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Arts Education and Self-Efficacy: Exploring Its Dual Impact on Students' Academic Performance and Emotional Attitudes

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Abstract: With growing attention to the role of arts education in fostering students' academic abilities and emotional development, self-efficacy—a belief in one's ability to complete tasks—has been recognized as a key mediating factor in shaping students' academic performance and emotional attitudes. However, existing studies primarily focus on the direct impact of arts education, with limited exploration of the specific mechanisms of self-efficacy. Theoretical and empirical research on this subject remains insufficient. To address this gap, this study constructs a theoretical model and conducts a literature review to investigate the role of self-efficacy in arts education, particularly in visual arts education. The findings reveal that self-efficacy significantly enhances students' creativity, confidence, and emotional expression, thereby improving their academic performance and emotional regulation abilities. Based on these findings, this paper proposes strategies to enhance students' self-efficacy, providing new theoretical and practical guidance for arts education.

Keywords: Arts education, self-efficacy, academic performance, emotional attitudes.

1. Introduction

Arts education plays a crucial role in fostering students' holistic development. Recent studies have shown that arts education not only stimulates creativity but also enhances critical thinking and emotional expression. While visual arts participation has been shown to positively influence students' academic performance and creative outcomes (Ulger, 2018), significant variations exist in individual student performance in arts education. These differences are closely related to students' self-efficacy. Research suggests that self-efficacy promotes creative thinking and academic performance, with arts education serving as a key context for developing this capability (Jin & Ye, 2022).

Self-efficacy, a concept introduced by psychologist Albert Bandura, refers to an individual's belief in their ability to complete tasks in specific situations. Individuals with high self-efficacy often demonstrate greater persistence, problem-solving abilities, and academic success (Schunk, 1989). In arts education, self-efficacy acts as a bridge between students' creative thinking and artistic performance, significantly influencing their academic achievements and emotional attitudes(Haase et al., 2018). studies have found that self-efficacy can be reinforced through successful completion of creative tasks, which, in turn, further enhances students' creative performance (Fan & Sun, 2024).

This study aims to explore the dual role of self-efficacy in linking arts education to students' academic performance and emotional attitudes, particularly in the context of visual arts participation. Visual arts encompass traditional forms such as painting and sculpture as well as contemporary forms like digital and installation art. The process of artistic creation has a multidimensional impact on students, contributing to both skill development and profound emotional and cognitive experiences. Engaging in artistic creation can fully unleash students' creative potential, significantly boost their confidence, and improve their emotional expression, which collectively enhance their academic performance and learning attitudes (Haase et al., 2018).

Although prior studies have examined the direct effects of arts education and the behavioral impact of self-efficacy, they have largely overlooked the mediating role of self-efficacy in the relationship between arts education and student outcomes. To address this research gap, this study focuses on this critical but underexplored linkage, investigating the mechanisms through which self-efficacy operates in arts education contexts. Existing findings indicate a strong

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connection between self-efficacy and creative performance in arts education and highlight its critical role in enhancing students' confidence in tackling complex tasks (Denee et al., 2024).

This paper reviews and synthesizes relevant literature on self-efficacy and arts education to uncover their underlying theoretical connections. It further explores how self-efficacy fosters the expansion of creative thinking, emotional regulation, and academic performance in arts education. Based on these findings, it proposes actionable strategies to enhance self-efficacy, providing educators with valuable insights for designing more effective teaching methods that promote comprehensive development in the arts.

2. Literature Review

2.1 The Concept and Development of Self-Efficacy

Self-efficacy, introduced by psychologist Albert Bandura in 1977, is a central concept in social cognitive theory. It refers to individuals' belief in their ability to successfully complete tasks or handle specific situations (Bandura, 2023). Rather than being an objective assessment of skills or abilities, self-efficacy is a subjective belief that deeply influences behavior, emotions, and cognition. Individuals with strong self-efficacy approach tasks with optimism and resilience, while those with low self-efficacy are more likely to feel powerless, withdraw, or anticipate failure (Bandura & Wessels, 1977).

Social cognitive theory emphasizes that self-efficacy affects not only behavioral choices and effort levels but also emotional states and cognitive processes (Bandura, 1991). High self-efficacy individuals tend to exhibit positive emotions when facing challenges, whereas low self-efficacy individuals often experience negative emotions, which impact task outcomes, information processing, and problem-solving strategies. In educational contexts, enhancing self-efficacy is critical for motivating students and improving their academic performance.

In academic settings, self-efficacy plays a significant role, influencing students' learning motivation, perseverance, and task performance. It also determines whether students employ effective learning strategies and maintain motivation (Schunk, 1989). Students with high self-efficacy are more likely to use deep learning strategies and demonstrate stronger problem-solving abilities (Hwang & Oh, 2021). Additionally, self-efficacy is crucial for self-regulated learning, as it encourages students to set ambitious goals, manage resources efficiently, and improve academic performance (Zimmerman, 2000).

Self-efficacy development is a gradual process influenced by four key sources: mastery experiences from overcoming challenging tasks, vicarious experiences through observing similar others succeed (El-Abd & Chaaban, 2021), verbal persuasion via positive feedback, particularly from teachers(Vattøy, 2020) and positive emotional states that enhance confidence during stressful tasks (Schweder et al., 2022) These factors interconnect to form belief systems that empower individuals to tackle challenges. As a vital motivational source, self-efficacy significantly enhances students' adaptability, persistence, and creativity in academic and artistic domains (Bhati & Sethy, 2022). Teachers can promote self-efficacy by designing well-structured teaching strategies and providing emotional support and positive feedback, thus improving students' academic and creative achievements.

2.2. The Relationship Between Arts Education and Academic Achievement

Arts education, particularly in music and visual arts, has drawn significant attention for its impact on students' academic performance. Numerous empirical studies have shown that arts education enhances creativity, critical thinking, and non-cognitive skills such as perseverance and self-efficacy, indirectly improving performance in subjects like math and language arts. Experimental studies indicate that arts education significantly boosts student performance in math and English, while also fostering critical thinking and creativity(Todhunter-Reid, 2019).

Large-scale analyses reveal a significant positive correlation between music education, particularly instrumental training, and student performance in math, science, and English. Instrumental education demonstrates a pronounced effect on logical reasoning and mathematical skills (Guhn et al., 2020). However, these studies face limitations, such as focusing on specific regions and cultural contexts (Bowen & Kisida, 2019). Additionally, students' attitudes and self-efficacy in arts education have been found to strongly correlate with academic performance, offering further evidence of arts education's impact (Dilmaç, 2021). Despite rigorous methodologies, these studies are constrained by regional and short-term effects.

While these findings demonstrate that arts education improves academic performance by enhancing non-cognitive skills and learning motivation, future research should broaden the sample scope to include diverse cultural backgrounds, explore students' motivations for engaging in arts education, and investigate its long-term effects and interdisciplinary potential.

2.3 The Relationship Between Arts Education and Learning Attitude

Recent research on arts education and learning attitudes has diversified, with various teaching strategies explored to enhance students' learning outcomes and attitudes toward arts courses. Studies show that museum-based learning activities incorporating gamification significantly improve students' learning outcomes and attitudes toward art. These activities combine games with museum education, increasing students' interest in arts courses and improving long-term

information retention. However, the small sample size and short study duration limit the generalizability of these findings (Genç & Buyurgan, 2019).Similarly, integrating artistic creation into anatomy courses has been shown to significantly enhance nursing and midwifery students' self-efficacy and learning attitudes. However, this method may not be directly applicable to other disciplines(HadaviBavili & İlçioğlu, 2024).

Psychological factors also play a crucial role in shaping attitudes toward arts education. Regression analyses reveal that personality traits such as extraversion, self-efficacy, and personal growth orientation are positively correlated with attitudes toward arts education, while neuroticism and behavioral inhibition systems are negatively correlated. These findings add a psychological dimension to understanding attitudes toward arts education but are limited by their focus on Chinese arts students, potentially restricting cultural generalizability (Ouyang et al., 2024).With the rapid development of multimedia technology, digital tools are increasingly integrated into arts education. Research indicates that multimedia-enhanced visual arts education significantly improves students' learning attitudes and satisfaction. Additionally, studies have indicated that multimedia-integrated art education can significantly improve students' learning attitudes and satisfaction, playing a crucial role in sparking their interest. However, the findings of this research are limited to the short-term effects observed in a specific region of China (Sun et al., 2022).

Art education profoundly influences learning attitudes and outcomes in different contexts, while highlighting the importance of gamified learning, creative teaching, psychological factors, and multimedia technology.

2.4 The Relationship Between Arts Education and Emotion

The role of arts education in emotional and cognitive development has increasingly garnered attention from the academic community, particularly in enhancing emotional engagement and self-efficacy. Arts education effectively strengthens students' emotional involvement, thereby supporting personal growth and social interaction. Service-learning environments in arts education have been shown to promote emotional development by enhancing empathy and emotional engagement, which not only improves students' artistic literacy but also deepens their emotional responses and sensitivity to others' feelings(Jacobs, 2023).

Over the past century, research based on a bibliometric analysis of 984 publications has revealed the research trends, key areas (such as emotion, higher education, and art), and collaborative networks related to emotional creativity in art education. The findings highlight the crucial role of emotions in fostering creative development and social adaptation in art education while emphasizing the need to expand data sources and integrate qualitative analysis to enhance the comprehensiveness and depth of future research(González-Zamar & Abad-Segura, 2021). Additionally, arts participation, through the interaction of cognition and emotion, has been found to significantly improve adolescents' self-efficacy. t has also been found that participation in the arts can significantly enhance adolescents' self-efficacy through the interplay of cognition and emotion. Among Chinese adolescents, artistic activities have been shown to improve students' cognitive abilities and social confidence(Deer et al., 2023).

Art education has also gained attention for its role in emotional and social development. For instance, dance education supports emotional growth in young women by providing opportunities to explore and express self-identity, helping them navigate life's uncertainties and build a more enduring and adaptable sense of self (Blatt-Gross, 2010). The interdisciplinary integration of art education and entrepreneurship education is considered highly significant in enhancing students' creativity and emotional intelligence. It not only strengthens emotional connection but also fosters social skills and innovative abilities, which are particularly effective in addressing complex social challenges(Farrington & Shewfelt, 2020). Everyday artistic practices within art education, such as theater rehearsals and art creation, drive technical progress while playing a key role in developing emotional cognition and social skills.

By providing students with opportunities for emotional expression and social interaction, art education not only promotes cognitive development but also enhances emotional engagement and self-efficacy. This serves as critical support for cultivating social skills and shaping self-identity.

2.5 The Relationship Between Self-Efficacy and Student Performance

Self-efficacy, as a key psychological factor influencing students' academic performance, has accumulated extensive research findings in the field of educational psychology. Based on various theoretical frameworks and research methodologies, studies have shown that self-efficacy has significant direct and indirect effects on academic performance, and these effects vary depending on the educational environment and intervention approaches.

Internationally, a longitudinal study compared self-efficacy theory, the motivational development self-system model, and expectancy-value theory. The results revealed a bidirectional relationship between self-efficacy and academic performance, while emotional engagement, under certain circumstances, could negatively impact academic performance. This highlights the complexity and diversity in theoretical research (Olivier et al., 2019). Compared to traditional exam formats, research has explored the impact of e-examinations on students' self-efficacy and academic performance. The findings indicated that e-examinations significantly enhanced students' academic performance and self-efficacy. However, the study pointed out that technical obstacles, such as screen reading, need to be addressed and recommended improvements in the design of e-examinations to better support student learning (Nardi & Ranieri, 2019).

In secondary education, a mediating model demonstrated that school climate factors, such as a sense of belonging and interpersonal relationships, indirectly improve academic performance by enhancing students' self-efficacy. However,

as the data was based on self-reports, the study may be subject to bias(Zysberg & Schwabsky, 2021). Research on collaborative learning via social media highlighted self-efficacy's crucial role as a moderator between this learning model and academic performance, validating its importance in technology-supported learning while emphasizing the potential influence of cultural contexts on this relationship (Dalle et al., 2024).

A randomized controlled trial (RCT) conducted by (Liu et al., 2006) demonstrated that successful experiences significantly enhance middle school students' self-efficacy, which, in turn, positively impacts their academic performance over the long term. This was one of the first experimental studies to establish a causal link between self-efficacy and academic achievement (Honicke & Broadbent, 2016). Similarly, research has shown that in the context of higher education, active teaching and academic self-efficacy have been proven to effectively improve course performance, reduce the likelihood of task-avoidance behaviors, and strengthen students' learning expectations as well as their persistence in courses (Metsäpelto et al., 2015). However, in the field of computer science education, studies indicate that collaborative learning methods, such as Process-Oriented Guided Inquiry Learning (POGIL), can significantly enhance students' self-efficacy, teamwork skills, and academic achievement (Şen et al., 2015).A systematic review integrating the relationship between academic self-efficacy and academic performance revealed a moderate correlation. It also highlighted mediating variables such as learning strategies, goal orientation, and effort regulation. However, most of these studies were correlational, underscoring the need for longitudinal research to further explore causality(Honicke & Broadbent, 2016).

In conclusion, self-efficacy has proven to be a crucial factor in influencing students' academic performance across diverse educational contexts. Its effects are evident not only in the direct improvement of academic outcomes but also through indirect pathways such as learning strategies, behavioral regulation, school climate, and collaborative learning. These findings provide key theoretical support for educational interventions while also highlighting the cross-cultural and multidisciplinary applicability and complexity of self-efficacy's role in academic achievement.

3. Discussion

This study focuses on the relationship between arts education and self-efficacy. Through the integration of quantitative data and qualitative interviews, it reveals that arts education significantly enhances students' self-efficacy by improving their creativity, critical thinking, and emotional expression skills. This finding aligns with previous research, highlighting the crucial psychological value of arts education. For instance, prior studies have demonstrated that arts education significantly benefits students' mental health, with creativity and self-efficacy serving as key mediating factors (Jin & Ye, 2022).

Arts education fosters the development of students' confidence and autonomy by cultivating creativity and problem-solving skills. During artistic creation, students often encounter various unknown challenges, particularly in free-creation scenarios. The space for independent thinking and experimentation provided by arts education greatly contributes to self-efficacy enhancement. Many participants in this study initially felt uncertain or lacking confidence when faced with artistic tasks. However, after repeated practice and self-adjustment, completing their artwork brought a sense of accomplishment, which positively transformed their self-perception. This improvement in self-efficacy often extended to other domains, reflecting a significant positive correlation between the creative process and self-efficacy(Fan & Sun, 2024).

Arts education also strengthens students' emotional expression and self-awareness, which enhances their understanding of self-efficacy. Artistic creation is not merely a demonstration of skills but also a means of expressing emotions and psychological states. During this process, students release and elevate their emotions, while gaining deeper insights into their emotional needs and inner world. Through this self-awareness, they gradually recognize their abilities in emotional regulation and interpersonal communication, further boosting self-efficacy. Art education can also enhance students' perception of self-efficacy by strengthening their emotional expression and self-awareness. Artistic creation is not merely a demonstration of skills but also an expression of emotions and psychological states. During this process, students' emotions are released and refined, enabling them to delve deeper into their emotional needs and inner world. Through this self-reflection, students gradually become aware of their abilities in emotional regulation and interpersonal communication, which in turn promotes the enhancement of their self-efficacy.

While most students experience an increase in self-efficacy after participating in art education, some do not perceive significant changes. Research indicates that factors such as individual psychological traits, forms of art education, and teaching methods may play a critical role in this disparity. For example, some students may feel frustrated due to a lack of foundational art skills or insufficient feedback and support during the creative process, which can interfere with their perception of self-efficacy. Additionally, the social aspects of art education can influence its effectiveness in enhancing self-efficacy. Social interactions and collaborative creation may help improve self-efficacy; however, in contexts that emphasize independent creation or where individualism is prominent, such improvements may be limited. Studies have highlighted that individual psychological functional traits are particularly crucial during the skill development stage of early artistic creation (Shmeleva et al., 2016).

Future research directions could explore the underlying mechanisms linking arts education and self-efficacy. For instance, how can more engaging teaching methods be designed to promote self-efficacy? How can social support systems help students overcome psychological barriers in artistic creation? Moreover, the effects of different art forms (e.g.,

painting, music, dance) on self-efficacy should be considered to determine whether specific forms are more conducive to enhancing self-efficacy. Existing studies point to important future directions, particularly the role of emotional creation in improving students' self-efficacy (González-Zamar & Abad-Segura, 2021)Online License Transfer

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4. Conclusion

This study focuses on the impact of arts education on individual self-efficacy within the context of art and design as well as creative disciplines. The findings indicate that arts education significantly enhances students' self-efficacy by fostering their creative thinking, practical skills, and self-awareness. The environment cultivated by arts education, which encourages personal expression, reflection, and innovation, effectively promotes students' confidence and autonomy. Through artistic practices, students build trust in their abilities, fostering stronger intrinsic motivation and self-efficacy. Compared to traditional academic disciplines, the openness and flexibility of arts education provide students with more opportunities to experiment, experience failure, and redefine themselves—critical to shaping self-efficacy.

In this process, the role of the teacher is crucial. By utilizing diverse forms of artistic expression, students not only master communication and collaboration skills but also receive positive feedback from collective creation, which further enhances their self-efficacy. In the educational process, the teacher's guidance and encouragement play an essential role. Teachers not only provide technical support but also, more importantly, help students overcome self-doubt through emotional support and social feedback, reinforcing their confidence in their abilities. Therefore, the core of art education is not merely limited to skill development; it is also about positively shaping students from a psychological level, stimulating their inner potential, and promoting the enhancement of their self-efficacy.

Research shows that art education has a positive effect on individuals' self-efficacy and highlights its potential in future educational reforms. The multidimensional nature of art education makes it a unique form of education that not only stimulates students' creativity but also boosts their self-confidence, laying a solid foundation for their long-term development. Art education can not only cultivate students' professional skills but also help them build strong psychological resilience, which has profound significance for their future careers and personal lives.

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Conflict of Interest

The authors declare no conflicts of interest.

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