THE ROLE OF ARTIFICIAL INTELLIGENCE TOOLS IN ENHANCING STUDENTS' CREATIVITY AND LEARNING MOTIVATION

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Abstract: This analysis explores how AI tools enhance music students' creativity and learning motivation. Drawing on researches, it highlights AI's role in offering personalised learning and instant feedback, aligning with theories like SDT and Cognitive Load Theory. AI applications, such as SmartMusic, boost engagement and self-directed practice, ultimately

fostering both artistic expression and academic success, despite ethical concerns like the digital divide.

Keywords: Artificial intelligence, student motivation, creativity, music education, personalised learning

Introduction: The digital transformation of education has profoundly impacted creative fields, notably music education, positioning artificial intelligence (AI) tools as a critical force for change (Derakhshan & Ghiasvand, 2024; Gao, Wang, & Wang, 2024). As articulated by Chen (2025), this integration is not merely updating teaching methods but is actively "unlocking new dimensions of motivation, engagement, creativity and success for aspiring musicians" (p. 1). AI offers personalised experiences and instantaneous feedback that cater to diverse learning styles, a significant improvement over traditional methods (Liu, 2023). This personalised support system, which creates immersive and interactive learning environments, is crucial for fostering both technical skill and an enduring passion for music (Shabbir et al., 2024). This analysis examines how AI tools function as catalysts for enhancing students' creativity and learning motivation by drawing on the empirical and theoretical foundations presented in Chen (2025).

Methodology: The methodology underpinning the study by Chen (2025) was established following a thorough literature review to identify gaps and formulate two primary research questions (p. 4). The subsequent empirical phase involved the collection of quantitative data from a sample of 521 Chinese music students (p. 4), predominantly aged 18–24 (79.46%) (p. 5). Data collection utilised a comprehensive questionnaire comprising four validated, authoritative Likert scales: the AI Perception in Music Education Questionnaire (α=0.82), the Music Learning Motivation and Engagement Questionnaire (α=0.87), the Learning Outcomes in Music Education Questionnaire (α=0.91), and the AI and Creativity in Music Questionnaire (α=0.83) (pp. 5–6). This approach allowed the researchers to establish significant relationships and predictive power between students' perceptions of AI and their motivation, engagement, creativity, and learning success.

Results and Discussion: The accelerating integration of artificial intelligence (AI) tools into the educational sphere marks a paradigm shift in how students approach learning, with a particularly transformative impact on creative disciplines like music (Derakhshan & Ghiasvand, 2024; Gao, Wang, & Wang, 2024; Teo et al., 2022). As detailed by Chen (2025), this fusion of technology and pedagogy is not just a trend but a powerful mechanism for "unlocking new dimensions of motivation, engagement, creativity and success for aspiring musicians" (p. 1). By offering personalised experiences that adapt to individual learning styles and paces (Liu, 2023), AI systems provide instant, targeted feedback and customized practice routines that traditional methods often struggle to deliver, especially for diverse learners. This tailored support is fundamental, aligning with the growing emphasis on student agency where learners take an active, self-directed role in their education (Chen, 2025, p. 2). The empirical foundation for this study, drawing on a sample of 521 Chinese music students (Chen, 2025, p. 5), underscores the timeliness and significance of exploring AI's capacity to both enhance academic success and reignite a profound passion for the art form [2].

The influence of AI tools on student motivation is particularly pronounced through their capacity to foster intrinsic drive, aligning strongly with Self-Determination Theory (SDT), which highlights the necessity of autonomy, competence, and relatedness (Du, Chen, & Lin, 2022). In practice, AI tools empower students to make choices in their learning paths, a boost to autonomy, and receive immediate feedback, which cultivates a sense of competence and progress [1]. For example, popular music learning applications such as Yousician and SmartMusic leverage gamified experiences and personalised feedback to significantly

increase student motivation and practice frequency (Qian, 2023). Furthermore, AI's ability to analyse a student's musical preferences and suggest relevant pieces directly enhances the emotional connection stressed by the Arts Engagement Model [3], making the material more meaningful and strengthening motivation [4]. This body of research collectively indicates a strong positive relationship, as investigated in RQ1 and RQ2 (Chen, 2025, p. 4), between students' perception of AI, their motivation, and overall learning success.

Complementary to motivation, student engagement is significantly elevated by AI's ability to provide interactive and immersive learning environments (Shabbir et al., 2024). The use of Intelligent Tutoring Systems (ITS) in music education, for instance, dramatically increases engagement by offering adaptive learning experiences. These systems analyse a student's performance in real time, adjusting the difficulty to maintain an optimal challenge level tailored to individual skillsets (Paglieri, 2024; Chen, 2025, p. 3). This concept is further supported by Sweller's Cognitive Load Theory (George, 2023), which posits that effective learning requires managing cognitive load. AI tools, such as SmartMusic, help to optimise cognitive processing by breaking down complex pieces into manageable sections for focused practice (Wei, Karuppiah, & Prathik, 2022; Chen, 2025, p. 3). Moreover, Multimodal Learning Theory (Liu et al., 2024) validates AI's role by incorporating visual, auditory, and kinaesthetic modalities, which caters to diverse learning styles and improves overall retention and engagement (Chen, 2025, p. 3).

The impact of AI on creativity and musical expression is a central yet complex theme. While critics fear that algorithms may lead to formulaic performances and stifle natural creativity (Støckert & De Caro-Barek, 2024; Chen, 2025, p. 2), proponents argue that AI is a powerful catalyst for creative exploration. AI-powered software allows students to generate and experiment with music with minimal initial input, thereby empowering them to compose and refine their own works without needing extensive technical knowledge (Liu, 2023; Chen, 2025, p. 4). By automating repetitive tasks, AI liberates both students and educators to focus more time and energy on the creative and artistic aspects of music, fostering innovation and deeper exploration (Law, 2024; Chen, 2025, p. 4). The fundamental question posed by the research-"Is there any significant relationship between music students' AI perceptions, motivation, engagement and their learning success and creativity?" (Chen, 2025, p. 4)-highlights the need to understand this dynamic interplay.

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