Region-Educational Research and Reviews, 2025,Volume 7, Issue 4
DOI:10.12238/rerr.v7i4.3890
ISSN Online:2661-4634
ISSN Print:2661-4626

Unease in the Intelligent Transformation: Etiology and Alleviation Strategies of AI Anxiety in Kindergarten Teachers Adopting DeepSeek

Yuchen Fan, Wei Xia*

School of Preschool and Elementary Education, China West Normal University

Abstract: Technological revolutions have historically been accompanied by social transformations and anxieties. In the context of rapid advancements in artificial intelligence (AI), AI anxiety has emerged as a novel emotional response, attracting growing scholarly attention. Currently, the rapid integration of generative AI (e.g., DeepSeek) into China's educational sector has profoundly impacted kindergarten teachers. The educational community exhibits ambivalent attitudes toward DeepSeek, with some teachers expressing concerns about its potential risks in early childhood education. To harness the opportunities presented by large language models while mitigating associated educational challenges, this study employs literature review, case analysis, and teacher interviews to investigate the types and etiology of AI anxiety among Chinese kindergarten teachers using DeepSeek. Furthermore, it proposes practical strategies to alleviate such anxiety and optimize AI applications in education.

Keywords: Artificial Intelligence, AI Anxiety, Kindergarten Teachers, DeepSeek

1. Introduction

Referring to the emergence and adoption of other new technologies throughout history, users often hold complex views toward technological innovations[1]. In January 2025, Hangzhou DeepSeek Artificial Intelligence Basic Technology Research Co., Ltd. officially released the DeepSeek-R1 model. Public evaluations indicate that DeepSeek performs comparably to the world's leading proprietary models, GPT-4o and Claude-3.5-Sonnet[2]. Gaining traction in China's early education sector, it is favored by kindergarten teachers for its strong reasoning, cost-effectiveness, and open-source benefits.

According to The 2024 Ipsos Global AI Monitor Report reveals that 50% of people say AI makes them nervous[3]. The rapid advancement of AI has raised significant concerns regarding its impact on human psychology, leading to a phenomenon termed AI Anxiety - feelings of apprehension or fear stemming from the accelerated development of AI technologies[4]. Moderate anxiety may promote technological learning, but excessive anxiety can lead to technological rejection. In the Chinese context, while DeepSeek as an AI technology product generally reduces labor intensity and empowers teachers' professional development, it has inevitably triggered AI anxiety at both individual and societal levels. Therefore, overcoming employees' AI anxiety and boosting technology acceptance to enhance human-machine collaboration is crucial in the AI era.

Currently, many studies within the scope of AI anxiety have been conducted in the fields of health and technology, but Chinese studies lack an ontological perspective to examine its essence. The causes of kindergarten teachers' AI anxiety

when using DeepSeek urgently require clarification. Therefore, this study aims to fill this research gap by thoroughly investigating the psychological factors behind Chinese kindergarten teachers' AI anxiety and proposing effective solutions. We will first clarify the development and conceptualization of AI anxiety. Through interviews with Chinese kindergarten teachers about their anxiety related to using DeepSeek, we have identified the main types of AI anxiety - Dependency Anxiety, Learning Anxiety, and Obsolescence Anxiety and explored their primary causes. To address these challenges, we propose corresponding solutions. As society enters an era of ubiquitous AI, with kindergarten teachers widely using DeepSeek to assist in teaching, the key to alleviating the resulting anxiety lies in investigating its root causes and implementing effective intervention strategies.

2. Multidimensional teacher Anxiety toward DeepSeek AI

2.1 Dependency anxiety

Kindergarten teachers often unconsciously develop excessive reliance when using AI tools like DeepSeek. Studies indicate excessive reliance on DeepSeek carries dual drawbacks: it erodes teachers' lesson design skills and creativity, while inducing content uniformity that diminishes personalized instruction[5]. More alarmingly, prolonged usage may subtly undermine teachers' critical thinking and independent judgment capabilities, creating a dependence on the "technological black box." This dependence extends not only to lesson preparation but potentially throughout the entire teaching process including implementation and evaluation, ultimately leading to systemic degradation of professional competencies.

"Now whenever parents consult me about child development indicators, my first instinct is to open DeepSeek to check data... Sometimes when the internet suddenly disconnects, I even lack confidence in answering basic questions" (Interviewee Teacher: T3). This anxiety is particularly prominent in early childhood education, as the uniqueness and complexity of this field deepen teachers' skepticism about AI's applicability.

2.2 Learning anxiety

Research has found that Chinese kindergarten teachers face both technical and psychological barriers when learning AI tools like DeepSeek.

On one hand, the gap between the rapid pace of technological advancement and teachers' digital literacy creates objective obstacles. On the other hand, competitive pressures in the organizational environment further amplify psychological burdens. For example, "Younger teachers can train AI in half an hour, while it takes me much longer to experiment repeatedly. I can't even join their discussions about 'optimizing prompts'" (T1). This statement from Teacher T1 reveals not only a sense of technological alienation caused by intergenerational digital divides but also an identity crisis in the workplace context. Meanwhile, Teacher T4's remark—"The principal said teachers who can't use AI will be phased out, but I still struggle with smart whiteboards. I even dream about memorizing operation procedures at night" (T4)—highlights the stress response triggered by the mismatch between institutional demands and individual capabilities, which has even intruded into daily life.

These phenomena indicate that learning anxiety has evolved from a mere technical adaptation issue into a multidimensional psychological challenge involving job security and self-efficacy.

2.3 Obsolescence anxiety

The introduction of generative artificial intelligence technology may similarly intensify competition among workers, creating obsolescence anxiety. International research indicates that in terms of employment, the application of AI has heightened substitution risks in the labor market[6].

Teacher T2's perplexity is quite representative: "The 'Five Domains Teaching Methods' taught in normal colleges are all considered 'traditional models' by AI - where does our professional value lie?" (T2). This reflects how AI technology's deconstruction of traditional educational concepts is shaking teachers' professional confidence. More critically, technological generational differences are reshaping kindergarten workplaces. "Younger teachers use DeepSeek to complete the environmental creation plans I stayed up all night to write in just five minutes. That feeling of being 'overwhelmed by dimensionality reduction'... to be honest, it makes me consider early retirement" (T5). This experience of

a veteran teacher is thought-provoking, as such comparisons not only reveal the competence gap between digital-native teachers and digital-immigrant teachers but also reflect the implicit transformation occurring in educational evaluation systems.

This obsolescence anxiety reflects educators' dual challenges in the tech revolution: confronting AI's disruption of traditional teaching while adapting to new professional demands. When technological advances consistently outpace teacher development cycles, professional identity crises become inevitable.

3. Underlying causes of kindergarten teachers' AI anxiety

3.1 Causes of dependency anxiety

3.1.1 DeepSeek's opacity exacerbates reliance insecurity

Kindergarten teachers' dependency anxiety primarily stems from the black-box nature of DeepSeek's algorithm. This opacity creates professional insecurity and undermines trust in AI-assisted teaching. Specifically, in preschool education settings, this anxiety becomes particularly pronounced when teachers are required to implement AI-generated lesson plans whose developmental appropriateness and pedagogical foundations they cannot fully comprehend.

"Using DeepSeek for lesson preparation feels like walking blindfolded. I can't discern the educational logic behind the game activities the system recommends" (T4). Since teachers cannot verify or modify DeepSeek's underlying decision-making processes, they are trapped in a contradictory state of "dependency coupled with suspicion"—compelled to use the technology while persistently questioning the reliability of its outputs. This professional dilemma appears especially acute in areas requiring nuanced expertise in child development, where teachers feel their professional judgment is being supplanted by untested algorithmic decisions.

3.1.2 Diminished teacher self-efficacy through AI overuse

The highly technology-dependent education system in the digital intelligence era, while significantly improving efficiency, tends to weaken emotional connections and humanistic values, thereby triggering noticeable "de-subjectification" risks[7]. This may lead to an imbalance in human-machine interaction and reduce kindergarten teachers' sense of teaching efficacy.

Taking the teaching strategy dimension as an example, over-reliance on AI weakens teachers' ability to generate personalized activities, making it difficult for them to adjust teaching based on children's immediate responses. As Teacher T5 described: "After using AI lesson plans for one semester, I suddenly found myself unable to design even the simplest role-playing games without system prompts. When children asked 'what's next?', I was speechless - those improvisational teaching skills had long deteriorated" (T5). This demonstrates how technological substitution erodes teachers' core competencies through the "use it or lose it" mechanism.

3.2 Causes of learning anxiety

3.2.1 Formation of skill catch-up stress

Since the widespread application of AI tools like DeepSeek in education and teaching, the increasingly demanding digital literacy requirements have made it difficult for teachers to keep pace with technological iterations. This AI's rapid evolution, has ultimately created a fundamental mismatch between AI's exponential iteration speed and teachers' gradual learning curve.

For instance, Teacher T1 expressed helplessness: "Every time I master an AI tool, a new version or system emerges. From ERNIE Bot to Kimi and now DeepSeek - I'm forever chasing tech updates on a treadmill I can't outrun." (T1). This sentiment reflects typical skill-catch-up pressure - where technological advancement far outpaces teachers' adaptive capacity, consequently creating learning stress for kindergarten teachers in the process of adopting AI tools.

3.2.2 Generational digital divide

A marked digital generation gap is creating significant technological disparities among kindergarten teachers, with evident differences in AI adoption between novice and veteran educators, heightening intergenerational learning anxiety.

Within the education sector, this digital generational gap manifests as a stark skills discontinuity among kindergarten teachers. Younger and veteran teachers exhibit significant differences in their ability to apply AI tools like DeepSeek, their

speed of technological adaptation, and their digital pedagogical thinking[8]. Leading to adaptation challenges when using DeepSeek efficiently. "Every time I see my younger colleagues generate beautifully designed lesson plans with just a few simple prompts, while I can't even remember the most basic commands, this sense of frustration makes me want to avoid all technology-related teaching research activities" (T7).This veteran teacher's account shows generational gaps not only reduce teaching efficiency but may also erode experienced educators' professional confidence, worsening digital divides and AI learning anxiety in kindergartens.

3.3 Causes of obsolescence anxiety

3.3.1 Amid existential crisis in the AI era

Currently, the impact of artificial intelligence technology on the labor market has become an undeniable social reality. According to a report by investment bank Goldman Sachs, approximately 300 million jobs worldwide could potentially be replaced by generative AI[9]. Growing numbers of knowledge workers, including educators, fear emerging AI technologies may replace their jobs, ultimately making them obsolete.

Preschool teachers' traditional authority is challenged by AI tools like DeepSeek, which instantly generate lesson plans, personalized assessments, and interaction simulations - replacing core instructional design functions through simple commands. "When DeepSeek can automatically generate parent-teacher conference speeches, I suddenly question where my irreplaceable value lies" (T3). This trend has gradually eroded early childhood teachers' professional authority and perceived indispensability among parents and the general public, consequently generating profound obsolescence anxiety among practitioners.

3.3.2 Professional authority erosion in AI-mediated education

AI's deep integration in education is reshaping traditional power dynamics. As noted by Chinese scholars , the emergence of AI represents both a deconstruction of traditional teacher authority and a reconstruction of teacher identity[10]. This deconstruction of authority manifests distinctively when kindergarten teachers utilize AI tools like DeepSeek.

At the knowledge authority level, DeepSeek's instant generation of professional lesson plans and assessments risks devaluing teachers' accumulated expertise. As Teacher T1 noted: "Parents now prefer AI-generated data reports over my professional advice" (T1). This phenomenon may intensify obsolescence anxiety, particularly under China's unique "home-kindergarten co-education" pressure in early childhood education. Simultaneously, at the decision-making level, AI tools are reshaping traditional pedagogical judgment. A provincial model kindergarten study found teachers reporting "AI-generated plans mandated as instructional baselines" (T7), severely undermining professional autonomy. Tech reliance challenges teachers' professional value, triggering dual anxiety over replacement and identity crisis.

4 Multidimensional intervention framework for AI anxiety

4.1 Developing tacher-AI collaborative teaching programs for dependency anxiety

Effective human-AI collaboration helps reduce employees' anxiety and sense of threat[11]. Therefore, this study recommends establishing systematic teacher-AI collaborative teaching programs. At the kindergarten management level, regular technology training sessions should be conducted to help teachers master AI tools like DeepSeek for task completion. A three-dimensional training system should be implemented, including:Tiered training (grouping by teachers' digital literacy levels)、Contextualized learning (real teaching case simulations)、Ongoing technical support (in-school AI coaching). This system enhances teachers' perceived ease of use. Since individuals' perception of AI technology difficulty (i.e., perceived complexity) significantly impacts their acceptance, reducing teachers' perceived complexity can improve their perceived ease of use. This approach facilitates teachers' professional transition from "technology dependence" to "technology mastery," thereby alleviating dependency anxiety when using DeepSeek.

4.2 Implementing tiered AI literacy enhancement for learning anxiety

This study recommends establishing a "novice-veteran teacher collaboration" mechanism, leveraging young teachers' tech leadership to facilitate experienced educators' AI adaptation. Second, given the widespread use of AI tools like DeepSeek in kindergartens, it recommends strengthening school-kindergarten partnerships by incorporating mandatory AI courses in pre-service teacher education and embedding AI application modules in in-service training, with content

co-developed by university specialists and kindergarten master teachers. Finally, the proposal includes implementing differentiated tiered training programs that design progressive AI competency pathways tailored to teachers' age, experience, and technological proficiency, thereby transforming teachers' spontaneous interest in DeepSeek into sustained professional growth while enabling them to benefit from technological advantages and reduce learning anxiety.

4.3 Establishing a teacher AI adaptation support system for obsolescence anxiety

Cross-industry research demonstrates that the professional authority challenges triggered by AI technology exhibit universal prevalence. Parallel to the "fear of replacement" phenomenon observed in healthcare where AI-assisted diagnostic systems have diminished physicians' authority[12], the education sector should adapt the "shared decision-making" model from clinical practice to reinforce teachers' leadership in human-AI collaboration and establish a novel tripartite decision-making framework involving "teacher-AI-child" interactions. Governments should formulate regulatory documents such as "Teachers' AI Application Rights Protection Regulations" to safeguard educators' final decision-making authority in AI-assisted instruction; at the competency development level, emphasis should be placed on cultivating AI-resistant educational skills like emotional interaction and pedagogical improvisation. This dual-track support system of "institutional protection-competency reinforcement" simultaneously addresses teachers' practical anxieties while aligning with education's human-centric essence.

5 Conclusion

This study systematically examines Chinese kindergarten teachers' AI anxiety types when using DeepSeek, identifies key mechanisms including algorithmic opacity, generational digital divides, and professional authority erosion, and proposes a multidimensional intervention framework integrating teacher-AI collaboration, tiered competency enhancement, and rights protection systems. The findings suggest AI anxiety essentially reflects teachers' identity reconstruction during technological transformation, requiring balanced approaches combining institutional safeguards and skill development. Future research should focus on educational AI's ethical boundaries and dynamic professional identity adaptation, providing theoretical and practical paradigms for high-quality early childhood education in the AI era.

Acknowledgments

This study was funded by the 2019 Youth Project Fund for Humanities and Social Sciences of the Ministry of Education (Project No. 19YJC880100) and China Academic Degrees and Graduate Education Development Center (CDGDC) 2024 Annual Thematic Case (ZT-2410638001).

Reference

[1]Gessl, A. S., Schlögl, S., & Mevenkamp, N. (2019). On the perceptions and acceptance of artificially intelligent robotics and the psychology of the future elderly. Behaviour & Information Technology, 38(11), 1068-1087.

[2]DeepSeek. DeepSeek-V3 technical report[EB/OL]. (2025-02-19)[2025-04-05].https://arxiv.org/pdf/2412.19437.

[3]Carmichael, M. & Stinson, J. The Ipsos AI Monitor 2024. Ipsos Knowledge Centre. The Ipsos AI Monitor 2024: Changing attitudes and feelings about AI and the future it will bring | Ipsos [2024-6-6].

[4]Kim, J.J.H., Soh, J., Kadkol, S. et al.(2025). AI Anxiety: A comprehensive analysis of psychological factors and interventions. AI and Ethics. doi: https://doi.org/10.1007/s43681-025-00686-9.

[5]Dai, N., & Guo, Z. H. (2025). Exploring the practical path of Marxist style of study guiding the construction of study style in media universities. CPN Research, (5), 73-76.

[6]Dahlin, E. (2019). Are robots stealing our jobs? Socius, 5, 1-14.

[7]Zhang, T. J., & Zhou, F. S. (2025). Formation mechanisms and governance strategies for disembodiment risks in education in the digital-intelligence era. Forum on Contemporary Education, (2), 24-33. doi: https://doi.org/10.13694/j.cnki.ddjylt.20250108.001.

[8]Li, J. D., & Liu, H. (2025). Bridging and widening the generational digital divide: The dual effects of proxy-based upward support on rural parents' social media use. Journal of South-Central Minzu University (Humanities and Social Sciences), Advance online publication. https://doi.org/10.19898/j.cnki.42-1704/C.20250115.07.

[9]The Paper. (April 8, 2023). Goldman Sachs predicts 300 million jobs will be replaced by generative AI!

Is the first wave of unemployment coming? How to respond [News website]. Retrieved from https://www.thepaper.cn/newsDetail_forward_22597413.

[10]Zhang, Z. Z., Zhang, L. L., Xu, X. Y., et al. (2019). Instructional role metaphor of artificial intelligence: The case of high-impact projects in artificial intelligence application in education. Chinese Journal of Distance Education, (11), 24-37, 57, 93. doi: https://doi.org/10.13541/j.cnki.chinade.2019.11.003.

[11]Gui, C. L., Zhao, X. H., Zhang, P. C., et al. (2024). The influence mechanism of employees' AI awareness on their innovative performance in the digital intelligence context. Human Resources Development of China, 4(8), 6-22. doi; https://doi.org/10.16471/j.cnki.11-2822/c.2024.8.001.

[12]Lysø, E. H., Hesjedal, M. B., Skolbekken, J. A., & Solbjør, M. (2024). Men's sociotechnical imaginaries of artificial intelligence for prostate cancer diagnostics - A focus group study. Social science & medicine (1982), 347, 116771. doi: https://doi.org/10.1016/j.socscimed.2024.116771.