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New Directions for Teacher Development in the Transformation of Intelligent Education: A Review of *How to Be a Teacher in the GenAI Era: Empowering Teaching and Research with Generative Artificial Intelligence*

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Abstract: The rapid advancement of Generative Artificial Intelligence is profoundly reshaping the educational landscape, presenting new challenges to the professional role and competency development of teachers. Within this context, the book *How to Be a Teacher in the GenAI Era: Empowering Teaching and Research with Generative Artificial Intelligence* systematically addresses this critical issue of our times. This review first analyzes the book's contemporary background, highlighting its provision of timely theoretical and practical guidance aligned with national educational digitalization strategies and teacher development needs. Subsequently, the review examines the book's logical framework and distinctive content features through four core dimensions: confronting the challenges of transformation, innovating methodological systems, empowering the entire teaching chain, and constructing a human-machine collaborative ecosystem. Finally, the review emphasizes that the core value of this work lies in its

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impetus for the transformation of the teacher's role from "knowledge transmitter" to "learning designer," providing systematic support encompassing philosophy, methodology, and tools for this shift. It holds significant reference value for promoting teachers' professional autonomous development and the co-evolution of human-machine collaboration within the educational system.

Keywords: Generative Artificial Intelligence; Teacher Professional Development; Human-Machine Collaboration; Learning Designers

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标题: 智能教育变革中的教师发展新路向——评《GenAI 时代如何做教师：生成式人工智能赋能教学与研究》

摘要: 生成式人工智能 (GenAI) 的迅猛发展正深刻重塑教育生态, 对教师专业角色定位与能力发展提出全新挑战。在此背景下, 《GenAI 时代如何做教师：生成式人工智能赋能教学与研究》系统回应了这一时代命题。文章首先剖析了该书的时代背景, 指出其为国家教育数字化战略与教师发展需求提供了及时的理论与实践指南。进而, 文章从直面变革挑战、方法体系创新、教学全链条赋能与人机协同生态建构四个核心维度, 评述了该书的逻辑框架与内容特色。文章最后强调, 此著作的核心价值在于推动教师角色从“知识传授者”向“学习设计师”转型, 并为这一转型提供了涵盖理念、方法与工具的系统化支持, 对促进教师专业自主发展与教育体系人机协同进化具有重要参考意义。

关键词: 生成式人工智能; 教师专业发展; 人机协同; 学习设计师

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1. Responding to the Times

Today, the education community is deeply exploring how generative artificial intelligence is reshaping the future educational ecosystem. China attaches great importance to the development of artificial intelligence, elevating it to a national strategic level. The State Council (2025) has issued key

documents such as the Opinions of the State Council on Deeply Implementing the “AI+” Action, emphasizing the necessity of deep integration between AI and education. At the same time, to thoroughly implement the national strategic action for educational digitalization, the Ministry of Education (2025) recently issued the Notice on Organizing and Implementing the Digital Empowerment Teacher Development Action, aiming to use digital technologies and artificial intelligence as levers to comprehensively enhance teachers’ digital literacy and empower the construction of the teaching force through digitalization. Against this backdrop, in July 2025, the book *How to Be a Teacher in the GenAI Era: Empowering Teaching and Research with Generative Artificial Intelligence* (Educational Science Publishing House, 2025), authored by Du Yuxia, He Weiguo, and others, was officially published. As an important work systematically exploring generative artificial intelligence (GenAI) and teacher professional development, the book consists of 7 chapters and 29 sections, totaling approximately 310,000 words, and constructs a comprehensive system for GenAI educational application. It incorporates numerous frontline teacher application cases and practical strategies, possessing both theoretical depth and practical feasibility, thus offering high practical value.

GenAI is transforming from an auxiliary tool into a “change agent” for education. The emergence of ChatGPT in 2022 marked the entry of artificial intelligence technology into a completely new historical phase. Its powerful content generation, contextual understanding, and personalized interaction capabilities are reshaping traditional teaching paradigms. This large language model developed by OpenAI, with its astonishing natural language processing and generation abilities, has sparked unprecedented global attention and discussion. It not only demonstrates the tremendous progress of AI technology in understanding and generating human language but also heralds a profound technological transformation facing human society. The rapid development of GenAI is reshaping the development landscape of various industries, and the field of education, as a vital bastion for talent cultivation and knowledge dissemination, is also facing unprecedented opportunities and challenges.

At the same time, teachers, as core participants in educational activities, have seen significant impacts on key aspects of their teaching. The teacher’s role is facing the need to transform from knowledge transmitter to learning designer; teaching models need to shift from standardized, large-scale approaches to personalized, adaptive directions; and learning assessment urgently needs to change from outcome-oriented to a balance of process and development. These changes involve not only technological applications but also systemic innovations in educational philosophy, teaching methods, and evaluation systems. In the GenAI era, teachers need not only to understand the technical characteristics of GenAI but also to integrate them organically with subject-specific teaching strategies

and content representation methods, thereby forming a new form of pedagogical knowledge oriented toward human-machine collaboration (Hu, 2025). Furthermore, the application of GenAI in education faces many challenges: technical issues such as the “hallucination” phenomenon, data security, and privacy protection; ethical issues such as algorithmic bias and the risk of widening the digital divide; and pedagogical issues such as maintaining academic integrity and cultivating students’ critical thinking. These are all important topics that need to be addressed. These challenges require educators not only to master technical application skills but also to possess digital literacy and ethical awareness in order to better fulfill their educational mission in the age of AI.

It is precisely against this contemporary backdrop that the publication of *How to Be a Teacher in the GenAI Era: Empowering Teaching and Research with Generative Artificial Intelligence* by Du Yuxia, He Weiguo, and others not only responds promptly to the needs of the times but also provides a systematic and practical action guide for the vast number of educators.

2. Content and Characteristics

The book proceeds from the background of GenAI’s educational transformation, gradually delving into specific scenarios such as instructional design, resource development, teaching innovation, and educational research, and ultimately envisioning the future ecosystem of human-machine collaborative education.

Chapter One systematically analyzes the features and trends of GenAI and its reconstruction of the educational ecosystem, clarifying new requirements and challenges for teachers in education. Chapter Two provides practical strategies for teachers to master GenAI, including building a personal GenAI resource library, prompt design, and creating educational agents, all highly operational. Chapters Three to Six empower the entire teaching chain with GenAI, focusing respectively on instructional design, resource creation, teaching innovation, and research empowerment. Chapter Seven looks ahead to the future of GenAI and human-machine collaborative education, emphasizing that teachers should maintain educational subjectivity and ethical awareness amidst technological integration. The book has a rigorous structure, progressing layer by layer, making it suitable for in-depth study by educational researchers and as a reference book for frontline teachers.

2.1 Confronting Change: Educational Challenges and Teacher Role Remodeling in the Intelligent Era

Mr. Liang Qichao (1989) once said, “Only through progress can one achieve daily renewal.” This spirit of innovation and progress is particularly pertinent today as Generative Artificial Intelligence (GenAI)

surges forward. When algorithms can instantly generate text, images, videos, and even teaching plans, the education sector is immersed both in the euphoria of “technological liberation” and the anxiety of “loss of subjectivity”: Will teachers be replaced? Will students’ learning processes be manipulated by algorithmic “black boxes”? Hu Wei (2023) points out that the core competence of teachers in the age of AI lies not in racing against technology, but in realizing the unique value of human beings through human-machine collaboration. With breakthrough developments in large models like GPT and Sora, education is facing an unprecedented paradigm shift: it must embrace the efficiency revolution brought by technological empowerment while also guarding against the potential dissolution of subjectivity and ethical dilemmas that technological application may bring. Teachers must reassert their professional subjectivity amidst human-machine symbiosis (Yang & Cai, 2025). The book *How to Be a Teacher in the GenAI Era: Empowering Teaching and Research with Generative Artificial Intelligence*, with its forward-looking theoretical perspective and systematic practical framework, closely addresses the core difficulties and practical pain points for teachers in mastering GenAI, charting a course for educational change in the intelligent era.

Chapter One of the book starts from the technical essence of Generative Artificial Intelligence, systematically explaining its core characteristics as a new intelligent form capable of automatically generating multimodal content based on instructions. By analyzing GenAI’s working mechanism based on large-scale pre-training and probabilistic generation, it reveals its dual attributes in educational applications: empowerment alongside risk. On the one hand, features such as emergent abilities, multimodal expression, contextual awareness, and personalized responses give it enormous potential to reshape the educational ecosystem; on the other hand, the accompanying technical risks warn of the need for rational scrutiny during application. Teachers must become active risk preventers, constructing classroom risk prevention mechanisms, fulfilling data protection responsibilities, cultivating students’ algorithmic critical thinking, and upholding the humanistic bottom line of education. Building on this foundation, the book further explores the transformation of the educational system by GenAI. By constructing intelligent interactive environments, GenAI promotes a shift in learning methods from passive reception to dynamic negotiation, profoundly changing the paths of knowledge acquisition and construction. More notably, its application facilitates the formation of a new “teacher-GenAI-student” triadic collaborative structure, pushing the teaching system from closed to open, from centralized to distributed collaboration. This transformation not only reshapes the logic of teaching organization but also breaks the traditional spatiotemporal boundaries of education, demonstrating revolutionary impact.

2.2 Innovative Methodological System: Providing Actionable Practical Pathways

“What you get from paper is ultimately shallow; you must know the matter thoroughly through practice.” — Lu You’s verse speaks to the importance of practice. While advancing theoretical innovation, *How to Be a Teacher in the GenAI Era: Empowering Teaching and Research with Generative Artificial Intelligence* also strives to construct an innovative methodological system, providing teachers with actionable practical pathways. In Chapter Two, addressing the specific difficulties teachers encounter in applying GenAI, the book develops systematic solutions and practical tools.

Regarding resource selection and management, the book proposes a systematic “six-step method,” offering a clear roadmap for teachers to build a personal GenAI resource library. First, teachers need to clarify the construction goals of their personal GenAI toolbox, anchoring the direction of resource library construction based on authentic teaching needs. Then, they create an inventory of GenAI tools, encouraging extensive collection and preliminary classification and organization of mainstream tools such as ChatGPT, Wenxin Yiyan, and iFlytek Spark using local documents or online platforms. Subsequently, teachers clarify application purposes and match them with application scenarios, which is key to linking tools with teaching practice. Using high school biology teaching as an example, the book details how Biology Teacher Wang correlates specific scenarios such as lesson preparation, courseware creation, experiment design, and homework grading with specific tool functions, creating a navigation map of “which tool to use in which scenario.” After clarifying “what to use,” teachers select and evaluate suitable GenAI tools. Biology Teacher Wang introduces an analytical framework of five dimensions — “reliability, objectivity, pedagogical appropriateness, logic, and currency—to guide teachers in evaluating generated content, ensuring its accuracy and effectiveness for classroom use. Fifth, continuous iteration and optimization emphasize that the resource library is a dynamic, living organism; teachers need to continuously update their tool lists and application strategies by recording application logs and reflecting on usage effects. Finally, establishing application norms sets safety and ethical boundaries for the entire practice, reminding teachers to pay attention to data privacy and avoid over-reliance. These six steps are interlinked, from goal setting to practical verification, to reflection and norms. Together forming a scientifically rigorous methodology that effectively integrates scattered technical tools into a personalized teaching wisdom repository capable of continuous evolution.

In the critical area of prompt design, the book innovatively proposes the “PRTSCE” six-dimension model (Purpose - Role - Task - Structure - Context - Example), providing teachers with a clear design framework. Using a typical high school geography case of “comparing two climate types,” the model gradually demonstrates how precise prompt design guides GenAI to generate a complete plan

encompassing core literacy goals, independent inquiry tasks, student activity steps, and teacher-student evaluation methods. This structured prompting approach not only improves the quality of generated content but also cultivates teachers' computational thinking and systematic design abilities. Regarding the creation of educational agents, the book details the steps and methods for building educational agents from scratch, lowering the threshold for teachers to apply GenAI. These practical tools and strategies not only enhance teaching efficiency but also significantly improve teaching outcomes. Furthermore, the book develops a system for creating educational agents, using the "Ancient Poetry Learning Assistant" as an example to show in detail how to plan functionality, design workflows, and optimize effects of an agent using a low-code platform. This case particularly demonstrates how to organically integrate functions such as OCR recognition, multi-turn dialogue, and automatic question generation to form an intelligent teaching system supporting an integrated "learning-practicing-evaluating" process. Moreover, the book innovatively proposes a "five-step construction method" for building application communities, establishing a sustainable professional development support system through institutional safeguards at the school level and collaborative networks at the teacher level. This approach not only resolves difficulties faced by individual teachers in application but also fosters a healthy ecosystem of collective intelligence co-creation and sharing.

These innovative methodological systems fully embody the design philosophy of "emphasizing both instrumental rationality and value rationality," providing specific and feasible operational guidelines while ensuring that technological application always serves educational goals. Through this systematic practical framework, teachers can gradually realize the role transformation from technology user to educational designer, truly harnessing the empowering role of GenAI in educational reform.

2.3 Empowering the Entire Teaching Chain: Constructing a Human-Machine Collaborative Innovation Practice System

The book does not stop at explaining teaching techniques; instead, it takes "empowering the entire teaching chain" as its core, embedding GenAI into every link of "instructional design — resource development — classroom implementation — educational research," thereby constructing a human-machine collaborative innovation practice system. This system not only addresses the traditional challenges of "what to teach" and "how to teach" but also responds to the new question of the intelligent era: "how to cultivate higher-order thinking through human-machine collaboration."

The quality of instructional design has a critical impact on teaching effectiveness and quality. Chapter Three systematically constructs a comprehensive framework for GenAI-empowered instructional design, covering the entire process from macro curriculum outlines to micro assignment

design. At the level of syllabus development, through multiple rounds of human-machine dialogue and iterative optimization, GenAI assists teachers in generating rigorous and comprehensive syllabi, breaking through the constraints of traditional multi-step approval processes. For the development of guided learning plans, differentiated prompt design based on learner analysis enables GenAI to generate learning task sheets adapted to different cognitive levels, achieving truly personalized learning support. In terms of instructional objective design, GenAI intelligently analyzes curriculum standards and textbook content to help teachers integrate multi-dimensional objectives from knowledge and skills to core competencies, supporting the integration and innovation of interdisciplinary objectives. In the construction of teaching plans, GenAI assists teachers in achieving more precise learner analysis, more efficient learning task generation, and designing more targeted thinking training activities. For assignment design, GenAI provides teachers with intelligent tools that empower higher-order thinking development, interdisciplinary integration, and generation of assignment examples, effectively implementing the requirements of the “double reduction” policy. Through abundant practical cases, the book demonstrates that GenAI is driving a transformation in instructional design paradigms from traditional “experience-driven, one-way output” to “data-supported, human-machine collaborative, dynamically optimized” models, forming a new intelligent education model of “teacher-led — GenAI-generated — teacher-student collaboratively optimized.” This not only significantly improves the scientific nature and efficiency of instructional design but also provides technical possibilities for large-scale individualized teaching, achieving dual enhancements in teaching quality and innovative vitality.

Teaching resources are the foundation for instructional implementation, but traditional resource development suffers from prominent problems such as “time-consuming, unstable quality, and poor subject adaptability.” Chapter Four systematically constructs a methodology for creating teaching resources using GenAI, providing teachers with comprehensive, multimodal resource generation solutions. For textual resources, through precise prompt design, GenAI can quickly generate various textual materials such as concept explanations, case analyses, and inquiry tasks, greatly enhancing content creation efficiency while ensuring resource novelty and richness. Image resource creation breaks through traditional limitations, not only generating static illustrations but also enabling knowledge visualization, transforming abstract thinking processes and logical relationships into intuitive visual representations. Audio resource development relies on advanced speech synthesis technology to generate multi-lingual, multi-timbre reading content according to teaching needs, providing immersive experiences for language learning and context creation. PPT courseware creation leverages intelligent generation of well-structured, illustrated courseware drafts, allowing teachers to

focus on instructional design and content optimization. Video resource development adopts a hybrid-driven strategy, integrating text, image, and audio elements to quickly generate professional-grade instructional micro-videos. Furthermore, the introduction of digital human technology opens up new teaching forms, creating virtual teachers to achieve digital extension of the teaching subject. The entire resource creation process fully leverages GenAI's generative capabilities while ensuring that teachers remain in a design-led position, thus achieving dual improvements in quality and efficiency of teaching resource development.

Teaching innovation is the core driving force for breaking through traditional teaching bottlenecks and improving the quality of education. The technical characteristics of Generative Artificial Intelligence (GenAI) provide crucial support for the transformation of classroom models from “standardized transmission” to “personalized inquiry.” In Chapter Five, the author team, closely targeting the core goal of “higher-order thinking cultivation” and grounded in frontline teaching practice, systematically presents the integration pathways of GenAI with innovative models such as “inquiry-based teaching,” “project-based learning,” and “interdisciplinary teaching.” Through typical cases like elementary school Chinese “myth appreciation” inquiry teaching and the “Science in Traditional Culture” project-based teaching, the book clearly demonstrates how GenAI breaks down the one-way classroom structure of “teacher lecturing, students passively listening”—with GenAI assistance, the classroom gradually transforms into a multi-interactive scenario of “teacher-guided inquiry, student collaborative communication, and intelligent tools providing cognitive scaffolding,” ultimately putting the “student-centered” educational philosophy into practice at the operational level, providing actionable pathways for cultivating higher-order thinking.

Educational research is the core engine driving teachers to break through experience barriers and achieve sustainable professional development. However, traditional educational research faces practical difficulties such as “topics divorced from practice, inefficient literature retrieval, and high barriers to data analysis,” leaving many frontline teachers trapped in a dilemma of “having the will to research but lacking the path to implement it.” In Chapter Six, relying on a wealth of research cases from frontline teachers, the book systematically breaks down the complete process of GenAI-empowered educational research—from transforming teaching puzzles into standardized research topics through a “five-step method,” to using GenAI to generate precise search expressions and intelligently screen core literature, to leveraging technology to assist research design and automate data analysis, and finally to optimizing the format and logic of research output. Each step provides specific operational methods and tools. This full-process empowerment pathway not only clears the technical

and methodological obstacles of traditional research for teachers but also builds a bridge from “daily teaching practice” to “systematic educational research,” effectively assisting teachers in completing the professional role transition from “experience-based” to “research-oriented.”

At the same time, the book showcases a comprehensive panorama of GenAI applications in educational practice through a large number of rich and diverse cases. These cases span different disciplines, school levels, and educational environments, providing teachers with exemplary practices for reference. For example, in the “Eternal Dragon Boat Festival, Heartfelt Chinese” interdisciplinary curriculum case from Shuitian Primary School in Shenzhen, it records in detail how GenAI was used to design teaching activities integrating knowledge from Chinese, mathematics, science, art, and other subjects: the Chinese teacher used GenAI to generate materials for appreciating Dragon Boat Festival poetry, the mathematics teacher designed tasks for measuring dragon boat dimensions, the science teacher organized buoyancy experiments, and the art teacher guided students in drawing dragon boat design blueprints. This case vividly demonstrates how GenAI helps teachers break down disciplinary barriers and design deeply integrated interdisciplinary learning experiences, enabling students not only to deeply understand the cultural connotations of the Dragon Boat Festival but also to cultivate interdisciplinary thinking and comprehensive practical abilities. Cases like this are found throughout the book, from smart classrooms in developed eastern regions to innovative practices in rural western schools, from ordinary primary and secondary schools to special education schools, fully reflecting the adaptability and practicality of GenAI in different educational contexts and providing vivid and intuitive references for teachers to conduct human-machine collaborative teaching.

2.4 Constructing the Future: Building a New Human-Machine Collaborative Education Ecosystem

Generative Artificial Intelligence (GenAI) is transforming human knowledge production, modes of thinking, and social structures at an unprecedented speed and scale. In Chapter Seven, the authors point out that currently, international technology forces represented by OpenAI, Google, and Anthropic, along with domestic large models represented by Baidu’s Wenxin Yiyan, Alibaba’s Tongyi Qianwen, and iFlytek’s Spark, are rapidly innovating and driving the construction of a global intelligent ecosystem. With its powerful technical system and wide range of application scenarios, GenAI is profoundly changing the relationship between humans and knowledge, creation, and decision-making. Its future breakthroughs in areas such as multimodal intelligence, human-machine collaboration, controllable safety, and ecological symbiosis will undoubtedly bring new opportunities and challenges to the education system. Relevant research points out that the impact of GenAI on education is not

merely an instrumental change but also a relational paradigm shift, in which the teacher's positioning moves from "authoritative knowledge holder" to "learning facilitator," and the human-machine relationship evolves from subject-object duality to symbiosis and co-creation (Creely et al., 2025).

Against this backdrop, GenAI is prompting the deep collaboration and co-evolution of elements such as personnel, technology, systems, and environment within the education system, forming a new pattern. This co-evolutionary relationship significantly drives systemic changes in educational resource allocation methods, teaching organizational forms, talent cultivation models, and educational governance paradigms. On this basis, the book proposes the concept of building a "new human-machine collaborative education ecosystem," clarifying the triadic dynamic interactive relationship of "teacher — GenAI — student." GenAI can engage in cognitive interaction and task collaboration with teachers and students, becoming an intelligent assistant for teacher instruction and an intelligent partner for student learning. Within this triadic collaborative relationship, although the roles of the subjects are reshaped, the core position of "humans" remains unshaken: students are always the center of the learning process, while teachers bear the key responsibilities of instructional design and classroom guidance. GenAI, as an auxiliary force, together with teachers and students, forms a dynamically balanced, synergistically developing organic whole, ensuring the "human-centered" essence of education under technological empowerment. The construction of this human-machine collaborative education ecosystem resonates strongly with cutting-edge global explorations of educational transformation in the GenAI era. Relevant research examines the impact of GenAI on teaching, learning, and assessment, emphasizing that teacher professional development and human-machine collaborative instructional design are key pillars of the future education system (Sampson et al., 2025), providing an interdisciplinary analytical framework and practical strategies for pedagogical innovation, ethical governance, and teacher education in the GenAI era (Corbeil & Corbeil, 2025).

As UNESCO has pointed out, "Proper governance of artificial intelligence is one of the most important challenges of our time" (UNESCO, 2023). The application of AI must aim to strengthen the capabilities of teachers and students, not to weaken or replace the crucial social relationships and humanistic interactions in education. This sounds an ethical alarm for us as we develop GenAI educational applications and highlights the profound significance of the book's theoretical framework.

The new human-machine collaborative education ecosystem is forming an open system based on educational big data, supported by intelligent technology, centered on learners, and organically integrating diverse learning spaces such as campuses, homes, and society, along with virtual and real scenarios. In this new ecosystem, teacher and student development becomes increasingly personalized

and systematic, and educational governance becomes increasingly scientific and precise, driving high-quality development of education and comprehensive improvement in talent cultivation quality. The book's profound elucidation of this ecosystem not only reflects the absorption and reference of internationally advanced educational concepts but also showcases the theoretical confidence and practical innovation of the Chinese education community, providing important Chinese solutions and wisdom for the global digital transformation of education.

3. Conclusion: Teacher as Designer

As the Chinese educator Tao Xingzhi (2008) said, "A good teacher does not teach books, nor does he merely teach students; he teaches students how to learn". *How to Be a Teacher in the GenAI Era: Empowering Teaching and Research with Generative Artificial Intelligence* is precisely a timely response to this famous quote. The book ultimately points to a core and profound conclusion: in the new educational ecosystem reshaped by Generative Artificial Intelligence, the teacher's role is transforming from the traditional "knowledge transmitter" to the future "learning designer." This transformation is not only practically necessary but also theoretically legitimate. As Diana Laurillard (2023) states in *Teaching as a Design Science*, teaching should be regarded as a design science, its core lying in principle-based design, continuous iteration, and collective knowledge construction to systematically enhance teaching effectiveness. The emergence of GenAI provides the technical possibility for realizing this concept. By undertaking repetitive tasks, it frees teachers to engage in higher-order design activities, such as designing project-based learning in authentic contexts, designing cognitive scaffolds for human-machine collaboration, and designing interdisciplinary integration problems. However, technology alone does not necessarily bring educational change. Real change stems from the awakening of teachers' design thinking and the formation of design communities. Teachers need to be able to represent instructional design in an externalized, shareable manner, participate in building the knowledge base of professional communities, and thereby achieve systematic progress in teaching practice. This is exactly the professional development path advocated by the book — teachers are not just technology users but also participants in educational design and contributors to pedagogical knowledge.

In the GenAI era, the design mission entrusted to teachers acquires new connotations. They are no longer limited to traditional board design and lesson plan writing but focus on student-centered personalized learning experience design (Chen, Yang, & Zhou, 2025). Specifically, teachers need to carefully design authentic projects that deeply stimulate students' desire for inquiry. These projects are

not fictional scenarios but are closely related to real life, allowing students to truly understand the value and application of knowledge while solving practical problems. For example, in a science course, designing a project on local ecological environment research, students conduct fieldwork, data collection, and analysis, propose plans for ecological improvement, and in the process, not only master scientific knowledge but also cultivate practical abilities and a sense of social responsibility.

At the same time, teachers should design progressively layered cognitive scaffolds for human-machine collaboration. Cognitive scaffolds are like scaffolding for building a tall structure, helping students gradually elevate their cognitive levels. For example, in Chinese reading instruction, teachers use GenAI tools to first provide students with background knowledge of the text, then guide them to analyze the text structure, and finally encourage in-depth discussion of the theme. Each step is completed collaboratively by the teacher and intelligent tools, helping students climb step by step on their existing cognitive foundations. Furthermore, teachers need to design open-ended questions integrating multidisciplinary knowledge. In today's era of high knowledge integration, single-discipline knowledge is insufficient to cope with complex real-world problems. Teachers should encourage students to cross disciplinary boundaries and comprehensively apply knowledge from mathematics, physics, geography, information technology, and other disciplines for thinking and problem-solving. More importantly, teachers ultimately need to design an inclusive, equitable, and growth-oriented educational environment where every student can find their place, realize their potential, and feel respected and cared for. It can be said that teachers in the GenAI era are precisely the designers of education. This book is the key that helps teachers open the door to design, providing a set of systematic methodologies for becoming "intelligent education designers." From prompt engineering to agent construction, from resource development to research empowerment, the ultimate purpose of all these tools and strategies is to empower teachers' design thinking, enabling them to efficiently use GenAI as a powerful "assistant" to transform their educational philosophies and wisdom into tangible teaching innovations.

Therefore, the role positioning of "teacher as designer" not only responds to the challenges of technological change but also reaffirms the human-centered essence of education. As Karl Jaspers (2012) emphasized, "The essence of education means one tree shakes another tree, one cloud pushes another cloud, one soul awakens another soul." No matter how excellent the educational design, its core lies in the teacher's professional judgment, humanistic care, and creative wisdom — things that no algorithm can generate. The future has arrived. The curtain is rising on the era of teachers as "learning designers," calling upon each of us educational practitioners to consciously embrace this creative evolution and response with subjective awareness.

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References

- 陈敏、杨会云、周驰（2025）：“AI 教育建构者：智能时代教师角色转型与能力重构”，《远程教育杂志》（06）：33-40+51。
- [Chen Min, Yang Huiyun, Zhou Chi (2025). “AI Education Constructor: Teacher Role Transformation and Competency Reconstruction in the Intelligent Era.” *Journal of Distance Education* (06): 33-40+51. DOI: <https://doi.org/10.15881/j.cnki.cn33-1304/g4.2025.06.005>]
- Corbeil, J. R., & Corbeil, M. E. (Eds.). (2025). *Teaching and Learning in the Age of Generative AI: Evidence-Based Approaches to Pedagogy, Ethics, and Beyond*. Taylor & Francis.
- Creely, E., & Carabott, K. (2025). “Teaching and Learning With AI: An Integrated AI-Oriented Pedagogical Model.” *The Australian Educational Researcher* (06):4633-4654. DOI: <https://doi.org/10.1007/s13384-025-00913-6>
- 杜玉霞、贺卫国（2025）：《GenAI 时代如何做教师：生成式人工智能赋能教学与研究》。教育科学出版社。
- [Du Yuxia & He Weiguo (2025). *How to Be a Teacher in the GenAI Era: Generative AI Empowering Teaching and Research*. Educational Science Publishing House.]
- 胡伟（2023）：《技术与教师：人工智能时代的教师素养》。东南大学出版社。
- [Hu Wei (2023). *Technology and Teachers: Teacher Literacy in the Age of Artificial Intelligence*. Southeast University Press.]
- 胡小勇（2025）：《生成式人工智能：教师应用指南》。广东教育出版社。
- [Hu Xiaoyong (2025). *Generative Artificial Intelligence: A Teacher's Application Guide*. Guangdong Education Publishing House.]

卡尔·雅斯贝尔斯 (2012):《什么是教育》,陈巍, Karl Kratz 译。上海人民出版社。

[Jaspers, Karl (2012). *What is Education*, translated by Chen Wei & Karl Kratz. Shanghai People's Publishing House.]

黛安娜·劳里劳德 (2023):《教学是一门设计科学:构建学习与技术的教学范式》,金琦钦,洪一鸣,梁文倩译。教育科学出版社。

[Laurillard, D. (2023). *Teaching as a Design Science: Building the Pedagogical Paradigm of Learning and Technology*, translated by Jin Qiqin, Hong Yiming, & Liang Wenqian. Educational Science Publishing House.]

梁启超 (1989):《饮冰室合集》。中华书局。

[Liang Qichao (1989). *Complete Works from the Ice-Drinker's Studio*. Zhonghua Book Company.]

教育部办公厅 (2025-07-03):《关于组织实施数字化赋能教师发展行动的通知》(教师厅函 (2025) 13 号)。

http://www.moe.gov.cn/srcsite/A10/s7034/202507/t20250704_1196586.html

[Ministry of Education Office (2025-07-03). "Notice on Organizing and Implementing the Digital Empowerment Teacher Development Action: Teacher Office Letter (2025) No.13". http://www.moe.gov.cn/srcsite/A10/s7034/202507/t20250704_1196586.html]

Sampson, D. G., Isaías, P., & Ifenthaler, D. (2026). *Teaching and Learning in the Generative Artificial Intelligence Age*. Springer.

国务院 (2025-08-21):《国务院关于深入推进“人工智能+”行动的意见》(国发 (2025) 11 号)。

https://www.gov.cn/gongbao/2025/issue_12266/202509/content_7039598.html

[State Council (2025-08-21). "State Council's Opinions on Deeply Implementing the 'AI+' Action: State Council Issued (2025) No. 11." https://www.gov.cn/gongbao/2025/issue_12266/202509/content_7039598.html]

陶行知 (2008):《陶行知全集》。江苏凤凰教育出版社。

[Tao Xingzhi (2008). *Collected Works of Tao Xingzhi*. Jiangsu Phoenix Education Publishing House.]

UNESCO (2023). "UNESCO's Recommendation on the Ethics of Artificial Intelligence: key facts". <https://www.unesco.org/en/artificial-intelligence/recommendation-ethics>

杨国良、蔡其勇 (2025):“数智时代教师专业身份认同危机的显现与消解”,《教育研究》(12): 139-150。

[Yang Guoliang & Cai Qiyong (2025). "The Emergence and Resolution of Teachers' Professional Identity Crisis in the Digital Intelligence Era." *Educational Research* (12): 139-150.]