The Role of Self-Efficacy in the Relationship between Learning Motivation and Musical Competence among Preschool Education Majors: A Systematic Literature Review

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Abstract- **Against the background of quality improvement in higher education in China, increasing attention has been paid to the professional development of students majoring in preschool education. Among the various competencies required of these students, music competence is considered a fundamental skill for implementing early childhood music education activities. Learning motivation is a key variable influencing students' engagement in music learning, while self-efficacy functions as an important cognitive mechanism linking motivational beliefs with learning performance. However, existing studies remain theoretically fragmented and methodologically inconsistent regarding the pathways through which these variables interact. To address this gap, this systematic literature review analyzed relevant studies published between 2021 and 2025, retrieved from databases including Web of Science, Scopus, and CNKI. From an initial pool of 2515 articles, 15 met the inclusion criteria for in-depth analysis. The results indicate that self-efficacy plays a significant facilitating role in the relationship between learning motivation and music competence. Most existing studies examine the relationships among learning motivation, self-efficacy, learning behaviour, and professional competence from a single perspective. Moreover, research specifically focusing on the music competence of preschool education majors remains limited, and further efforts are needed to strengthen theoretical integration and model development in this area. This review highlights the important role of self-efficacy in the development of professional competence and provides implications for future theoretical research and music curriculum practice in preschool education.**

Keyword: **Self-efficacy; Learning motivation; Music competence.**

I. INTRODUCTION

Amid the global drive to improve the quality of preschool education, teachers' professional competence is regarded as central to educational effectiveness. As a key component of preschool teachers' professional qualities, musical competence not only underpins children's artistic initiation but also exerts an irreplaceable comprehensive value in fostering children's emotional expression, cognitive development, social interaction, and creativity. In an era where aesthetic education is increasingly emphasized, cultivating solid musical practical abilities among students majoring in preschool education has become a vital objective in teacher education systems (Pestana, G., 2022).

Students in preschool education programs are prospective early childhood teachers, and the quality of their professional learning during higher education directly determines the foundational level of their future educational practice. As an intrinsic psychological drive that motivates individuals to engage in learning activities, overcome difficulties, and pursue continuous improvement (Pintrich, P. R., 2000), learning motivation serves as the fundamental source for students to master complex professional competencies, including musical skills. Strong intrinsic motivation encourages students to explore proactively, practice persistently, and transform external curriculum requirements into internal developmental needs, thereby achieving a high-quality transition from knowledge acquisition to competent performance.

Within the pathway from "willingness to learn" (motivation) to "ability to master" (competence), self-efficacy—a core concept in social cognitive theory—functions as a critical mediator and moderator. Self-efficacy refers to individuals' judgments of their capability to successfully accomplish specific tasks, such as mastering a musical instrument or teaching children's songs (Bandura, A., 1977). For preschool education students, their self-efficacy belief that "I can learn music well" profoundly influences their level of effort, persistence, and strategic use when facing challenges in musical learning, thereby forming a crucial bridge between motivation and actual musical achievement.

Therefore, moving beyond isolated examinations of pairwise relationships such as "motivation–competence" or "efficacy–competence" and investigating self-efficacy, learning motivation, and musical competence within an integrated framework carries significant theoretical and practical implications. Clarifying the specific pathways through which self-efficacy operates—whether as a mediator, moderator, or other mechanism—can provide solid psychological evidence and actionable guidance for developing targeted interventions, optimizing music curriculum design, and enhancing the effectiveness of talent cultivation in preschool education.

Nevertheless, current cultivation practices face a prominent contradiction: on the one hand, musical competence is clearly defined as a core competency for preschool professionals; on the other hand, numerous preschool education students exhibit anxiety, insufficient interest, and poor persistence toward music learning (Burak, S., 2019), resulting in a notable gap between their actual musical proficiency and educational objectives. This coexistence of "high expectations" with "low self-efficacy and weak motivation" reveals the limitations of overemphasizing technical training alone and underscores the necessity of examining the underlying motivational and psychological processes.

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Although existing studies have separately explored the effects of learning motivation on academic performance or self-efficacy on skill acquisition, the literature suffers from two major limitations. First, most research focuses on general academic domains or broad skill learning, lacking in-depth investigations into musical competence among the specific population of preschool education students (Pestana, G., 2022). Second, studies tend to address bivariate relationships without systematically reviewing or integratively analyzing how self-efficacy functions between motivation and musical competence. This has led to fragmented knowledge in the field, hindering the development of effective and holistic cultivation strategies.

To address these gaps, the present study aims to conduct a systematic literature review by comprehensively retrieving and synthesizing empirical studies published in both Chinese and English between 2021 and 2025. The core objectives are: (1) to systematically evaluate existing evidence regarding the relationships among music learning motivation, musical self-efficacy, and musical competence among preschool education students; (2) to focus on analyzing and clarifying the specific mechanisms of self-efficacy in this relationship. The ultimate goal is to effectively activate students' learning motivation by strengthening their musical self-efficacy, thereby substantially improving their professional musical competence.

II. LITERATURE REVIEW

The quality of professional training for preschool teachers is a key factor influencing the effectiveness of early childhood education worldwide. Future educators are required to master a complex set of professional competencies to promote children's holistic development. Among these, musical competence holds a unique and indispensable position. Going beyond mere artistic performance, it serves as a critical instructional tool that fosters young children's cognitive development, emotional expression, social competence, and physical and mental growth. This pedagogical necessity establishes the cultivation of musical skills as a core professional ability that students majoring in preschool education must attain (Neokleous, R., 2013).

The acquisition of complex, performance-based skills such as musical competence is deeply shaped by internal psychological factors. Educational research has convincingly demonstrated that skill development depends not merely on instructional time or curriculum exposure, but on an active constructive process in which cognitive factors—including learning motivation and self-regulation—largely determine students' engagement patterns and strategic choices, thereby exerting decisive effects on learning outcomes (Pintrich, P. R., & De Groot, E. V., 1990). Learning motivation is the psychological drive that initiates, directs, and sustains goal-oriented behaviour, acting as the fundamental engine of skill development. Meanwhile, self-efficacy—defined as individuals' beliefs in their ability to organize and execute courses of action required to attain specific performances—functions as a key cognitive regulator, influencing task selection, effort expenditure, and resilience in the face of setbacks. In general, educational contexts, positive associations among strong motivation, high self-efficacy, and successful learning outcomes have been well established (Zimmerman, B. J., 2000).

Within the domain of music education for teachers, a growing body of research has explored the intersection of these psychological constructs and skill development. Studies indicate that, among preschool education students who often enter with limited musical foundations, learning motivation is easily undermined by anxiety and low confidence, directly reducing their investment in musical skill acquisition (Kenny, D. T., 2006). Furthermore, self-efficacy has been identified as a critical factor affecting students' learning behaviours, motivation, and responses to challenges when mastering skills such as singing and accompanying songs (Bandura, A., 1977). Such evidence confirms that the development of musical competence in this population is a psychologically nuanced process in which motivation and self-belief are closely intertwined.

The relationship between self-efficacy and learning motivation is particularly pronounced. Research on preschool education students has shown that self-efficacy is positively correlated with learning motivation: higher levels of self-efficacy correspond to stronger learning motivation (Zimmerman, B. J., 2000). This reciprocal interaction suggests that self-efficacy may not only be associated with musical competence but may also serve as a key mediator or moderator along the pathway from motivation to actual skill achievement. For preservice preschool teachers, a lack of the belief "I can learn" can readily deplete motivation when encountering technical difficulties or performance anxiety (Schunk, D. H., 1991). Conversely, musical self-efficacy built through successful mastery experiences—such as completing a song performance—can not only directly strengthen confidence in handling complex musical tasks but also further stimulate and sustain deeper, more autonomous learning motivation.

Although self-efficacy theory has been extensively studied in education, empirical research and systematic reviews focusing on the specific mechanisms by which self-efficacy operates between learning motivation and musical competence development among preschool education students remain scarce. Most existing studies focus on general higher education or specialized music education settings, without sufficiently examining the unique psychological mechanisms underlying musical skill acquisition and pedagogical readiness among future preschool teachers. There is therefore an urgent need to conduct a systematic literature review to synthesize available evidence and construct a context-appropriate theoretical model. This will provide a targeted framework and practical implications for enhancing students' musical self-efficacy to activate learning motivation and ultimately improve their professional musical competence and career readiness.

III. METHODOLOGY

To clearly explore the correlation between self-efficacy and the learning motivation and musical ability of students majoring in preschool education, this study employed a systematic literature review (SLR) to conduct a literature

review. The SLR attempts to comprehensively identify and synthesize relevant findings using organized, transparent, and repeatable procedures at each step in the process and became the standard methodology used to find solutions by tracing the results of previous research (Shaffril et al., 2020).A systematic review begins with a clear research question to ensure focus throughout the process.

Define the core problem of this study is to: in the pre-school education professional students, how self-efficacy between their learning motivation and music competence development work?

To get a comprehensive result, the literature search was performed in the most reputable and coverage journal article collections SCOPUS and Web of Science (WoS) database (Singh et al., 2021) ， To answer this research question, we used specific search strings to track the published research results in these databases. The search string used to find relevant literature is shown in Table 1.

TABLE 1: SEARCH STRINGS FROM SCOPUS, WEB OF SCIENCE AND CNKI

Title1	Title2	Title3
SCOPUS (inclusive criteria)	(TITLE-ABS-KEY (“self-efficacy" OR "academic self-efficacy”) AND TITLE-ABS-KEY (“learning motivation" OR "academic motivation”))	437results
Web of Science (inclusive criteria)	TS=(("self-efficacy" OR "academic self-efficacy") AND ("learning motivation" OR "academic motivation"))	560results
CNKI	SU=("自我效能感") AND SU=("学习动机") AND PY=(2021–2025)	1518

According to the search strategy presented in Table 1, a total of 2,515 publications were initially retrieved from three databases: 437 from Scopus, 560 from Web of Science, and 1,518 from CNKI.

To ensure the scientific rigor and relevance of this study, clear inclusion criteria were established during the initial screening stage. Specifically, only publications published between 2021 and 2025 were retained. The selected studies were limited to peer-reviewed journal articles in the fields of education, psychology, or music education, with languages restricted to English and Chinese.

During the screening and evaluation process, publications were excluded mainly for the following reasons:

1. Duplicate records
2. Studies not directly related to learning motivation or self-efficacy
3. Studies conducted outside educational contexts
4. Publications lacking empirical data or with incomplete research methods

Finally, publications meeting all inclusion criteria were retained for further analysis. This study strictly followed the PRISMA 2020 reporting guidelines for the literature screening process to ensure transparency and methodological rigor in the systematic review.

The detailed screening process and the number of studies retained at each stage are presented in the PRISMA flow diagram.

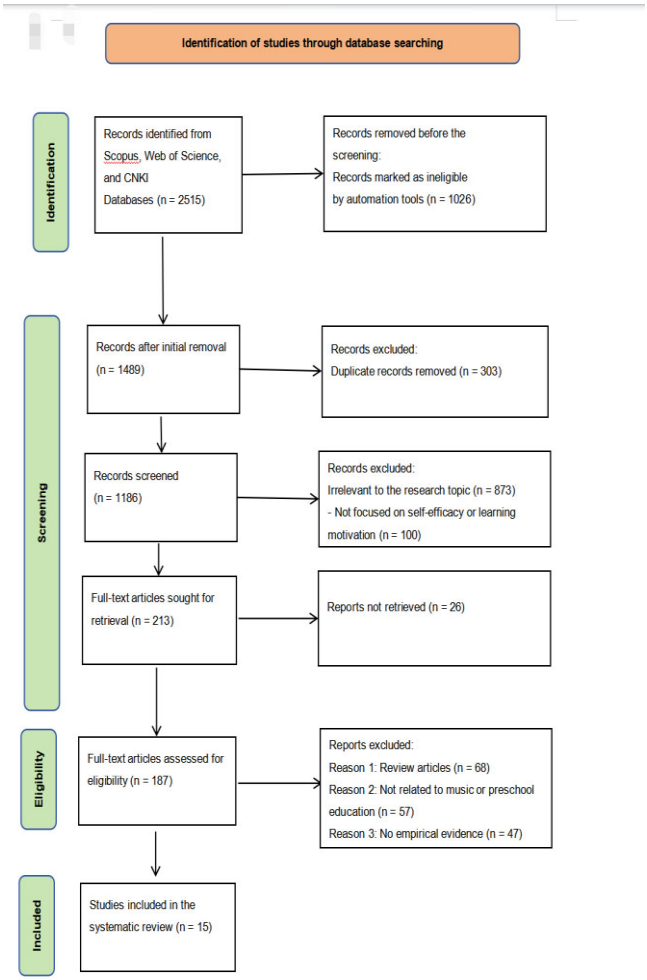


Figure 1. PRISMA 2020 flow diagram of the study selection process (adapted from Page et al., 2021)

In accordance with the PRISMA 2020 guidelines, the literature screening process of this study is presented in Figure 1. Initially, a total of 2515 records were retrieved from the Scopus, Web of Science, and CNKI databases, among which 1026 records were excluded via automated pre-screening tools.

Following the initial screening, 1489 records remained, and 303 duplicate records were further removed. Subsequently, 1186 records underwent title and abstract screening. At this stage, 873 records irrelevant to the research topic and 100 records not focusing on self-efficacy or learning motivation were excluded.

Next, full-text articles were obtained for 213 records, of which 26 were unavailable for full-text access. Ultimately, 187 full-text articles were assessed for eligibility. During the eligibility assessment phase, 172 articles were excluded, with the primary reasons being: review-type studies (n=68), irrelevance to music or preschool education (n=57), and lack of empirical data (n=47).

Finally, a total of 15 studies were included in the systematic review analysis.

IV. RESULTS

The results of this systematic literature review indicate that a total of 15 studies met the inclusion criteria and were included in the present analysis. These studies primarily examined the interrelationships among learning motivation, self-efficacy, and music competence in diverse educational contexts.

Overall, the findings suggest that learning motivation exerts a positive influence on students' engagement and performance in music learning, whereas self-efficacy plays a crucial role in fostering students' confidence and persistence. More importantly, self-efficacy has been identified as a significant mediating variable that strengthens the indirect effect of learning motivation on music competence.

A comprehensive summary of the included studies and their key findings is presented in Table 2.

TABLE 2: OVERVIEW OF SELECTED STUDIES AND KEY FINDINGS.

No.	Author & Year	Variables Studied	Sample / Context	Key Findings
1	Bi (2025)	Self-efficacy	Music education students	Self-efficacy plays a crucial role in enhancing students' confidence and teaching performance, and it positively influences their engagement and persistence in music learning tasks.
2	Dong & Gedvilienė (2025)	Self-efficacy, Learning behaviour	Piano learners	Self-efficacy positively predicts learning behaviour and performance outcomes. Reflective learning strategies improve students' confidence, which in turn strengthens persistence and task completion in piano practice.
3	You et al. (2025)	Self-efficacy, Learning engagement, Music competence	Preschool education majors	Self-efficacy mediates the relationship between teacher support and piano skill development. Higher self-efficacy increases engagement, which directly improves music competence among pre-service preschool teachers.
4	Kong & Xiong (2025)	Self-efficacy, Teaching confidence	Pre-service preschool teachers	Self-efficacy is strongly associated with teaching confidence and instructional readiness. Students with higher self-efficacy are more willing to engage in music teaching practices and demonstrate better pedagogical adaptability.
5	Sim & Lee (2024)	Self-efficacy, Teaching performance	Preschool teachers	Training interventions significantly improve music teaching self-efficacy, which directly enhances teaching performance and lesson delivery quality in early childhood education contexts.
6	Mlynek-Kalman & Southcott (2023)	Musical self-efficacy	Early childhood educators	Musical self-efficacy evolves through training and experience. Increased self-efficacy leads to greater participation in music-related teaching activities and improved confidence in delivering music education.
7	Ritchie & Williamon (2011)	Self-efficacy, music learning	Students (music learners)	Self-efficacy is strongly associated with music learning ability and predicts engagement and persistence in musical training.
8	Gill (2024)	Self-efficacy sources, music learning	Music learners	Self-efficacy in music learning is shaped by mastery experiences and directly affects performance quality and learning motivation.
9	Zarza-Alzugaray et al. (2020)	Music self-efficacy, performance, social support	Music students	Social support significantly influences music self-efficacy, which in turn enhances performance outcomes and learning confidence.
10	Shen et al. (2025)	Motivation, self-efficacy, academic performance	Meta-analysis (23 studies)	Self-efficacy plays a mediating role between intrinsic/extrinsic motivation and academic performance, forming a key psychological mechanism linking motivation to outcomes.

11	Zhao et al. (2025)	Self-efficacy, goal orientation, engagement	University students	Self-efficacy positively influences affective engagement and interacts with achievement motivation (goal orientation) to shape learning experience.
12	Yim (2023)	Self-efficacy for learning, vicarious teaching self-efficacy	Pre-service early childhood teachers	Personal self-efficacy for learning beliefs were positively related to vicarious teaching self-efficacy. The study is important for preschool teacher education because it shows that self-efficacy development is multidimensional and linked to collaborative learning contexts.
13	Basileo et al. (2024)	Self-efficacy, motivation, academic achievement	Secondary students / education context	Self-efficacy had the largest relationship with achievement and mediated the relationship between motivation and achievement. This provides strong theoretical support for positioning self-efficacy as a core explanatory mechanism between motivation and outcomes.
14	Valenzuela-Peñuñuri et al. (2024)	Academic motivation, self-efficacy, affective engagement	Pre-college students	Academic motivation positively predicted affective engagement, and self-efficacy played a complementary mediating role. This study directly supports the motivation–self-efficacy linkage relevant to your review framework.
15	Li, Ma, & Lee (2025)	Academic self-efficacy, academic motivation, academic performance	Chinese university students	Academic self-efficacy and academic motivation were positively correlated with academic performance, and the study modelled their dual mediating effects. It offers recent empirical support for linking self-efficacy and motivation in higher education contexts.

V. DISCUSSION

Summary of Key Findings

This study aimed to examine the relationships among self-efficacy, learning motivation, learning behaviour, and music competence within the context of preschool education. The findings indicate that self-efficacy significantly influences learning motivation, which in turn affects learning behaviour and ultimately contributes to the development of music competence. Furthermore, the results highlight that self-efficacy functions as a key mediating variable in this process, strengthening the pathway from motivation to learning outcomes. These findings are consistent with recent empirical studies suggesting that self-efficacy plays a crucial role in linking motivation and academic performance through indirect mechanisms (Shen et al., 2025; Li et al., 2025).

Relationship between Self-efficacy and Learning Motivation

Self-efficacy is closely related to learning motivation because students' beliefs about their own capability affect how much effort they are willing to invest in learning tasks. In music education contexts, this relationship is especially important, since learners who feel more capable are more likely to stay engaged and persist in practice. Su et al. (2024) examined music students and found that self-efficacy was part of a broader interaction with learning motivation and learning outcomes, showing that confidence in one's ability is closely linked with motivational processes in music learning.

In a broader educational context, the positive connection between self-efficacy and learning motivation has also been supported by recent empirical evidence. Nyame et al. (2025) reported that self-efficacy was a significant predictor of learning motivation, and its predictive effect was even stronger than parental involvement in their model. This suggests that self-efficacy should not be viewed merely as a personal belief, but rather as an important motivational resource that helps students remain goal-oriented, persistent, and engaged in learning activities.

Relationship between Learning Motivation and Learning Behaviour

Learning motivation is a direct driver of learning behaviour because it influences whether students are willing to participate, persist, and invest effort in academic tasks. From a self-determination theory perspective, both intrinsic motivation and well-internalized forms of extrinsic motivation predict positive educational outcomes and are closely tied to students' engagement and behavioural participation (Ryan & Deci, 2020). This theoretical view is also supported by recent empirical work. For example, Li et al. (2024) found that learning motivation significantly affected learning behaviour through the intention of learning

behaviour, suggesting that motivated learners are more likely to transform internal willingness into actual academic actions. In other words, students with stronger motivation tend to show more stable participation, higher task commitment, and more consistent learning-related behaviours.

This relationship is also evident in contexts closely related to your study. In preschool education, Son et al. (2023) treated young children's shared reading engagement as an indicator of reading-related motivation and found that interactive engagement significantly predicted early literacy skills, showing that motivation-related engagement can be translated into observable learning behaviour and learning outcomes. In music education, Bonneville-Roussy and Evans (2025) reported that autonomous motivation predicted both practice time and practice quality among university music students, which provides strong evidence that motivation affects not only whether students practice, but also how productively they do so. Together, these findings suggest that learning motivation is an important antecedent of learning behaviour across both early childhood and music learning settings.

Relationship between Self-efficacy and Music Competence

Self-efficacy is closely related to musical competence, as students' beliefs about their own abilities influence their confidence when confronting musical tasks, their willingness to practice continuously, and their ability to cope with difficulties during the learning process. In an open-access study on piano learning, Dong and Gedvilienė (2025) noted that reflection can enhance learners' self-efficacy and improve learning outcomes, while self-efficacy is significantly associated with lower levels of piano learning anxiety. This suggests that learners with stronger self-efficacy are more likely to maintain consistent practice and improve their musical performance. A study by Bi and Rauduvaitė (2025) reached similar conclusions: the development of self-efficacy among prospective music teachers is closely linked to their confidence, emotional regulation, cooperation skills, adaptability, and skill development in singing activities. Taken together, these studies indicate that self-efficacy is not only a psychological belief but also an important prerequisite for promoting the development of musical competence.

Mediating Role of Self-efficacy

Self-efficacy can be conceptualized as a key mediating mechanism that helps explain how motivational or developmental factors translate further into learning-related outcomes. Within higher education contexts, Akçay (2025) found that academic self-efficacy plays a significant mediating role between heutagogical competence and lifelong learning tendencies, indicating that self-efficacy serves as an important internal pathway through which learning orientations are transformed into outcomes of sustained development. Similarly, Shang et al. (2022) noted that career self-efficacy mediates the relationship between professional calling and learning engagement. These findings suggest that self-efficacy is not merely correlated with learning motivation and engagement; more importantly, it acts as a mediating mechanism that enables students to convert internal drive into active participation and long-term competence development.

This mediating function is particularly meaningful in preschool education. In a study of preschool education majors and preservice kindergarten teachers, Qiao et al. (2022) demonstrated that teacher efficacy partially mediates the relationship between professional identity and career adaptability. Although not all of these studies focus directly on music learning, they collectively provide strong evidence that self-efficacy functions as a critical psychological bridge in teacher preparation.

Theoretical Implications and Practical Implications

This study makes two main theoretical contributions. First, it clarifies that self-efficacy is not merely an independent predictor but a core mediating mechanism within motivational frameworks. Extending relevant conclusions to the music learning of preschool education majors, this study indicates that learning motivation can be effectively transformed into music learning behaviours and competence improvement only when supported by strong self-efficacy beliefs, highlighting the key role of self-efficacy in the translation of motivation into competence. Second, by situating self-efficacy in the training of preservice preschool teachers and combining relevant research, this study further confirms that self-efficacy serves as an important bridge connecting psychological factors and professional competence development, which is particularly significant for preschool education students who need both theoretical knowledge and practical music teaching skills.

This study provides important implications for music teaching practice among preschool education majors. Teachers can enhance students' self-efficacy by creating a supportive environment and providing positive feedback, adopting progressive instruction and diverse practical opportunities in courses. Meanwhile, practice-oriented training and reflective learning should be strengthened to help students gradually build confidence in music learning. Incorporating the cultivation of self-efficacy into teaching objectives will effectively improve the musical competence and teaching readiness of preschool education majors.

Limitations

Despite the contributions of this study, several limitations should be acknowledged. First, this study adopted a cross-sectional design, which limits the ability to draw causal inferences among learning motivation, self-efficacy, learning behaviour, and music competence. Although mediation analysis provides useful insights into potential mechanisms, causal relationships cannot be fully established without longitudinal or experimental designs. Second, the sample was restricted to preschool education majors, which may limit the generalizability of the findings to other disciplines or educational contexts. Third, the variables included in this study were limited to learning motivation, self-efficacy, learning behaviour, and music competence, while other potentially relevant factors, such as emotional variables (e.g., anxiety and enjoyment) and contextual factors (e.g., teacher support), were not

considered. Therefore, future studies should adopt more comprehensive research designs to further examine the relationships among these variables.

Future Research

Given the limitations of the present study, future research may adopt longitudinal or experimental designs to further examine the causal relationships among learning motivation, self-efficacy, learning behaviours, and musical competence. Such designs can more clearly elucidinate the dynamic changes in these variables over time and provide robust evidence for the mediating role of self-efficacy. This will not only contribute to the advancement of theoretical research but also offer practical evidence for optimizing teacher education curricula and enhancing the quality of talent cultivation in preschool education.

Conclusion

This study systematically examined the relationships among learning motivation, self-efficacy, learning behaviour, and music competence among preschool education majors. The findings indicate that learning motivation plays an important role in shaping students' learning behaviour, while self-efficacy serves as a key psychological mechanism that connects motivation with both behavioural engagement and competence development. In particular, self-efficacy was found to function as a mediating variable, helping to explain how students' motivation is transformed into effective learning actions and improved music competence.

The results of this study not only enrich the theoretical understanding of self-efficacy within the context of music learning, but also extend its application to preschool education, where both professional knowledge and practical teaching abilities are essential. From a practical perspective, the findings highlight the importance of strengthening students' self-efficacy and motivation in teacher education programs, especially in music-related courses.

Overall, this study provides a comprehensive framework for understanding the psychological mechanisms underlying music learning among preschool education students. By emphasizing the mediating role of self-efficacy, it offers both theoretical insights and practical implications for improving music education and preparing future preschool educators.

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In the process of preparing this paper, ChatGPT (GPT-4 version) was used to assist with formatting checks and the generation of data tables. The authors have thoroughly reviewed and revised all AI-generated content and assume full responsibility for the final content of this publication.

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