Educator Insights: A Journal of Teaching Theory and Practice
Volume 01, Issue 11, November 2025
brightmindpublishing.com
ISSN (E): 3061-6964
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THE ROLE OF EMOTIONALLY INTELLIGENT AI IN SUPPORTING PRE-SERVICE TEACHERS

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Abstract
This article examines the role of emotionally intelligent artificial intelligence (EI-AI) in pre-service teacher education. Teaching requires not only subject expertise but also emotional competence, self-awareness, and resilience. EI-AI systems can support pre-service teachers by providing adaptive feedback, monitoring emotional states, and creating safe spaces for reflection and growth. The study highlights key benefits such as personalized guidance, emotional support, and real-time feedback, while addressing ethical concerns including privacy, bias, and over-reliance on technology. The paper concludes that integrating EI-AI with human mentorship offers a balanced and effective approach to enhancing teacher preparation in Uzbekistan's digital education context.

Keywords: Emotionally intelligent AI; pre-service teachers; emotional intelligence; teacher education; reflective practice; ethics in AI; digital pedagogy..

Introduction

Becoming a teacher involves far more than mastering subject knowledge. It also requires developing the social, emotional, and reflective capacities needed to lead a classroom effectively. Pre-service teachers (PSTs), who are still in training, often encounter numerous challenges that shape their confidence and readiness for the profession.

One of the most common difficulties lies in **classroom management**. Managing diverse groups of learners with different abilities, motivations, and behaviors can be overwhelming for novices. Without practical experience, such situations often trigger anxiety and self-doubt.

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Another concern is **confidence building**. The first experiences of teaching can be intimidating, as PSTs may question their ability to engage students, maintain authority, or create meaningful lessons. A lack of self-assurance can discourage experimentation and creativity.

Emotional regulation is equally important. Teachers must remain composed even when lessons do not go as planned or when classroom behavior becomes disruptive. For PSTs who are still learning coping mechanisms, this demand can feel daunting.

Finally, gaps in **feedback and mentorship** also hinder development. While mentors play a crucial role, their feedback is sometimes delayed or generalized. As a result, PSTs may lack immediate, personalized guidance on both instructional and emotional responses.

Traditionally, artificial intelligence (AI) in education has been associated with administrative and analytical tasks—grading, adaptive testing, and content recommendation. Such systems are primarily **cognitive**, focused on data rather than emotion. However, recent advances in **Emotion AI** or **affective computing** have introduced systems capable of detecting and responding to human emotions through facial expressions, voice tone, text sentiment, or physiological signals. When combined with pedagogical aims, these systems give rise to **emotionally intelligent AI (EI-AI)**—AI that not only delivers information but also adjusts its feedback and support in response to the user's emotional state.

Unlike conventional AI tutors that offer uniform feedback regardless of user frustration or engagement, emotionally intelligent AI can adapt its responses to sustain motivation and emotional balance. It might, for instance, provide calming prompts when it detects stress, offer encouragement during moments of low confidence, or increase task difficulty when engagement is high. These adaptive responses approximate, to a certain degree, the empathy and responsiveness of human mentors.

Within teacher education, such systems have great potential. EI-AI could monitor PSTs' emotional reactions during simulated teaching sessions, provide feedback on tone and empathy, and suggest strategies for emotional regulation. Although these algorithms do not truly "feel" emotions, their capacity to identify and model emotional patterns enables more personalized and reflective learning experiences.

Emotionally intelligent AI can play a significant role in bridging the gap between theory and practice in teacher preparation. By providing adaptive, emotion-aware

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feedback, such technologies can create safe and supportive environments for experimentation and reflection. Several key areas of application can be identified:

1. Real-time emotional feedback: EI-AI can assess emotional cues—such as voice tone, facial expressions, and language—during simulated lessons and provide instant feedback. For instance, it may detect stress or tension in speech and suggest relaxation techniques, helping PSTs refine their emotional communication.
2. Virtual classroom simulations: Emerging platforms now include "virtual students" that display realistic emotions such as boredom, curiosity, or frustration. PSTs can practice managing these interactions in risk-free environments that dynamically respond to their behavior.
3. Personalized coaching and reflection: EI-AI can track emotional patterns over time, identifying recurring stress triggers and suggesting evidence-based coping strategies, from breathing exercises to re-framing techniques.
4. Enhanced feedback loops: Human mentors often provide limited or delayed feedback. EI-AI can complement this by offering immediate, data-informed insights into both instructional and emotional performance, accelerating professional growth.
5. Fostering emotional awareness: By visualizing emotional data, EI-AI helps PSTs become more conscious of their feelings during teaching practice—an essential step toward building genuine emotional intelligence.

The integration of EI-AI into teacher education offers several advantages that extend beyond conventional training models:

1. Building emotional resilience and self-awareness: Teaching demands emotional endurance. EI-AI allows PSTs to rehearse emotional regulation in simulated settings where mistakes carry no real-world consequences. By receiving direct feedback, they develop awareness of their emotional triggers and resilience for future challenges.
2. Providing safe and non-judgmental support: Unlike human mentors, who may unintentionally display bias, EI-AI delivers consistent and impartial feedback. This creates a psychologically safe space for PSTs to experiment, reflect, and learn without fear of criticism.
3. Ensuring personalization and adaptive learning: Each PST faces unique emotional and pedagogical challenges. EI-AI can adapt lessons and coping strategies to individual needs, enhancing the relevance and impact of training.

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4. Bridging mentorship gaps: In many programs, limited mentor availability and heavy workloads delay feedback. EI-AI can bridge this gap by providing immediate responses, allowing human mentors to focus on deeper reflective discussions.
5. Encouraging reflective practice: By recording and visualizing emotional changes across different teaching tasks, EI-AI fosters continuous self-reflection—an essential habit for lifelong professional development.

Despite its promise, the adoption of emotionally intelligent AI must be approached with ethical and professional care:

1. Data privacy and consent: EI-AI relies on sensitive personal data—facial expressions, voice tone, or biometric signals. Strict data protection, informed consent, and ethical usage are crucial to prevent misuse.
2. Limits of emotional understanding: While EI-AI recognizes patterns linked to emotions, it does not experience them. Overstating its empathy could undermine genuine human connection in teacher preparation.
3. Risk of over-reliance: Dependence on algorithmic feedback may weaken independent reflection. AI should supplement, not replace, personal and mentor-guided evaluation.
4. Algorithmic bias: Emotion recognition models may misinterpret culturally specific expressions, leading to unfair assessments. Ensuring inclusivity and fairness in training data is essential.
5. Acceptance and trust: Both educators and PSTs may hesitate to trust EI-AI systems. Transparency, clear communication, and evidence of pedagogical value are needed to build confidence.
6. Ethical boundaries: There must be clear limits to how deeply AI intervenes in emotional matters, ensuring that guidance remains educational rather than therapeutic.

Conclusion

Emotional intelligence is fundamental to effective teaching. Yet, for pre-service teachers, developing emotional awareness and resilience can be difficult within the structure of traditional programs. Emotionally intelligent AI presents a promising new avenue—offering adaptive feedback, realistic simulations, and reflective tools that nurture both pedagogical and emotional competence.

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However, responsible integration remains crucial. Data protection, cultural fairness, and balanced use must guide its adoption. The most effective approach will be **hybrid**, where AI provides immediate, personalized insights while human mentors foster deeper reflection and professional growth.

For **Uzbekistan**, where educational reforms increasingly emphasize innovation and digital transformation, EI-AI could significantly enhance teacher preparation. With appropriate infrastructure, training, and ethical safeguards, Uzbekistan's teacher education institutions can lead the region in adopting emotionally intelligent, human-centered technological solutions that prepare confident, reflective, and empathetic educators for the classrooms of tomorrow.

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