

Article

Empowerment or Negativeenergy?—Opportunities, Challenges and Reflections of Preschool Teachers under the Application of Artificial Intelligence

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Abstract: From the perspective of I-TPACK theory and entanglement and symbiosis human-computer interaction theory, combined with the analysis of narrative interview materials made by 15 preschool teachers in the whole kindergarten, the current practice status of teachers using AIGC or intelligent tools for home communication, lesson plan design, courseware production, and visual observation of children is investigated with the method of narrative inquiry. The study found that AI is an enabling resource to promote preschool teachers to use data to think, design courses, and complete role changes, but at the same time there are three boundary conflicts: human-machine emotion, educational wisdom, and preschool information ethics. In addition, when teachers use relevant tools, they often have practical troubles such as difficulty in writing prompt words, high operating thresholds, technical dependence, and insufficient AI resources for preschool education. The research proposes three professional growth paths: reshaping teachers' professional role cognition, cultivating an AI preschool education dual-core literacy system, and building an artificial intelligence teaching and research community to promote the professionalization of preschool teachers.

Keywords: artificial intelligence; preschool teachers; professional growth; educational boundary

1. Introduction

The deep integration of intelligent technology and education is changing the ecology of preschool education at an unprecedented speed. From intelligent evaluation systems to home interactive apps, from AI picture book generation to children's behavior observation systems, artificial intelligence has inevitably penetrated into the field of preschool education (Nafukho et al., 2004). But at the same time, not all technology embedding is a process of unilaterally improving efficiency. In the practice of using AI in the daily teaching of front-line preschool teachers, this paper finds that there are differences between technical tools and educational practices. For example, teachers want to use AI to compress the working time of copywriting, but due to the cost of learning prompt word instructions and problems such as AI-generated text fact proofreading and logical correction, the total time cost “does not decrease but increases”. For another example, for teaching animations or courseware generated by AI,



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the feedback is that the content is too rigid and lacks childlike interest, which cannot meet the kindergarten teaching scene; However, relying on AI to build a teaching plan framework and write an activity plan has the problem of weakening the ability of independent teaching design and text creation. This is not a purely technical adaptability issue, but reflects a problem: when AI penetrates into key educational links such as curriculum design, teaching implementation, home communication, and even children's evaluation, the identity of teachers is also undergoing fundamental changes (Putra & Sekti, 2026), technological changes have made preschool teachers stand at a crossroads of identity-not only ushering in the opportunity of technological empowerment, but also facing the deep anxiety of being disciplined or even replaced by technology. (Berson et al., 2025); The core question that emerges from this is: After the deep intervention of AI, will kindergarten teachers be “disabled” or “empowered”? While artificial intelligence brings teaching efficiency dividends, what kind of professional autonomy, educational judgment and creative challenges does it bring to teachers? Although relevant studies have made important contributions to the macro-theoretical construction of artificial intelligence education and the framework of teachers' technical literacy, most of the studies focus on K-12 or higher education, and do not pay special attention to kindergarten teachers. Special groups, and most of the existing research results discuss the application of AI from the perspective of technology functions, and the qualitative investigation of the real practical confusion of front-line teachers and the internal mechanism of professional growth is not yet sufficient. Whether the theory of “human-machine symbiosis” is applicable to the preschool education field also needs to be verified by materials. Therefore, this study is based on the topic of professional growth of preschool teachers from the perspective of artificial intelligence, using the I-TPACK framework and the human-computer interaction theory of entanglement and symbiosis as analysis tools, and on the basis of narrative interviews with 15 front-line preschool teachers, Try to answer how AI technology changes the professional role of preschool teachers; Where is the educational boundary of artificial intelligence; And how teachers can grow professionally rather than degenerate professionally in the process of technological empowerment, so as to provide certain theoretical reference and practical reference for alleviating teachers' professional anxiety, clarifying the path of professional growth, and promoting the healthy advancement of preschool education in the era of artificial intelligence.

2. Literature Review

2.1. Theoretical Context of Artificial Intelligence Education

The research of artificial intelligence education has experienced a process from “human-computer interaction” to “entanglement and symbiosis”. In the early stage, it was mainly about the functional interaction between people and computers, but in recent years, scholars have also begun to pay attention to more the deep-seated interaction between “teacher-student-machine”. “Entanglement Symbiosis” implies the idea of entanglement human-computer interaction theory, and Qiangyu will fully realize a new kind of artificial intelligence (Meniado, 2024). Under this kind of thinking, the machine is no longer a simple teaching method used to help people, but an “actor” who cooperates and coexists with human teachers. At present, there are three main types of thinking about the integration of human intelligence and machine intelligence: the first is a speculative research based on human teachers, focusing on how teachers endogenous artificial intelligence capabilities; The second is the research on the skill change of machine teachers, discussing the shortcomings of AI teachers in terms of deep logic and social emotion; The third is the research of fusion model construction, trying to establish an artificial intelligence teaching that can give full play to the respective advantages of the two. Effective human-machine cooperation involves a series of controls, and ultimately points to “Meaningful Human Control” (Meaningful Human Control), that is to say, humans will always be the real masters of technology.

2.2. Theoretical Framework of Teacher Profession: From TPACK to I-TPACK

The Technology-Pedagogy-Content Knowledge (TPACK) framework has always been a classic tool for analyzing teachers' ability to integrate technology. However, due to the lack of TPACK due to AI's independent agency, epistemological complexity and ethical dimension, Chiu proposed a new intelligent TPACK (I-TPACK), which combines AI technical knowledge, AI content knowledge, The five knowledge areas of AI teaching knowledge, human-machine collaboration knowledge, and ethical knowledge are integrated to make up for the gap in TPACK (Chiu, 2025). And this framework formalizes the knowledge of human-machine collaboration, emphasizes that AI can handle procedural tasks, and allows teachers to have more time to think about higher-level instructional design. At the practical level, the I-TPACK framework is used to guide teacher education, enabling teachers to become designers who can strategically orchestrate human-machine collaborative learning, rather than artificial intelligence users who simply use AI tools. This theory provides a useful analytical tool for understanding and explaining the professional growth of preschool teachers in the AI era (Lakhe Shrestha et al., 2025).

Comparing the interview data, it is found that preschool teachers' cognition and application of AI are still in the operation stage of basic-level AI tools. They only need keyword retrieval and simple copywriting generation, and lack high-level capabilities such as data analysis, artificial intelligence design, and AI ethical judgment. There is still a clear gap from the five-level literacy requirements proposed by the I-TPACK framework.

2.3. Particularity of AI Application in the Field of Preschool Education Research on AI Applications in Preschool Education Is Also Unique

In a systematic literature review on AI-supported teaching human-machine cooperation in early education, international evidence on the mutual contribution of humans and machines is discussed and related issues, and examines the ethical implications of using machine learning, deep learning and learning analysis in early childhood education; It is believed that AI can be meaningfully and ethically integrated into early education, but teacher training and professionalism are the main challenges, and the application of AI must respect children's boundaries (Crescenzi-Lanna, 2023). In the domestic research on the profession of preschool teachers, it is mentioned that the professional growth of preschool teachers is a process that is constantly changing due to the influence of various factors, and needs professional theories as support. Through theoretical learning, teachers can form their own educational beliefs, improve their own professional autonomy and alleviate job burnout (E et al., 2024), but the lack of good learning, cognitive bias, and self-inertia faced by preschool teachers in the kindergarten may be further amplified or alleviated in the AI era.

2.4. Review of Research

On the whole, although the existing research has achieved some results in the macro theory of artificial intelligence education, the framework of teacher AI literacy, and the application of AI in preschool education, there are still some gaps: First, most of the research focuses on K-12 Or in the field of higher education, there are few artificial intelligence studies specifically targeting preschool teachers; Second, most of the existing studies discuss the application of AI from the perspective of technical functions, lacking attention to the deep mechanism of teachers' professional growth, and lacking qualitative empirical support such as the real practical confusion and use of front-line teachers; Third, whether the theory of "synergistic symbiosis" is applicable to the field of early childhood education remains to be tested, and man-machine dialogue learning as a practical path for teachers' profession is still being explored. This study will use the real AI use narrative interviews of 15 preschool teachers in different classes of different teaching ages as empirical materials to make up for the lack of front-line shortcomings of existing research, and conduct exploratory theoretical construction and practical reflection on the above gaps.

3. The "Energy Enhancement" Space for Professional Growth under the Empowerment of Technology

Combined with front-line teacher interview narratives, AI tools form an empowering fulcrum in the whole process of kindergarten home communication, curriculum, teaching implementation, and child assessment, opening up a triple empowerment space for the professional growth of kindergarten teachers.

3.1. From "Style Conservation" to "Data-Driven Decision-Making"

The observation and evaluation of preschool teachers is based on their own and intuition, and the AI-assisted behavior observation system can continuously track and record children's language, social interaction, and action coordination, and transform scattered information into organized data. Let teachers understand the needs of young children more accurately. (Wan & Gu, 2026). The teacher of the second class of middle school shared his practice in the interview: with the help of AI tools to capture the traces of children's activities in the area, generate dynamic visual images with one click and cast them into the classroom, intuitively display the details of children's game behavior and social interaction, and make up for the existence of teachers' single observation blind spot of vision". This is not to replace teachers with algorithms to make judgments, but to provide more evidence support for teachers to make decisions. From the perspective of professional growth, this means cultivating teachers' ability to analyze and interpret data. They have changed from "childcare workers" to "analysts" to achieve role upgrades.

Generative AI can teach strategies by providing personalized learning resources, dynamic classroom activities, and automated feedback to promote student engagement and teacher adaptability (Cimino et al., 2025). For example, the daily work of the sophomore class teachers is to use AI to generate home week summaries and safety reminders in batches, and the work of standardized copywriting has been completed efficiently; Teachers

in Class 4 rely on AI to quickly build teaching plans and activity copywriting frameworks, which greatly increases the time-consuming repetitive writing work (Li et al., 2026).

3.2. From “Course Porter” to “Course Creator”

The emergence of generative AI technology has brought unprecedented assistance to the curriculum creation of preschool teachers (Yang et al., 2025). Teachers can use AIGC to quickly generate personalized first drafts of activity plans, picture book story prototypes, or create inspiration maps, etc. The energy is freed from cumbersome data collection and formatting, and focuses on the design of secondary creativity and the in-depth arrangement of emotional interaction. The teachers of Class 5 and Class 5 mentioned that in their daily work, they will use AI to enter topic keywords to quickly search for corresponding lesson plans, which will be used as reference materials for their course design; The second class of junior high school and the fourth class of senior high school use AI to generate the basic framework of teaching PPT with one click, which greatly increases the threshold for courseware production. The pedagogical significance brought about by this change is that AI undertakes the load of procedural tasks, allowing teachers to return to the most authentic part of education work-creatively responding to the interests and needs of children.

Studies have shown that GenAI supports the continuous growth of the teacher profession, helping teachers optimize their teaching and respond to the needs of diverse learners by providing instant insights (Wu et al., 2025). Preschool teachers are no longer executors of standardized courses, but “curriculum creators” who screen, adapt, and emotionally process materials generated by AI.

3.3. From “Knowledge Authority” to “Co-Learner”

With the intervention of AI tools, the relationship between knowledge and power in kindergartens is also changing. “When teachers and children face the output of AI systems together, teachers are no longer a single knowledge transmitter, but transformed into guides of knowledge exploration and demonstrators of critical thinking. This kind of role transformation advocates a kind of human-machine joint use, and promotes students to have a deeper degree of critical participation in the work. (Al-Abdullatif, 2025). During the interview, the teachers of the third class also took the initiative to share their own growth practices: “In order to conform to the generated content of the kindergarten scene, I took the initiative to learn how to standardize my questioning language, repeatedly debugged the prompt words, and constantly communicated with AI. Exercise your ability to screen information, accurately express and critically judge”. Teachers need to have the ethical reasoning and critical evaluation ability in AI literacy ability to effectively and responsibly integrate AI into students’ educational practice. This “common learning attitude” is also conducive to the establishment of a teacher-child relationship, which is a form of expression of teachers’ lifelong learning ability.

4. “Boundary” Conflict and Ethical Concerns under Technological Intervention

Combined with the interview records of 15 teachers, AI has applied multiple realities in front-line practice, which is essentially a conflict between the triple core boundaries of artificial intelligence, and it is also a realistic obstacle to the professional growth of preschool teachers, as shown in Figure 1.

4.1. The Boundary of Emotional Connection and Machine Algorithms

During the interview, many teachers pointed out that the teaching plans, courseware, and story copywriting generated by AI are generally rigid and cold, and lack the childlike interest, warmth, and empathy perspectives required for early childhood education, making it difficult to meet the emotional needs of young children; Relying too much on AI to evaluate and give feedback on teacher-child interaction may lead to the passivation of teachers’ emotional level-if teachers are used to using data to “indirectly” understand children, then direct observation and empathy will be reduced. degenerate. It is not AI itself that determines whether teachers will be replaced, but the nature of education and the needs of students.

4.2. The Boundary between Educational Wisdom and Fixed Procedures

For preschool teachers, if they rely too much on the activity suggestions and evaluation conclusions provided by the AI system, their own curriculum design ability, educational judgment and creativity will gradually shrink (Eyal, 2025). Under artificial intelligence, the core problems faced by teachers include: the confusion of professional value, how to get along with machines, and how to get along with students. Teachers’ professional growth requires accumulating their own educational wisdom through repeated practical attempts and reflections,

not moving towards “de-specialization” through technical substitution (Kurian, 2025). At the same time, the cost of using the tool and the learning threshold further magnify the contradiction: the free AI courseware template style is relatively single, and most of the high-quality preschool education PPT, animation, etc. need to pay to open a membership, and the use requires high economic costs; The operation process of teachers in the second class of middle school using the AI traces visualization tool is relatively cumbersome. The kindergarten lacks supporting training for this, and there is a lack of independent learning channels. It is difficult for teachers to operate it quickly, and it is difficult to give full play to the teaching value of AI.

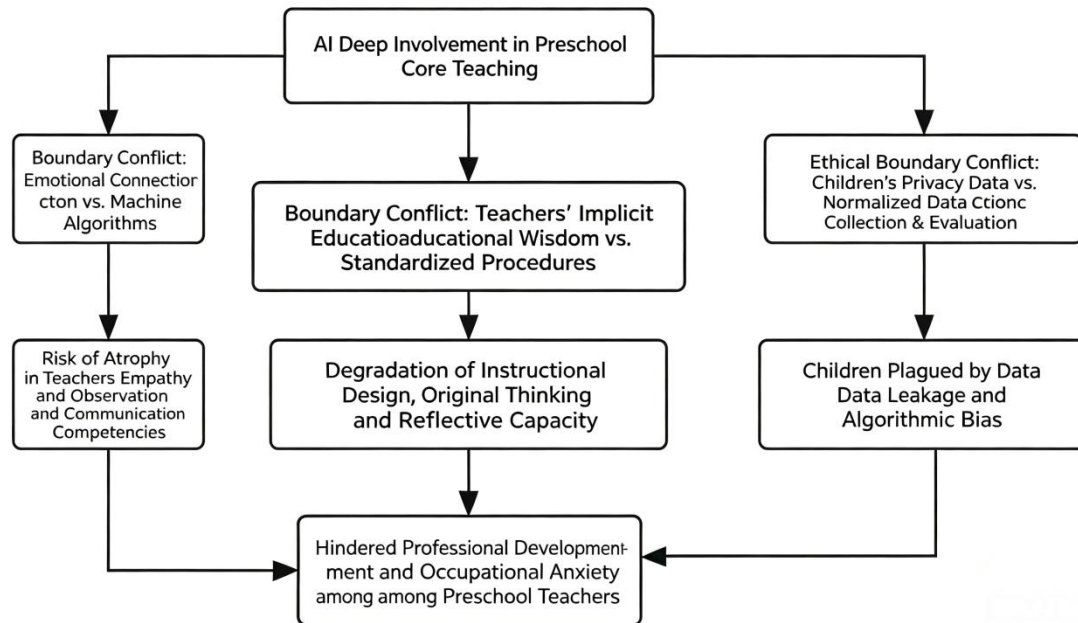


Figure 1. Logic flow chart of artificial intelligence triple conflict generation.

4.3. The Boundary between Ethics and Data

As a special vulnerable group, young children face more urgent issues about data protection than other education stages. AI systems have very profound ethical issues in the collection of children’s behavior data, the preservation of facial recognition information, and the evaluation based on algorithms.

Faced with the current situation of the integration of intelligent technology and education, teacher ethics is facing many practical challenges. The “Artificial Intelligence Education Ethics: Reference Framework” released by the World Digital Education Conference in 2026 established the core concept of “the subject belongs to people, collaborative symbiosis, suitable environment for good, and classified governance”, and clarified “prohibition of access, limited use, Encourage use” three types of behavior boundaries. During the interview, the senior class teachers expanded the application scenarios of AI, using AI to analyze children’s reports and diet plans. This kind of data AI use behavior that involves children’s privacy lacks unified and standardized guidelines, and teachers lack the corresponding ability to judge digital ethics. This requires preschool teachers to have digital ethics literacy and be able to distinguish which data can be collected; Which AI evaluations need to be questioned; Which scenarios should “shut out” technology? The function of AI in education is not to replace the role of human teachers, but as auxiliary beings, and educators play a vital role in shaping ethical and responsible AI integration.

5. Research Design

5.1. Research Side: Narrative Inquiry

The reasons for this study to use Narrative Inquiry as the core orientation for in-depth research are as follows: This method is chosen for the following reasons: First, kindergarten teachers’ experience, feelings and meaning construction of AI are highly personal and situational, and 15 interviewees put forward different use puzzles, practices, etc., which need to be captured with deep-description qualitative research; Secondly, existing studies have shown that narrative inquiry can be used to explore the ethical considerations and professional growth of teachers integrating AI; Finally, the narrative approach can show the reflective process of teachers in artificial intelligence and present a changing timeline.

Recent studies have further confirmed that narrative inquiry is an effective framework for exploring the joint reflection between teachers and AI, and can reveal how teachers negotiate the relationship between reflection and ethics in practice. The design of narrative inquiry is also in line with previous studies in the literature that have used this method to explore GenAI and teachers' professional issues. This study uses 15 teachers' AI use narratives and confusion reflections as core qualitative materials to fully present the real practice picture of artificial intelligence in preschool education.

5.2. Research Objects

This study adopts the method of purposeful sampling to select interviewees, and determines the screening conditions of the sample in combination with various standards. The specific selection criteria are shown in Table 1 below. Regarding the use of AI, the interviewees are required to use intelligent education tools at least once a week for no less than three months to ensure that teachers have real and stable artificial intelligence teaching practices; According to the teaching experience of the interviewees, they are divided into novice teachers (1–3 years), mature teachers (5–10 years) and senior teachers (more than 10 years), covering different occupational stage groups; Considering that there are certain differences in teachers' acceptance of new technologies, two types of teachers, technology-positive and technology-prudent, are included in the sample to capture differentiated teachers' concepts of artificial intelligence; And cover small class, middle class, large class of all ages of class teachers, strive to sample diversity and differences, so as to enrich the level of qualitative data, improve the saturation of research data.

Table 1. Research object selection criteria.

Dimension	Selection Criteria
AI Usage Experience	Have used intelligent educational tools at least once a week for no less than 3 consecutive months
Years of Teaching Experience Distribution	Include novice teachers (1–3 years), experienced teachers (5–10 years), and senior teachers (over 10 years)
Technology Acceptance	Encompass technology-positive teachers and technology-prudent teachers
Kindergarten Type	Cover public kindergartens
Class Coverage	Teachers responsible for classes across all age groups

5.3. Data Collection

5.3.1. In-Depth Interviews

Design a semi-structured interview outline around the following important narrative themes, and interview 15 teachers one-on-one: Please tell the specific scenarios of how you use AI to carry out teaching and home communication in your daily life; What difficult problems and confusions have you encountered in the process of using AI; What changes do you think AI has made to your teaching ability and educational thinking; Which AI technologies do you want to use and related training support for the use of AI in preschool education. Conduct 1–2 interviews for each interviewee, and the time of each interview is controlled within 60–90 min. Detailed records of the details of the teacher's use of AI and real doubts are used as research materials for this paper.

5.3.2. Sexual Recollection Interviews

Invite some teachers to demonstrate their common AI tools on the spot, complete an activity design and implementation combined with AI tools, and video the whole process. Afterwards, key clips were played and asked about the thinking and decision-making process at that time, and accurately captured the recessiveness when teachers used AI, such as prompt word writing, AI content modification, and tool operation difficulties.

5.3.3. Faculty Reflection Journal

Invite the interviewed teachers to record 1–2 weeks of AI use experience logs during the research period, and record in detail the content effect, time cost, and use problems generated by AI as supplementary materials for the interview.

5.4. Information Analysis

Clandinin's "Three-dimensional Narrative Exploration Space" was used for analysis: through cross-analysis of three-dimensional space to sort out the co-existing and personalized stories of 15 teachers, in order to discover the deep mechanism of teachers' professional growth in artificial intelligence (Clandinin, 2006). From the interview materials, four common practical problems can be extracted: non-standard writing of AI prompt words, lack of exclusive AI resources for preschool education, lack of systematic AI training for teachers, and the risk of technology dependence in use. As shown in Figure 2.

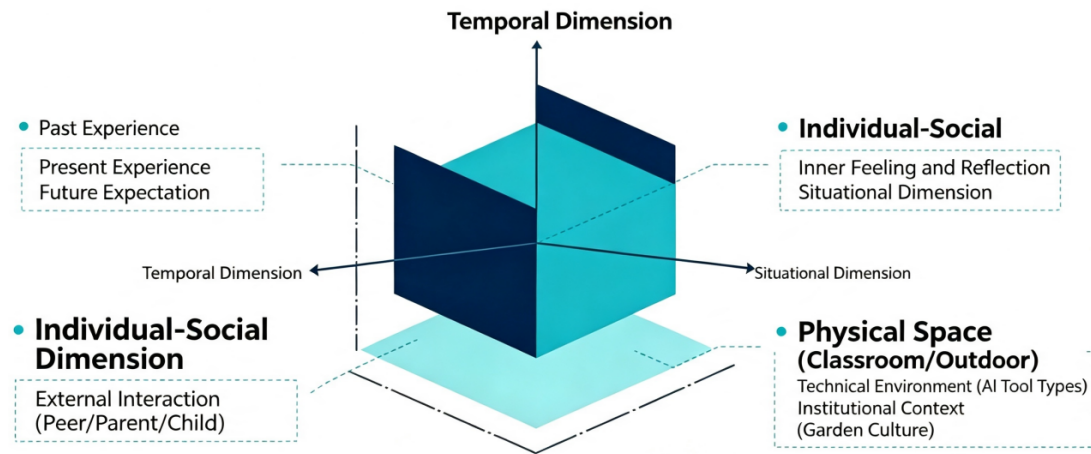


Figure 2. Three-dimensional narrative exploration space.

5.5. Research Ethics and Validity

This study ensures that all teacher participants fully understand the research purpose, interview content, and data use, and voluntarily participate in the interview; At the same time, all kindergartens, teachers' names, and children's related information are anonymized, and interviews involving children's health and behavior data are desensitized; In terms of validity strategy, participant checking (member checking), peer review, immersion and other means were used, and the first draft of the interview was handed over to the interviewed teachers to check the authenticity of the statement.

6. Path Construction: Towards the Professional Growth Strategy of Symbiotic Kindergarten Teachers

Combining the theoretical framework and the reality reflected in the interviews with 15 front-line teachers, based on the core logic of artificial intelligence symbiosis and keeping the boundaries of education, three practical professional growth paths for preschool teachers are constructed, and targeted solutions to teacher prompt word writing, tool learning, technology dependence, Realistic doubts such as lack of resources.

6.1. Reshaping Professional Role Cognition: Establishing the Core of "Irreplaceability"

The premise of professional growth is the cognition of roles. In response to the teacher's question about "whether the use of AI will change my own educational thinking" in the third class of middle school, and "AI will weaken my ability to prepare lessons independently" in the fourth class of primary school. Preschool teachers need to be clear: they are the core undertakers of value education and emotional education, and AI is an auxiliary tool. This kind of cognition does not blindly exclude technology, but determines the core advantages of this paper based on the understanding of the essence of education; Effective use of AI means protecting human professionalism with boundaries, allowing technology to help rather than replace the core role of human teachers. The reshaping of the role of teachers should point to making the teaching process intelligent, digital and personalized, and at the same time make the role of teachers more focused on the hearts and future of students. Preschool teachers should break the myth of "all-round teachers" and accept the efficiency advantages of AI in information retrieval, data processing, and draft copy generation; At the same time, we are soberly aware of AI's lack of empathy, educational tact, and childlike creativity, and we are convinced that we are irreplaceable in terms of emotional companionship, value guidance, individualized teaching, and creative stimulation. In the practical process, establish a fixation of "AI first draft generation-teachers' second original adaptation-teacher-child emotional interaction landing", use teachers' educational wisdom to guide AI output content, and avoid the problem of "de-skilling" caused by technology dependence.

6.2. Improve the Dual-Core Literacy of “AI Education” and Solve the Confusion of Front-Line Practical Operation in a Targeted Manner

The cultivation of AI-related literacy should be included in the teacher’s profession. Based on the “core literacy list required by teachers in the AI era” formed by the Delphi method in the I-TPACK framework, the content of the training is designed, and according to the practical problems concentrated by teachers during the interview process, AI literacy cultivation is built in layers system, as shown in Figure 3.

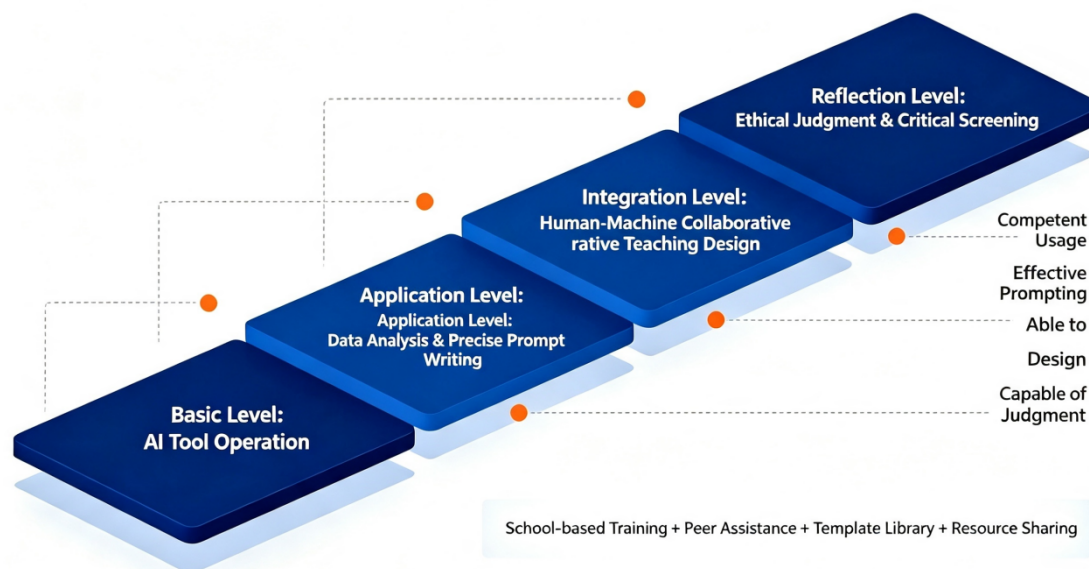


Figure 3. AI education dual-core literacy improvement path.

The specific operation is, at the base layer level; Popularize exclusive AI tool operation training for preschool education. Solve the problems of “few learning channels and complicated operation of AI tools” for teachers in the second class of middle school, and “high payment cost of high-quality preschool education templates” for the second class of primary school. Kindergartens uniformly screen free AIGC, courseware generation, and children’s behavior visualization tools that are suitable for preschool scenarios, and carry out kindergarten-based short-term practical training; The teaching and research team sorts out free preschool education PPT, animation, and picture book material library, and teachers use the economic cost. On the application layer level; Standardized Preschool Education Prompt Word Formula Teaching. Aiming at the high-frequency confusion of teachers in Class 1, Middle 5, and Primary 1 with “vague instructions, AI answers, and general and empty content”, and “AI content lacks childlike interest” in Class 3, a unified promotion of questioning formulas suitable for kindergarten scenarios: Preschool education standard Prompt word template = audience age usage scenario core theme format requirements style limit output length.

On the level of integration; Human-machine cooperation curriculum design ability training. Guide teachers to create courses of “AI framework, teachers fill in the temperature”, solve the problems of “AI teaching plan process does not meet the needs of the class” in the fifth class, and “courseware is dull and childlike” in the third class, and require teachers to combine the materials generated by AI Games, interactions, and emotional guidance links with the characteristics of children in this class. On the level of reflection; Digital Ethics and Critical Screening Competence. For scenarios such as AI analysis of children’s privacy data in the fourth class and algorithm evaluation of children, preschool AI ethics courses are offered to clarify the boundaries of children’s data collection and AI evaluation, cultivate teachers’ ability to criticize and verify AI output content, and respond to the sophomore class teachers “AI proofreading and correction time-consuming” problem, establish an AI text self-examination list, and quickly identify logic, fact, and age adaptation errors. In the pre-service training stage, normal colleges should incorporate AI literacy into the curriculum system, so that prospective teachers can understand the pedagogical meaning of human-machine collaboration from a theoretical level. In the on-the-job training, we should pay attention to sexual professional support, and promote the internalization of literacy through the cycle of “use-reflection-re-practice”. As a new thinking cognition and ethical direction, “teacher wisdom ethics” can help teachers solve problems in artificial intelligence creatively and systematically.

6.3. Build an Artificial Intelligence Teaching and Research Community to Eliminate the Use of Individual Technology

Isolated learning is difficult to support teachers' continuous growth in artificial intelligence. Interviews show that most teachers explore AI tools alone, and lack communication and sharing channels with their peers. Various practical doubts cannot be quickly answered. From the perspective of "symbiosis effect", the establishment of teacher learning community and the development of reflective learning can effectively promote the professional growth of preschool teachers; In the AI era, this community should be further upgraded to an "artificial intelligence teaching and research community". For example, using the AI system to record and generate teaching clips, the teaching and research team jointly discusses the advantages and disadvantages of AI-assisted teaching, shares high-quality prompt words, courseware templates, and AI teaching plan revisions, and focuses on solving common practical problems for teachers; With the help of the AI communication platform, teachers in urban and rural public and private kindergartens can use tools to alleviate the lack of technical training resources in rural and small private kindergartens; Taking teachers' daily AI use confusion as the discussion theme, collectively optimize prompt words, adapt AI-generated teaching plans, distinguish between procedural work that AI can undertake and emotional and creative work that must be completed by teachers, and balance technical efficiency and teachers' professional ability in the community. Artificial intelligence should build a support network to enable teachers to have in-depth reflective dialogues with peers and experts, realize the transition from individual to collective intelligence in the community, and systematically alleviate the anxiety, technical operation problems and problems caused by teachers using AI alone. Ability degradation concerns.

7. Conclusions

7.1. Core Discoveries

This study integrates I-TPACK and entanglement symbiosis theory, combines 11 front-line preschool teachers' AI use narrative interview materials, and conducts analysis through narrative inquiry, and obtains the following three core understandings:

First, technology is a "magnifying glass" rather than a "deformer". AI will not easily change the essence of education, but it will significantly amplify the professional advantages and disadvantages of teachers. Teachers who are good at reflection and artificial intelligence methods will greatly improve teaching efficiency with the help of AI; Teachers who only mechanically rely on AI to generate content and lack critical screening capabilities face the risk of "de-skilled" and solidified educational thinking. Therefore, the key to the professional growth of preschool teachers in the AI era does not lie in the technology itself, but in the teacher's awareness of reflection, system AI literacy, and supporting teaching and research support in kindergartens.

Second, boundaries are formed in dynamic negotiation. There is no fixed answer to artificial intelligence in the specific kindergarten teaching situation, and it is the result of teachers' continuous reflection, trial and error around the core ethical standard of "whether it is beneficial to children's body and mind", combined with the characteristics of children in their own classes. The positioning of AI in education should be a "legal concept and practice", which needs to be systematically integrated into teacher education and professionalism.

Third, the core is the protection of "relationship". The most valuable and irreplaceable professionalism of preschool teachers is precisely reflected in the emotional relationship of deep trust and warm response with children. All AI applications should serve to consolidate rather than weaken this core relationship. The ethical bottom line of artificial intelligence education is "no harm", and the fundamental starting point of teachers' artificial intelligence behavior should be to protect the rights and interests of children.

7.2. Research Limitations and Future Prospects

This study combines the interview narratives of 15 front-line kindergarten teachers to supplement empirical materials, but the sample size is limited and only covers public and private kindergartens in a single region. The differences in AI use by kindergarten teachers in different regions and urban and rural areas need to be further explored. At the same time, this study focuses on qualitative narrative analysis, and has not yet carried out follow-up quantitative research. Future research can be deepened from the following directions: no longer stay in the discussion of generalized technology applications, but anchor several types of representative intelligent tools that have been implemented in the field of preschool education-such as the AI behavior observation system for teacher-child interaction, support for teacher-child The co-created AIGC picture book platform and the preschool education courseware generation tool frequently used by front-line teachers are used as the specific starting point for field investigations, and they enter different types of kindergartens to carry out rooted research.

Early childhood education in the era of artificial intelligence is moving towards a new pattern in which people and technology shape each other and evolve together. In this pattern, AI is a mirror reflecting the core values of teachers. Under the background of human-machine symbiosis, the direction of preschool teachers is to become “reflective practitioners” who are good at controlling technology and have the ability to criticize and reflect. While rationally using AI to improve teaching efficiency, they should keep the warm and vivid humanistic background of preschool education. Realize professional growth empowered by technology.

Author Contributions

Y.W.: conceptualization, methodology, investigation, data curation, formal analysis, validation, writing—original draft preparation, writing—reviewing and editing; Y.L.: conceptualization, methodology, validation, investigation, funding acquisition, supervision, writing—reviewing and editing; C.F.: data curation, formal analysis, validation, visualization, resources, writing—reviewing and editing; X.Z. and Y.Z.: project administration, writing—reviewing and editing; S.H.: supervision, project administration, writing—reviewing and editing; F.G.: resources, validation. All authors have read and agreed to the published version of the manuscript.

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Institutional Review Board Statement

Ethical review and approval were waived for this study, due to the reason that the study adopted an anonymous questionnaire survey method, all participants participated voluntarily, the research content did not involve sensitive personal information, and no physical or psychological harm would be caused to the participants.

Informed Consent Statement

Informed consent was obtained from all subjects involved in the study.

Data Availability Statement

The raw data of this study cannot be made publicly available due to the need to protect the privacy and confidentiality of the research participants. Aggregated data supporting the conclusions of this study are available from the corresponding author upon reasonable request.

Conflicts of Interest

The authors declare no conflict of interest. The funder had no role in the design of the study; in the collection, analyses, or interpretation of data; in the writing of the manuscript; or in the decision to publish the results.

Use of AI and AI-Assisted Technologies

During the preparation of this work, the authors used Doubao to assist with the Chinese-English translation of the manuscript and English language polishing. After using this tool, the authors reviewed and edited the content as needed and take full responsibility for the content of the published article.

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