcriber Tools

1. Shownotes
2. Peech
3. Circleback.ai
4. Whisper Memos
5. Context
6. Noty.ai

Video Generator Tools

1. Lumiere 3D
2. Shuffll
3. Fliki
4. Synthesia
5. Gen-2 by Runway
6. Reemix.co

AppSourceHub | @App_Source_Hub

72 AI TOOLS FOR 2024

Youtube Tools

1. ClipMaker
2. Steve AI
3. Glasp
4. Eightify
5. TubeBuddy
6. Thumbly

Coding Tools

1. 10WEB
2. Durable AI
3. Deepcode
4. Akkio
5. Replit
6. GitHub Copilot

Productivity Tools

1. Bardeen AI
2. Paperpal
3. Consensus AI
4. Writesonic
5. ChartGPT
6. Scholarcy

Daily life Tools

1. Notion AI
2. Taskade
3. TLVD
4. Vondy AI
5. Bardeen AI
6. Eessel

Writing Tools

1. AISEO
2. Quillbot
3. Simplified
4. Writesonic
5. Bertha AI
6. Jasper AI

Sales Tools

1. Lavendar
2. Warmer
3. Octane
4. Twain
5. Regie
6. Simplified

Chatbots Tools

1. Yatterplus
2. Typewise
3. Quickchat
4. Cohere
5. Kaizan
6. GPTBuddy

Music Tools

1. Muzeek
2. Brain FM
3. Amper
4. Melodrive
5. Jukedeck
6. Boomy

Content Creation Tools

1. Writesonic
2. Tome AI
3. Beautiful AI
4. ChartGPT
5. ChatABC
6. Steve AI

Images Tools

1. StockIMG
2. Mid Journey
3. Leonardo AI
4. Bing AI
5. Autodraw
6. Microsoft Designer

Twitter Tools

1. Postwise
2. Tweet Hunter
3. TribeScaler
4. Tweetlify
5. Tweetmonk
6. Hypefury

Chrome Extensions













1. Alicent
2. Compose AI
3. Poised AI
4. Voila AI
5. Wiseone
6. FinalScout

Content Creation tools

Integration as a cognitive-learning tool: Design Learning environments enhanced with AI (technology)

Preparation purposes:
Develop instructional materials/content

Best AI tools to Generate anything in 2023

Write Anything	 Writesonic	https://writesonic.com/
Solve Anything		https://chat.openai.com/
Generate Art		https://www.midjourney.com/home
Generate Code	 replit	https://replit.com/
Generate PPTs	 SlidesAI	https://www.slidesai.io/
Generate Video	 synthesia	https://www.synthesia.io/
Generate Music	 SOUNDRAW	https://soundraw.io/
Generate TikToks	 Fliki	https://fliki.ai/
Generates Avatars	 starryai	https://starryai.com/starrytars
Edit Pictures	 Remini	https://remini.ai/
Edit Videos	 PICTORY	https://pictory.ai/
Summarise Notes	 wordtune	https://www.wordtune.com/



Data InkSights Blog

Development of Activities

AI can **analyze educational material and create exercises** that are tailored to the lesson content and the needs of students (Nguyen, 2023).

AI algorithms analyze responses and **adjust future exercises** to enhance students' understanding and learning.



Use your own material

Describe the type of the exercise to generate

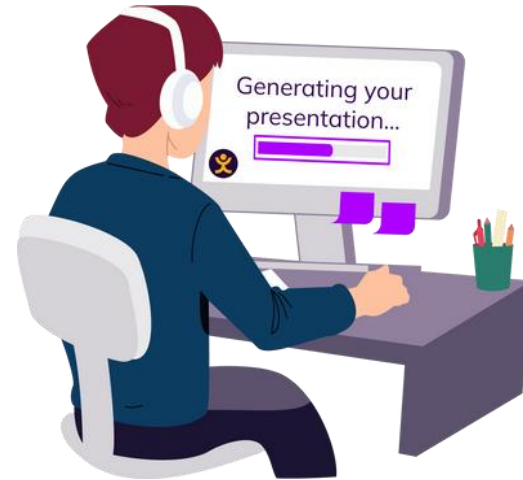
There is a wide range of tools that can provide ideas on how educators can design their activities, such as ChatGPT, Gemini, Jasper, and others.

Creating Presentations

AI can **analyze educational materials**, such as books, articles, notes, e.t.c, to identify key concepts and **important points** that should be **included in the presentation**.

It can suggest the structure of the presentation, proposing slides that cover the main topic, sub-sections, and examples (Sukmiarni & Kristianti, 2024).

AI tools can also **suggest visual elements**, such as images, charts, and videos, that enhance the understanding of the content, making the presentation more engaging and interactive.



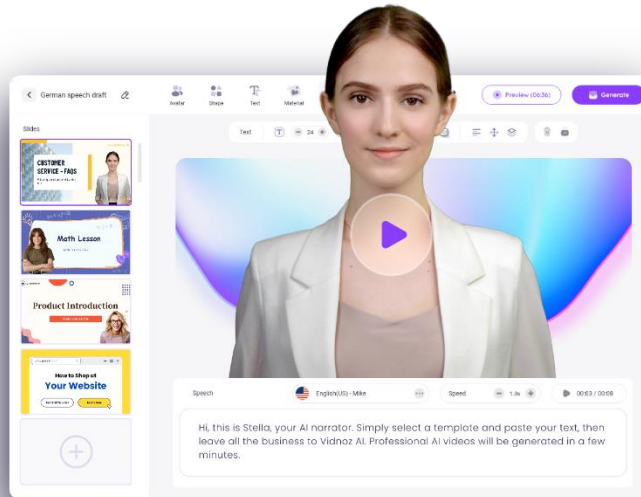
Examples of AI tools that can assist educators in creating presentations include Gamma, Beautiful.ai, Visme AI, Designs.ai, and others.

Creating Digital Twins/Avatars

A digital twin is the digital representation of a physical person (Huang et al., 2023).

AI provides the capability to create a digital twin, a digital representation of the educator themselves, which can be used in teaching in many ways, improving the effectiveness and efficiency of the educational process.

The digital twin can provide information and clarifications, immediate feedback to students, and conduct reviews or additional explanations on a topic.



Examples of tools that allow educators to create their own avatars include Heygen, Vidnoz, Veed.io, Photoleap, and others.

Assessment

AI significantly changes the methods of teaching assessment as it not only can create exam questions but also automatically corrects assignments, exam papers, and any form of assessment, while also providing feedback (Akgun & Greenhow, 2022), saving valuable time for educators (Guan, 2023).

These tools enable educators to change the assessment process, moving beyond traditional exams to more dynamic methods.

AI tools used for assessment purposes can analyze students' responses in real-time, providing immediate feedback and insights into their understanding and progress (Onesi-Ozigagun et al., 2024).



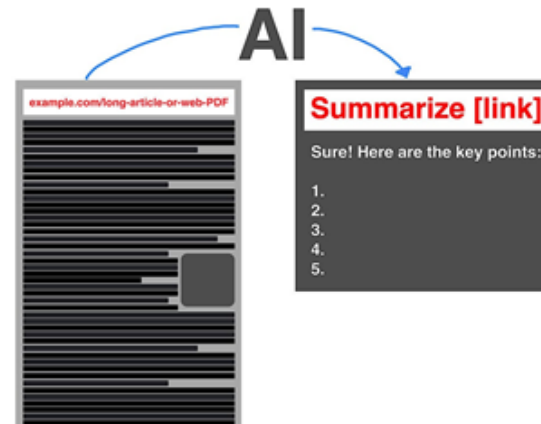
Examples of tools that prepare exam papers include Gemini, ChatGPT, AI Monica, and others.

Text/Content Summarization

AI offers significant assistance to educators in the process of summarizing texts, such as articles, books, and other forms of educational material. It can even summarize a video (Rahman et al., 2024).

AI uses advanced algorithms that allow the identification of the most critical elements of the text, including key ideas, central themes, and main arguments.

AI can also compare and combine content from various sources, identifying common themes and connections, and create comprehensive and concise summaries that provide a clear overview of the general content.



This can be done with the help of AI tools such as Monica, Gemini, ChatGPT, QuillBot, and others.

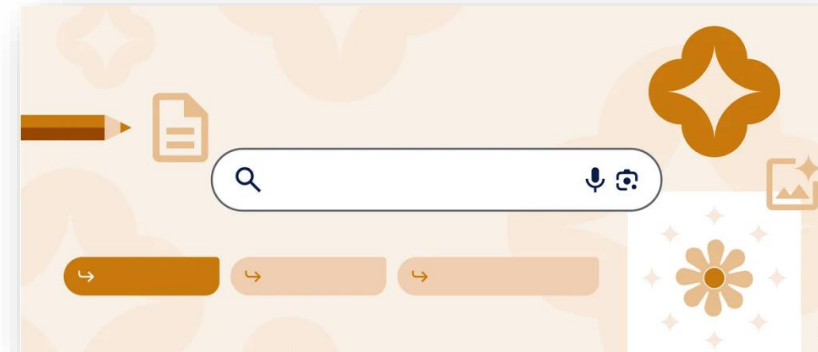
Text/Content Summarization

AI is a valuable ally for educators in image production, offering tools that facilitate the creation, editing, and customization of visual materials with great ease and relative accuracy.

AI systems have the ability to create images from scratch, based on text descriptions or examples, allowing educators to produce visual content that is fully tailored to the needs and requirements of their courses (Shi, 2023).

Additionally, AI can edit existing images, improving resolution, correcting colors, removing unwanted elements, or adding new details, making images more attractive and effective for teaching.

Moreover, AI can create interactive and dynamic images, such as diagrams, charts, and animations, that facilitate the understanding of complex concepts and processes.

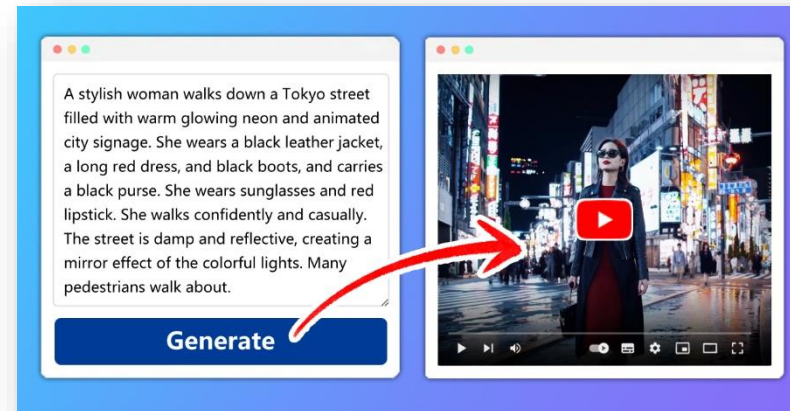


Examples of image production tools include Midjourney, DALL-E, OpenArt, Pixlr, and others.

Video Production Tools

AI provides support to educators in video production by offering tools and technologies that facilitate the creation, editing, and customization of audiovisual content.

Essentially, AI allows educators to create educational videos that are tailored to the needs and requirements of their courses. AI can handle video creation from scratch, using text descriptions to compose scenes and select appropriate graphics, sounds, and music. Additionally, AI can edit existing videos, improving image and sound quality, adding subtitles, graphics, and animations. A key element of summarizing a section/scene of a video is to provide an appropriate description that includes important keywords related to that scene (Rahman et al., 2024).



Examples of AI tools that create videos include Pictory AI, Vidnoz, VideoGen, InvideoAI, Synthesia, and others.

Text-to-Speech Tools:

Another capability of AI is text-to-speech (TTS) conversion. With TTS, educators can convert written texts, such as notes, teaching materials, and books, into speech.

AI's TTS systems are capable of recognizing and adjusting tone, rhythm, and voice intensity, creating a vocal experience that is natural and easy to listen to.

This is particularly useful for students with learning disabilities or visual impairments, as well as for facilitating multilingual education by providing instructional material in multiple languages and dialects (Bonifacci et al., 2022; Yashina et al., 2022; Alqahtani, 2023).

Educators can use TTS for creating audiobooks, producing audio versions of their lessons, or even providing immediate feedback to students through voice messages.



Examples of text-to-speech tools include Murf, Veed.io, PlayHT, Speechgen.io, and others.

Main Aim

This case study aims to evaluate the effectiveness of a professional development training, exploring further integration of AI tools within their teaching and learning practices. Specifically, the study delves into the experiences and perspectives of kindergarten teachers regarding the use of AI in their ECE classrooms.

Research Objectives

- How do kindergarten teachers perceive the role of AI tools in enhancing their teaching practices and improving student learning experiences in early childhood education?
- What are the key needs and challenges identified by kindergarten teachers regarding AI training programs in the context of early childhood education?
- How can AI tools be utilized to support the inclusion and learning of children with special needs in kindergarten classrooms, according to educators' perspectives?

Methodology: Case Study

APPROACH

Phase 1

Intensive one-day
professional development
training

Phase 2

Semi-structured
interviews

SAMPLE

Phase 1

10 kindergarten teachers

Phase 2

4 kindergarten teachers

Demographics

4 Kindergarten teachers

All female

Ages: 51, 51, 32 & 25

Years of Experience:

32, 32, 10 & 4

All hold bachelor degree –
only one has master

TRAINING

Phase 1

Intensive one-day
professional development
training introduce them
to a variety of AI tools
specifically chosen for
their applicability in ECE
and their pedagogical and
administrative use in ECE.

INTERVIEWS

Phase 2

Five key categories:

1. Perceived needs for future AI training programs
2. Feedback on the training they received
3. Practical applications: The newly acquired knowledge about AI tools
4. The use of AI in Special Education – Special needs students
5. Future training opportunities related to AI technologies.

Results

5 Thematic Areas

1. Training Needs related to AI

2. Training on AI

3. Use of AI in the Educational Practice

4. Special Needs and AI

5. Future Opportunities for Training and Development

1. Training Needs related to AI (Results)

Reasons to seek AI training (kindergarten)

Adaption to New Generations	Several interviewees emphasized the need to adapt to the evolving needs of younger generations. They highlighted the importance of staying updated with technological advancements and integrating them into the classroom to keep pace with the world in which their students are growing up.
Keeping up with technological advances	Interviewees recognized the rapid progress in science and technology and expressed a desire to expand their knowledge. They view AI training as a necessary step to enrich their understanding and remain relevant in the education field.
Enhancing Teaching Methods	There was a strong focus on making teaching more interactive and engaging for students. Interviewees wanted to move beyond traditional lesson delivery methods by incorporating AI tools that could create more dynamic and interactive learning environments.
Supporting Student Education with AI	The interviewees see AI as a way to better support children's education by using technology effectively. They sought AI training to acquire new tools and strategies that could improve how they teach and interact with students.

1. Training Needs related to AI (Results)

Challenges in the classroom that AI could address

Maintaining Student Attention	Interviewees highlighted the challenge of keeping students' attention in a world full of fast-paced visual stimuli. AI tools have been effective in grabbing students' focus, and educators believe AI could further enhance lesson engagement by making teaching more interactive.
Boosting Engagement through Visual and Interactive Tools	AI is seen as a way to capture students' interest by providing interactive, visual elements. Some teachers have already used AI to create images or content based on children's input, finding that this method effectively draws the children into the learning process and stimulates their curiosity.
Personalized Learning	AI is viewed as a tool that can facilitate personalized learning, allowing educators to work more closely with individual students. It enables teachers to adapt lessons to the needs of each student by offering personalized experiences.
Helping Students Express Ideas	Another challenge AI could address is helping children express ideas they struggle to communicate verbally or artistically. AI tools can assist by transforming children's thoughts and descriptions into images or sounds, making it easier for them to express complex ideas.

1. Training Needs related to AI (Results)

Training desired outcomes for kindergarden teachers and students

Increasing Engagement and Interactivity	The interviewees seek to make learning more interactive and engaging for students. They want to capture children's interest through fun and hands-on activities that make learning enjoyable, such as using AI to create visual models and characters.
Incorporating Creativity into Learning	AI tools are viewed as a way to enhance creativity in the classroom, especially through music and image creation. The educators believe that the tools introduced in the training will help them integrate more creative elements into their lessons.
Immediate and Gradual Implementation	Some educators are eager to immediately apply the AI tools they learned about in lassroom activities. Others plan to gradually incorporate the AI software into their teaching over time, ensuring a smooth integration into their routines.
Balancing Fun and Learning Objectives	There is a strong desire to ensure that lessons are both fun and educational. The educators aim to engage students without sacrificing the learning outcomes, using AI to make their lessons more appealing while still achieving the goals of early childhood education.

2. Training on AI (Results)

Initial thoughts and feelings about using AI in classroom before the training

Openness to AI	Some educators were enthusiastic about AI from the start. They actively sought out information and were keen to learn how to integrate AI into their teaching, recognizing its potential benefits.
Skepticism and Concern	Others were more skeptical, finding the idea of using AI challenging, particularly due to their more traditional teaching approaches. They felt uncertain about adapting to new technology but were open to learning with practice and training.
Fear of Technology Overload	One educator expressed concern that children, already exposed to a lot of technology at home, might lose out on hands-on, experimental learning if AI was introduced in the classroom. However, this concern was alleviated when they noticed that AI seemed to enhance the learning process.
Challenges for Educators	A common theme was the concern about how educators would manage the AI tools and programs, especially since some felt unfamiliar with the technology. While they acknowledged the benefits for the children, they were unsure of how easy it would be for them as teachers.

2. Training on AI (Results)

Meeting Training Expectations

Collaborative and Supportive Environment	Some participants appreciated the collaborative team environment during the training. They felt the trainers were responsive to their needs, adjusting the focus when they realized the participants were already familiar with certain tools, and providing additional resources that were relevant to their teaching needs.
Constructive and Useful	One interviewee described the training as constructive, while another emphasized the wide variety of tools presented. This variety allowed them to choose different tools for different lessons, helping enhance their teaching practices.
High Praise for Trainers	One interviewee expressed extreme satisfaction, calling the trainers 'perfect' and praising their approach and support throughout the training.
Variety of Tools	The variety of AI tools introduced during the training was seen as a major benefit. Participants appreciated having a range of options to address different teaching scenarios, making the training more practical and adaptable to their specific needs.

2. Training on AI (Results)

Useful and Engaging Apects of the Training

Building on Previous Knowledge	Some participants appreciated the opportunity to enhance their existing knowledge of AI. They found that even familiar concepts could be deepened, and new insights could be gained.
Creative Applications	Many interviewees highlighted the creative uses of AI in the classroom, such as creating images, adding music to visuals, and making photos interactive (e.g., giving them speech or movement). These features were seen as both useful and impressive.
Music and Visual Arts	Several participants found the tools related to music and visual arts particularly engaging. They appreciated learning how AI could be used to create and enhance these elements in their teaching.
Cognitive Sciences and Language Education	One educator emphasized the potential of AI in cognitive sciences, particularly in language education. They saw AI as a valuable tool for rendering text or images, which could enhance lessons and improve engagement.

2. Training on AI (Results)

Aspects of the Training to be Improved

More Kindergarten-Specific Applications	One participant suggested that the training could include more tools specifically tailored for kindergartens. This would make the lessons more engaging for young children and simplify the teacher's workload.
Satisfaction with the Training	Two participants were satisfied with the training and did not suggest any specific improvements. One emphasized the need for more practice with the tools provided.
More Hands-On Time with Tools	Another participant appreciated the tools but felt more time should have been spent on practical activities. They suggested using the tools on computers during the training to better understand their applications.

3. Use of AI in the Educational Practice (Results)

Potential obstacles to implement AI tools in the kindergarten classrooms

Preparation	Some educators emphasized the need for thorough preparation before using AI in class. AI tools may require setup and downloading in advance, as unpreparedness can lead to technical delays, causing children to lose attention quickly.
Over-Reliance on AI	A concern was raised about children potentially relying too much on AI, which might reduce their use of critical thinking and creativity. There's a fear that AI could take over tasks that children should be doing themselves, such as creating artwork or coming up with ideas.
Children's Attention Span	As children are becoming more restless, it can be challenging to hold their attention, especially during prolonged AI-based activities. However, the visual and auditory elements of AI may help keep children engaged if used quickly and effectively.
Miscommunication and Unintended Outcomes	Another obstacle mentioned was the possibility of miscommunication between teachers and children when using AI. Sometimes, what the teacher expects from the AI tool may not align with the children's intentions, leading to unsatisfactory results.

3. Use of AI in the Educational Practice (Results)

Artificial Intelligence benefits for students' learning and development

AI as a Support Tool, Not a Replacement	Several educators emphasized that AI should assist in learning without replacing critical thinking or the teacher's role. AI can be used as a helpful tool when students face challenges, but it's important that students engage with material themselves before turning to AI for help.
Balance Between AI and Independent Thinking	There was concern about students becoming too reliant on AI. While AI can be beneficial, educators stressed the need for students to continue thinking and creating independently, ensuring a balance between technology and traditional learning approaches.
Boosting Creativity and Imagination	Some educators highlighted the potential of AI to enhance creativity and imagination, especially in activities like storytelling or creating characters. AI can enable students to visualize and bring their creative ideas to life based on their own instructions.
Improving Specific Skills	AI was also seen as beneficial for developing specific skills, such as oral language and cognitive thinking. The use of AI in these areas could significantly enhance the lesson and foster student development in key areas.

3. Use of AI in the Educational Practice (Results)

Examples of using AI in the daily teaching routine

Classroom Organization and Scheduling	AI can assist in organizational tasks such as creating schedules and programs. By inputting relevant data, AI could help automate the planning process for classroom activities, making it more efficient for teachers.
Student Assessment	AI could also be useful for evaluating students by providing assessment frameworks. It could offer insights on different cognitive areas, helping teachers create more effective evaluation methods tailored to each child's development.
Creative Storytelling	AI was mentioned as a tool for enhancing creativity in storytelling. Children can provide descriptions or characteristics for a character, and AI helps visualize these ideas, making storytelling more interactive and engaging for students. This process allows children to actively shape the outcome based on their imagination.
Collaboration in Character Creation	AI was used in group projects where children described a hero, and AI brought their ideas to life. Each child contributed specific traits, and AI compiled these elements to create a collective character that represented all their inputs.

3. Use of AI in the Educational Practice (Results)

Examples related to the organization, your preparation, and the use of AI tools as learning-cognitive tools or as learning partners by the students

Limited Responses

Two of the interviewees did not provide answers to this question, so there is a lack of detailed responses from part of the group.

Interest in Lesson Planning

One participant expressed interest in exploring AI tools to assist with lesson planning. Although they hadn't yet used AI tools, they were eager to try them to see how they could streamline the process and make teaching more efficient.

Creative Storytelling

Another educator envisioned using AI to create presentations and lesson plans with minimal effort. AI could help generate the bulk of the content, which could then be reviewed and adjusted. They also mentioned potential role in assessing students.

4. Special Needs and AI (Results)

AI influence on personalized learning programs for children with special needs in kindergarten

Positive View of AI with Personalization	Some educators expressed a very positive view of AI, emphasizing its potential to be highly beneficial for children with special needs. Personalization is seen as key, with AI being adapted to each child's unique needs.
Enhancing Creativity and Learning	AI can help children create content, such as images or music, which they might struggle to produce on their own. This allows children to participate in activities that foster creativity and learning through interactive tools.
Use of Sensory Elements	AI tools that combine sound, images, and movement were considered ideal for supporting children with special needs. These multisensory approaches could engage children more effectively and help them absorb information in a way that matches their learning style.
Support for Visual Impairments	One suggestion was that AI could be particularly helpful for children who are blind by allowing them to express their needs verbally and receive auditory feedback, enabling them to participate in lessons despite their inability to see.

4. Special Needs and AI (Results)

AI to support students with special needs in the classroom

Using AI for Interactive Learning	One educator emphasized the potential of AI to make learning more interactive and engaging for children with special needs, particularly through music. AI could be used to teach phonological skills or other concepts using songs and rhythms, which can help children better absorb information.
Concerns About Over-Reliance on AI	Some educators expressed concerns about over-dependence on AI. They worry that relying too much on AI tools could lead to decreased physical and mental activity, as AI performs tasks that children would normally do themselves. This could hinder the development of important skills.
Balancing Technology with Hands-On Experiences	There was also concern that too much screen time, especially with AI tools, might cause children to miss out on valuable hands-on experiences. The challenge is finding a balance between using technology and ensuring children still engage with the world beyond screens.
Exploration and Newness of AI in the Classroom	One educator admitted that they are still in the early stages of exploring AI's potential, even for children without disabilities. AI is seen as a new tool, and they are learning how to incorporate it effectively into their teaching practice.

5. Future Opportunities for Training & Development (Results)

Additional beneficial topics related to AI in the classroom

Staying Informed and Relevant	One educator emphasized the need to stay informed about new AI tools, given the rapid advancements. They believe it's important to focus on AI tools that are relevant and useful for their teaching, avoiding tools that might not contribute to their goals.
AI Tools for Creative Arts	Several educators expressed interest in AI tools related to creative arts, such as music and visual arts. They want more support in learning how to use AI to enhance creativity in the classroom, specifically through image creation and other creative outputs that align with their teaching themes.
Processing Current Knowledge	One educator felt they needed more time to process the current knowledge they've gained from the training before determining what additional AI topics they need. They are open to further learning once they've fully absorbed what they've learned so far.
Clear Categorization of AI Tools	Another educator suggested organizing AI tools into specific categories based on their use cases, as this would make it easier to understand and apply them in different teaching scenarios. They emphasized the importance of having a clear structure to help familiarize themselves with the variety of tools available.

5. Future Opportunities for Training & Development (Results)

Further training on specific AI tools or platforms – Areas to explore more in depth in a future training

General Interest in Further Training	All participants expressed a clear interest in further training on AI tools, indicating that they see value in expanding their knowledge and skills in this area.
School Program Creation	One educator is particularly interested in AI tools that can help with the creation and organization of school programs, suggesting that AI could be used for administrative and structural support in the educational environment.
Lesson Organization and Student Engagement	Another educator focused on tools that can help organize lessons and engage students. They are interested in exploring software that would not only assist with teaching but also make learning more interesting for the children.
Classroom Application of AI Tools	One participant specifically mentioned wanting further training on how to use AI tools in the classroom, with an emphasis on their practical application rather than personal organizational support.

5. Future Opportunities for Training & Development (Results)

Beneficial additional topics related to AI in the classroom

Openness to Various Learning Options	One educator expressed openness to exploring all options for learning about AI in the classroom, without specifying any particular topics or formats.
Preference for Seminars	Several participants mentioned that seminars would be a beneficial way to further their knowledge of AI. They seem to prefer in-person or structured learning sessions to dive deeper into AI topics.
Joining AI Learning Platforms	Another educator focused on tools that can help organize lessons and engage students. They are interested in exploring software that would not only assist with teaching but also make learning more interesting for the children.
Classroom Application of AI Tools	One educator suggested joining AI-related platforms where they could become members and continue learning, in addition to seminars. This reflects a desire for ongoing, community-based learning opportunities.

Implications/ Conclusions



- Need for Continuous Professional Development
 - Customized Training Programs
 - AI resources tailored to Early Childhood education/Special Education - focus on Creativity and Engagement
 - AI tools for diverse applications and needs
 - Trainer competency and Support
 - Focus on Practical AI Tools, Hands-on Learning
 - Effective use of AI tools
- Gradual Integration of AI
 - Building on existing knowledge
 - Addressing initial skepticism and concerns
 - Address Ethical concerns
- Potential of AI: for Personalized Learning, Student Assessment, Organization and Lesson Planning
- AI as a Support Tool for Creativity, Learning, Interactivity, Engagement and Motivation
- Balance AI with Traditional Learning & Manage over-reliance on AI

Future Research



- Evaluation of Classroom Applications – Best Practices
- Effective Strategies for AI Preparation and Implementation
- Impact of AI on Critical Thinking and Creativity in Young Learners
- Evaluating the Role of AI in Language and Cognitive Skill Development
- Ethical Considerations in AI Use for Early Childhood
- Teacher Adaptation to AI Tools and Classroom Dynamics
- Personalized Learning through AI
- Teacher Training on the Effective Use of AI for Special Needs

Thank you for your attention!