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Improving Self-Efficacy of Non-Music Specialist Teachers in Primary Schools Through Teacher Training Program: An Action Research in Indonesia

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Abstract. This study investigates the enhancement of self-efficacy among non-music specialist primary school teachers in Indonesia through a targeted training program. Many primary educators, particularly those without formal music training, often lack confidence in their musical abilities, which limits their willingness to teach music. Using an action research design, the program was implemented in three stages—pre-action, action, and post-action—aimed at improving teachers' competence and confidence in music instruction. Twenty-eight teachers from Sumedang Regency, West Java, participated, representing diverse demographics in certification status, age, employment type, teaching grade level, and years of experience. The training included workshops, collaborative reflections, teaching simulations, and practical sessions on integrating music into classroom activities. Quantitative data from pre- and post-tests, along with qualitative observation notes, revealed significant gains in all self-efficacy dimensions, with the overall mean score increasing from 3.3 to 4.3 ($p < 0.001$) and a very large effect size ($d = 2.5$). Notable improvements were observed in developing higher-order thinking skills, assessing students' understanding of music, and fostering the value of music learning. The findings underscore the importance of sustained, practice-based professional development to build teacher confidence, promote innovative pedagogy, and integrate music meaningfully into primary curricula. This research highlights the necessity of equipping non-specialist teachers with pedagogical strategies and personal empowerment to strengthen music education frameworks and improve student learning experiences in primary schools.

Keywords: Self-Efficacy; Teacher; Music Teaching; Training Program; Primary School.

1. Introduction

The need to strengthen self-efficacy among non-music specialist primary school teachers is critical, given its strong influence on teaching performance and student achievement. Studies show that a considerable number of primary educators lacking formal music training often view their musical skills as insufficient, which discourages them from actively engaging in music instruction (Burak, 2019). Such perceptions of inadequacy can hinder lesson preparation, reduce instructional quality, and limit students' opportunities for meaningful musical learning, as low self-efficacy is linked to minimal investment in planning and delivering effective lessons (Valdebenito & Almonaci-Fierro, 2022). Developing confidence in their teaching abilities enables educators to adopt creative pedagogical strategies and incorporate music into broader learning contexts, thereby enriching students' educational experiences (Xu, 2023). Existing literature emphasizes that high-quality music teaching is closely associated with strong self-efficacy beliefs, implying that well-designed interventions to enhance these beliefs can have a positive impact on learning outcomes in music education (Hendricks, 2014). Therefore, improving teachers' self-efficacy should be viewed as a strategic priority, forming the foundation for a sustainable and effective music education system in primary schools.

1.1. Problem Statement

Self-efficacy in the context of music teaching for primary school educators reflects a complex interplay of beliefs that directly shape instructional quality. It refers to teachers' confidence in their ability to carry out teaching tasks effectively and plays a pivotal role in influencing their pedagogical decisions, professional dedication, and overall classroom performance. Evidence from prior research shows that personal factors, social influences, and cognitive processes collectively contribute to the development of self-efficacy in music educators, highlighting the need for comprehensive teacher preparation programs. Developing metacognitive skills and engaging in reflective practice have been identified as effective ways to strengthen teachers' confidence and instructional abilities in music education (Regier, 2021). Moreover, undergraduate experiences in music education have been found to be critical in building pre-service teachers' sense of competence, as early opportunities to teach music can cultivate both confidence and skill (Burak, 2019). Consistent with these findings, other studies report that teachers who possess strong self-efficacy are more inclined to adopt well-structured lesson planning and employ diverse teaching approaches, which in turn enhances student learning outcomes (Garvis, 2013).

In addition to individual characteristics, the broader context in which music education occurs—such as available support networks and teachers' prior musical backgrounds—significantly influences self-efficacy beliefs. According to Hendricks (2014), a nurturing and well-supported environment can strengthen educators' confidence in their abilities, whereas the absence of such support may impede professional growth. The connection between self-efficacy and attitudes toward the teaching profession is also noteworthy; research indicates that pre-service music teachers who hold positive perceptions of their career path generally demonstrate stronger self-efficacy (Kaleli, 2020). This highlights the importance of cultivating a constructive professional identity and offering authentic, hands-on teaching experiences to boost confidence and instructional capability among music educators (Regier, 2021). Embedding music education meaningfully within the primary school curriculum, alongside comprehensive teacher preparation and ongoing professional development, is essential for reinforcing self-efficacy in music teaching. Strengthened self-efficacy not only benefits teachers but also contributes to enhanced learning opportunities and improved educational outcomes for students (Valdebenito & Almonaci-Fierro, 2022).

1.2. Related Research

Recent research has given growing attention to the self-efficacy of music teachers in primary education, offering valuable perspectives on their instructional approaches and the obstacles they face. One study, for example, reported that self-regulation—which encompasses elements of autonomy—has a positive effect on young musicians' confidence in their abilities. This finding implies that when teachers create learning environments that support student autonomy, they can effectively strengthen learners' self-efficacy in music (Regier, 2021). Similarly, a research highlighted that high self-efficacy among music students correlates with improved practice habits and performance anxiety management, indicating that teachers' confidence in their abilities can significantly impact their students' academic success in music (Garvis, 2013). Moreover, a research emphasizes the importance of balancing musician and teacher identities for novice music teachers, as those who perceive their school environments as unsupportive of their musical identities often struggle with self-efficacy (Kaleli, 2020). This interplay between teacher identity and self-efficacy is crucial, as it affects the teachers' confidence and effectiveness in delivering music education. Taken together, the evidence highlights the importance of specialized professional development programs that not only strengthen the pedagogical competencies of music teachers but also nurture their professional identity. Such initiatives can play a pivotal role in boosting teachers' self-efficacy, ultimately leading to richer and more effective musical learning experiences for their students.

Although existing studies offer meaningful perspectives on self-efficacy within music education, the present research specifically focuses on primary school teachers as the intended beneficiaries of training programs (Kavčič Pucihar et al., 2024; Shin, 2024; Wang & Li, 2024). Our work underscores the necessity of well-structured and comprehensive professional

development aimed at strengthening teachers' confidence and competence in delivering music instruction. By enhancing self-efficacy, such training is expected to elevate both teaching quality and students' overall learning experiences. This study adopts an action research approach, integrating practical strategies that can be implemented to empower primary school educators in cultivating their self-efficacy within the domain of music teaching.

1.3. Research Objectives

This study aims to answer more specific needs in supporting the professional development of non-specialist music teachers in primary schools. The research questions used in this research are as follows:

Q1: What is the condition of self-efficacy of primary school teachers in teaching music before they are given action?

Q2: What is the condition of self-efficacy of primary school teachers in teaching music after being given actions?

Q3: Can a series of critical actions change the self-efficacy condition of primary school teachers in music teaching?

2. Theoretical Framework

2.1. Teacher Self-Efficacy Theory

The concept of teacher self-efficacy originates from Bandura's social cognitive theory, which highlights how personal beliefs shape actions and performance. Within education, teacher self-efficacy describes an educator's confidence in their capacity to effectively impact and improve student learning outcomes (Gavora, 2011; Schunk & DiBenedetto, 2015). It is recognized as a multidimensional construct encompassing instructional skills, classroom management, student engagement, motivation, professional growth, and overall job satisfaction (Recio et al., 2025). These efficacy beliefs are not fixed; rather, they evolve in response to experiences such as mentoring, professional development, and teaching practice (Alibakhshi et al., 2020). Studies have shown that elements like teaching tenure, gender, and the presence of supportive institutional structures play a role in influencing both the level and orientation of teacher self-efficacy (Perera et al., 2019).

Teacher self-efficacy has significant consequences for educational practice. Educators with high levels of self-efficacy tend to deliver higher-quality instruction, foster greater student involvement, and achieve stronger academic results (Burić et al., 2024). Those who possess a strong belief in their teaching abilities are also more inclined to adopt creative teaching methods, persist in overcoming instructional difficulties, and uphold ambitious expectations for student achievement (Zhang et al., 2024). Additionally, teacher self-efficacy influences teachers' psychological well-being, commitment to the profession, and satisfaction in their roles (Mossafaie et al., 2024). From a systemic perspective, fostering teacher self-efficacy requires attention to supportive leadership, collaborative school cultures, and access to high-quality professional development (Zhang et al., 2024). Interventions targeting self-efficacy have the potential to amplify teaching effectiveness across diverse educational settings, ultimately benefiting both teachers and learners (Recio et al., 2025).

2.2. Self-Efficacy in Music Education

Within the field of music education, self-efficacy—understood as the confidence in one's ability to accomplish specific tasks—serves as a key determinant of teaching effectiveness and student learning outcomes. For learners, strong self-efficacy correlates with higher engagement, greater perseverance during practice, and enhanced musical achievement (Kasang, 2016; Yifeng & Haris, 2023; Zelenak, 2020). Such beliefs are strengthened through direct mastery experiences, constructive verbal reinforcement, and encouraging feedback from both educators and peers (Gill et al., 2024). At the same time, students' self-efficacy is influenced by their capacity to regulate performance anxiety and emotional responses, underscoring the need to address affective dimensions within music instruction. Moreover,

supportive relationships—especially those involving teachers, parents, and classmates—have been found to significantly boost students' confidence in public performances and sustain their motivation to learn over time (Orejudo et al., 2021).

Teacher self-efficacy holds equal importance in music education, as it shapes instructional decisions, influences the classroom environment, and impacts student success. While certain studies have found no direct correlation between teacher self-efficacy and student outcomes, evidence suggests that professional learning and pedagogical training can strengthen teachers' confidence, which in turn fosters greater student engagement and achievement (Chung, 2021; Wei et al., 2025). The growth of self-efficacy among music educators is supported by core elements such as mastery teaching experiences, observational learning, and constructive verbal feedback. However, research shows that strategies involving vicarious experiences and emotional regulation remain underused in this field (Biasutti & Concina, 2018). To bridge this gap, recent initiatives—including peer-assessment approaches (Liu et al., 2025) and the integration of digital innovations like AI-based learning platforms—have been shown to enhance the self-efficacy of both teachers and students (López-Calatayud & Tejada, 2023; Wang & Li, 2024b). Overall, these insights highlight the importance of sustained professional guidance, reflective practice, and the deliberate application of varied instructional methods to cultivate strong self-efficacy within music education.

3. Method

3.1. Research Design

This research adopts an action research framework aimed at enhancing the self-efficacy of primary school teachers in music instruction by implementing a structured series of improvement activities (Creswell & Guetterman, 2019; Julia et al., 2022). Action research offers a platform for educators and researchers to engage in reflective questioning, enabling a deeper understanding of teaching practices (Burnes, 2020; Jensen & Dikilitaş, 2023; McTaggart, 1994) while simultaneously addressing real-world classroom challenges and generating practical solutions (Guetterman et al., 2019). In addition, this approach has been shown to boost teacher morale and build professional confidence (Crawford & Jenkins, 2018; Pelton, 2011), making it a well-suited methodology for studies focused on improving instructional processes in primary education. The model applied in this study follows the design proposed by Creswell and Heil, which encompasses three sequential phases: pre-action, action, and post-action (Creswell & Guetterman, 2019; Heil, 2005).

Within the context of action research, collaboration plays a pivotal role, engaging colleagues or peers to assist in interpreting findings and determining the appropriate courses of action (Guetterman et al., 2019; Heil, 2005; Julia et al., 2019). In this study, peer involvement includes participant coordination, testing, assessment, and the provision of facilities supporting activities' sustainability. Through this collaboration, valuable feedback is obtained to improve the next action. The presence of peers supports accurate data-driven decision-making, ensuring that the measures taken are effective and oriented towards continuous quality improvement (Taryana et al., 2021).

3.2. Participants

We offer a free music training program for primary school teachers, but it is quite difficult to get participants willing to take part in music training, as they are not music specialist teachers. Therefore, the participants of this study consisted of 28 teachers in Sumedang Regency, West Java Province, Indonesia, with the majority being women, with a total of 23 people (82.14%). In contrast, there were five male teachers (17.86%). Based on the certification status, as many as 20 teachers (71.43%) have passed certification, while eight other teachers (28.57%) have not passed certification. The age distribution showed that most subjects were between 36-40 years old, with a total of 11 people (39.29%). The next age groups were 31-35 and 26-30 years old, represented by six people (21.43%). The remaining research subjects comprised two teachers aged 41-45 years (7.14%) and one teacher aged 51-55 years, 56-60 years, and 46-50 years old (3.57% each). The participants' demographic information is summarized in Table 1.

Table 1. Participant Demographic Data

Respondent Demographics	Frequency	Percentage
Gender		
Male	23	82.14
Female	5	17.86
Age		
26-30	6	21.43
31-35	6	21.43
36-40	11	39.29
41-45	2	7.14
46-50	1	3.57
51-55	1	3.57
56-60	1	3.57
Teacher Status		
Contract Teachers	12	42.86
Civil Servants	16	57.14
Professional Certification		
Not Certified	8	28.57
Certified	20	71.43
Teaching Grades		
Grade 1	4	14.29
Grade 2	3	10.71
Grade 3	2	7.14
Grade 4	3	10.71
Grade 5	7	25.00
Grade 6	9	32.14

Based on Table 1, regarding personnel status, the research subjects are divided into teachers with the status of Civil Servants and Contract Teachers. A total of 16 teachers (57.14%) have the status of Civil Servants, while 12 other teachers (42.86%) are Contract Teachers. The grade level where teaching is varied, with the highest number of teachers teaching in grade 6, namely nine teachers (32.14%). Followed by teachers who teach in grade 5 as many as seven teachers (25.00%), while grade 1 is filled by four teachers (14.29%), and grade 4 and grade 2 are filled by three teachers each (10.71%). The grade level with the least number of teachers is grade 3, filled by only two teachers (7.14%).

The teaching experience of the research subjects is also diverse, with most teachers having experience between 16-20 years, as many as nine people (32.14%). The next most experienced group is teachers with 5-10 years of experience, totaling eight people (28.57%), followed by seven teachers with teaching experience for 11-15 years (25.00%). The smallest representation came from teachers with less than five years of service and those with 26–30 years of experience, with each category comprising two participants (7.14%). This description provides an overview of the profiles of the study subjects, which include gender, certification status, age range, employment status, teaching grade level, and teaching experience, indicating diversity in these aspects.

3.3. Research Instrument

The main data collection tool in this study was a structured questionnaire aimed at assessing primary school teachers' self-efficacy in delivering music instruction. The instrument consisted of 10 items aligned with key pedagogical competencies, such as inspiring student engagement, adapting instructional strategies, assessing musical understanding, and developing higher-order thinking skills. Responses to each statement were scored on a five-point Likert scale, with 1 representing Very Poor and 5 representing Very Good. This scale allowed participants to self-assess the perceived quality and effectiveness of their own teaching practices. The questionnaire was adapted from existing validated instruments in music education and reviewed by a panel of experts to ensure content validity and clarity of language. A pilot test with a subset of teachers was conducted, and the instrument

demonstrated acceptable internal consistency, as reflected in the Cronbach's alpha value. Based on SPSS software testing, data was obtained that the Likert scale instrument was declared valid and reliable with Cronbach's alpha reliability test results of 0.727. In addition to the questionnaire, an observation guide was employed to record classroom behaviors and engagement during the action phase, providing contextual qualitative data to complement the assessment results. Table 2 presents the set of assessment items used as indicators for measuring the self-efficacy of primary school music teachers.

Table 2. Self-efficacy Indicators in Music Teaching

Assessment Criteria	Sub-Dimension	Explanation
Inspiring students to learn music	Motivational Efficacy	The teacher's ability to motivate students through music learning.
Explaining the basic concepts of music by practicing music	Instructional Efficacy	Skills in explaining music concepts through practical application.
Providing challenging music assignments for high-achieving students	Differentiated Instruction Efficacy	The ability to tailor challenging tasks for advanced learners.
Adapting music learning styles to interest students	Student-Centered Adaptability	Flexibility in adjusting teaching styles to student interests.
Helping students understand the value of music learning	Value Communication Efficacy	Communicating the relevance and importance of music education.
Assessing students' understanding of music	Assessment Efficacy	Proficiency in evaluating students' music comprehension.
Improving the understanding and skills of students who have difficulty learning music	Remedial Teaching Efficacy	Confidence in supporting struggling students.
Making music relevant to students	Curricular Relevance Efficacy	The ability to connect music content to real-life contexts.
Developing students' higher-order thinking skills in learning music	Cognitive Development Efficacy	Encouraging critical and creative thinking through music.
Practice-based and experiential music learning	Experiential Learning Efficacy	Confidence in applying hands-on and experience-based teaching.

Adapted from Julia et al. (2025).

3.4. Data Collection

Data collection was carried out in two distinct phases: the pre-action stage and the post-action stage. In the pre-action phase, the questionnaire was distributed to 28 primary school teachers to assess their baseline self-efficacy in music teaching. After this initial assessment, a series of critical actions were implemented as part of a professional development intervention. These actions included workshops, collaborative reflection sessions, and guided teaching simulations, all aimed at enhancing pedagogical strategies and confidence in music instruction.

Throughout the action phase, structured classroom and activity observations were conducted to monitor teachers' responses, instructional changes, and engagement in each stage of the intervention. Observational data were recorded using a standardized observation sheet aligned with the intervention objectives. This qualitative data provided rich insights into how teachers enacted changes in real-time and served to validate and triangulate findings from the questionnaire responses. Following the intervention, the same questionnaire was administered in the post-action phase to measure changes in teachers' self-efficacy. All data were collected anonymously and with informed consent to ensure ethical compliance.

3.5. Data Analysis

This study employed a double approach to data analysis, combining quantitative and qualitative techniques to gain a thorough understanding of primary school teachers' self-efficacy in music instruction. Quantitative data, gathered through a five-point Likert-scale questionnaire (1 = Very Poor, 5 = Very Good), were examined using both descriptive and inferential statistics. Descriptive measures included calculating means and standard deviations for each item to identify overall trends in self-efficacy before and after the intervention. The Shapiro–Wilk test was used to evaluate data normality. As the dataset met normality assumptions, a paired samples t-test was applied to assess the statistical significance of pre- and post-test score differences, with the alpha level set at $p < 0.05$. Practical significance was further examined through Cohen's d, interpreted as small (0.2), medium (0.5), or large (≥ 0.8), with the current findings consistently reflecting large to very large effects. Qualitative data, collected from structured observations during the action phase, were analyzed thematically. Observation records were coded to identify recurring patterns in teacher participation, changes in instructional strategies, and classroom dynamics. These qualitative insights were integrated with the quantitative findings, providing triangulation and deeper interpretation of the observed changes in teachers' self-efficacy.

4. Findings

The following findings are presented starting from the pre-action, action, and post-action stages. Discussions were also carried out in each of the key findings.

4.1. Pre-Action Unit

Before implementing the intervention, a pre-test was administered to assess the teachers' confidence levels in delivering music instruction. The pre-test involved a questionnaire completed by 28 primary school teachers, and the results are presented in Table 3.

Table 3. Pre-test Results

The assessment criteria	M	SD
Inspiring students to learn music	3.7	0.818
Explain the basic concepts of music by practicing music	3.4	0.989
Providing challenging music assignments for high-achieving students	3.4	0.989
Adapting music learning styles to interest students	3.2	0.944
Helping students understand the value of music learning	3.1	0.970
Assessing students' understanding of music	3.2	0.967
Improve the understanding and skills of students who have difficulty learning music	3.1	0.890
Making music relevant to students	3.6	0.790
Develop students' higher-order thinking skills in learning music	2.9	1.007
Practice-based and experiential music learning	3.1	1.100
Overall average	3.3	0.793

N = 28 participants

Based on Table 3, the pre-test results from 28 participants revealed moderate initial competencies in music teaching across various criteria. The overall average score was 3.3 (SD = 0.793), indicating a fair level of readiness but with substantial room for improvement. The highest score was observed in *Inspiring students to learn music* (M = 3.7, SD = 0.818) and *Making music relevant to students* (M = 3.6, SD = 0.790), suggesting that teachers were relatively confident in engaging students and contextualizing music lessons. Conversely, the lowest score appeared in *Developing higher-order thinking skills in music learning* (M = 2.9, SD = 1.007), highlighting a need to strengthen teachers' capacity to promote critical and creative thinking. Other areas such as adapting learning styles, assessing understanding, and supporting struggling students also scored moderately, pointing to consistent developmental needs across pedagogical strategies and student support dimensions.

4.2. Action Unit

The researchers developed six action steps to enhance music teaching competencies among primary school teachers. These steps were designed to address initial challenges and improve self-efficacy in delivering effective music education.

Step 1: Exploration and Motivation

At the initial stage, the training program starts by emphasizing the significance of music education for primary school students, highlighting its various benefits—such as reinforcing knowledge acquired from other subjects and enhancing students' ability to maintain focus. Music not only encourages creativity but also improves memory and develops motor coordination (Anic et al., 2018). Teachers are encouraged to recognize that music serves as a medium for students to express themselves and connect with their emotions, thereby promoting a more holistic learning experience. The discussion also addresses the current state of music education in primary schools, noting that many teachers lack formal training in music as they are generalist educators rather than subject specialists. This creates a gap in the quality of music learning in schools. Teachers are given an understanding of the possible impact of teaching music without adequate competence or the help of appropriate learning media, which can hinder students' musical development. In this session, the importance of music training for teachers was also emphasized, where this training aims to avoid misconceptions about teaching music and give them an understanding that teaching music does not always require them to have high musical skills. For example, teachers who cannot sing can use learning media such as videos or other multimedia.

Step 2: Introduction to Self-Efficacy in Teaching Music

In this phase, participants are introduced to the concept of self-efficacy, with a particular focus on its relevance to music instruction. The link between musical competence and confidence in teaching music is emphasized, illustrating how even a foundational knowledge of music can bolster teachers' confidence in delivering lessons. Self-efficacy is presented as an educator's belief in their capacity to successfully accomplish specific tasks—such as teaching music effectively—alongside the value of engaging in innovative practices to enhance learning quality. Practical examples are provided to show how strong self-efficacy can encourage the exploration of more creative and engaging instructional strategies, thereby fostering a positive and motivating classroom atmosphere. Research identifies perceived musical ability as a key predictor of music teaching self-efficacy, indicating that even small gains in musical skills can significantly boost teacher confidence (Li, 2023). This connection is crucial for encouraging the integration of innovative methods, as teachers with high self-belief are more likely to experiment with imaginative and dynamic teaching approaches (Biasutti et al., 2020).

Step 3: Analyzing Challenges and Obstacles in Teaching Music

During this phase, teachers are encouraged to reflect on and identify the various challenges and barriers they encounter when delivering music lessons in schools. This process is facilitated through a combination of question-and-answer sessions and group discussions, allowing participants to share and examine their experiences. The outcomes of these discussions reveal that many educators express concern over music education no longer being prioritized within the curriculum, which leaves them feeling insufficiently supported and constrained by limited teaching resources. Additional difficulties include gaps in musical skills, low confidence levels, and inadequate school facilities, such as the absence of musical instruments and other essential teaching aids. Teachers' lack of confidence is often linked to their perception that musical ability is an advanced talent—closely tied to previous musical training, performance skills, and any progress they have personally achieved in music. In this session, teachers also shared their experiences in improving their skills, such as utilizing online learning resources, practicing independently, or sharing best practices with peers. These discussions opened their eyes to different methods and encouraged collaboration and utilization of existing resources to overcome various barriers in music teaching. Engaging in discussions, questioning, and sharing best practices—such as utilizing online learning resources, practicing independently,

and collaborating with peers—has provided them with alternative methods to improve their teaching effectiveness despite the obstacles (Biasutti et al., 2014).

Step 4: Practice How to Increase Self-Efficacy in Teaching Music

In this phase, the training emphasizes hands-on strategies aimed at strengthening teachers' confidence and competence in delivering music instruction. Teachers are given the understanding that even though they may not be music experts, they can still teach effectively through the help of appropriate music-learning media. This session also cleared up various misconceptions teachers often face, such as the assumption that they must sing or play music independently. Teachers are encouraged to utilize media with the right pitch to prevent students from internalizing the wrong pitch. Additionally, they are provided with guidance on simple ways to create music learning materials, such as simple songs or accompaniments, with a basic understanding of rhythm, tempo, and melodyIn this session, participants were also introduced to the notion that self-efficacy plays a vital role in shaping motivation, overall well-being, and personal accomplishment. Confidence in one's ability to complete a task serves as a key driver in tackling challenges related to that task and successfully bringing it to completion. The underlying principle is that strengthening self-efficacy equips educators not only to embrace new teaching media and innovative instructional methods but also to maintain a sustained commitment to their professional development. This, in turn, enables them to reframe challenges as opportunities for creative problem-solving and for enhancing the quality of their teaching practices (Malinauskas, 2017).

Step 5: Introducing Supporting Musical Instruments for Music Teaching Media

This step provides teachers with hands-on training in using tools that can help them create music-learning media. They were introduced to some simple melodic instruments such as keyboards, bamboo flutes, or guitars and were shown how to create simple musical compositions that could be used in teaching. In addition to musical instruments, teachers also learn to use digital apps such as metronomes and Hookpads to help them with rhythm and music creation. Thus, teachers gain practical and accessible experience in creating music learning media, which can help them create a more interactive and engaging learning experience for students. This hands-on learning experience develops not only teachers' technical abilities in music creation but also strengthens their sense of self-efficacy. Believing in their ability to innovate and address instructional challenges is essential for cultivating a classroom atmosphere that encourages creativity and actively engages students (Vasil & Dockan, 2023).

Step 6: Reflection and Evaluation

In this final stage, an evaluation is carried out to determine the extent to which the training has enhanced teachers' self-efficacy. Participants complete a post-training assessment, administered via Google Form, aimed at measuring the degree of improvement achieved. This evaluation process provides researchers with valuable insights into the effectiveness of the implemented program and assists teachers in identifying aspects that may require further support or development. The findings reveal a marked increase in self-efficacy, confirming that the training effectively strengthened teachers' confidence and capabilities. Previous studies also highlight that incorporating structured self-assessment into teacher professional development can yield substantial gains in self-efficacy, reinforcing the value of such targeted interventions (Aubakirova et al., 2021).

4.3. Post-Action Unit

At this stage, we conduct a post-test for all teachers. Based on the post-test results, we conducted a statistical descriptive analysis (Table 4 and Table 5), difference test (Table 6), and effect size (Table 7). Table 4 presents the assessment results obtained during the post-action stage.

Table 4. Post-test Results

The assessment criteria	M	SD
Inspiring students to learn music	4.4	0.621
Explain the basic concepts of music by practicing music	4.1	0.899
Providing challenging music assignments for high-achieving students	4.1	0.857
Adapting music learning styles to interest students	4.3	0.713
Helping students understand the value of music learning	4.3	0.659
Assessing students' understanding of music	4.4	0.690
Improve the understanding and skills of students who have difficulty learning music	4.2	0.751
Making music relevant to students	4.5	0.577
Develop students' higher-order thinking skills in learning music	4.1	0.899
Practice-based and experiential music learning	4.2	0.875
Overall average	4.3	0.654

N = 28 participants

Based on Table 4, the post-test results demonstrated a substantial improvement in teachers' competencies across all assessed criteria. The overall average score increased to 4.3 (SD = 0.654), reflecting significant growth from the pre-test results. The highest performance was observed in *Making music relevant to students* (M = 4.5, SD = 0.577) and *Assessing students' understanding of music* (M = 4.4, SD = 0.690), indicating enhanced abilities in contextualizing lessons and evaluating student progress. Notably, previously lower-scoring areas such as *Developing higher-order thinking skills in music learning* showed marked improvement (M = 4.1, SD = 0.899), highlighting the effectiveness of the intervention. All other criteria scored above 4.0, with decreased standard deviations suggesting greater consistency among participants. Overall, the post-test outcomes reveal that the professional development activities successfully strengthened teachers' pedagogical strategies, student-centered support, and assessment skills in music education.

Table 5. Descriptive Statistics for Pre-Test and Post-Test Scores

Assessment Criteria	Pre-Test Mean (SD)	Post-Test Mean (SD)	Mean Difference
Inspiring students to learn music	3.7 (0.818)	4.4 (0.621)	+0.7
Explain the basic concepts of music by practicing music	3.4 (0.989)	4.1 (0.899)	+0.7
Providing challenging music assignments for high-achieving students	3.4 (0.989)	4.1 (0.857)	+0.7
Adapting music learning styles to interest students	3.2 (0.944)	4.3 (0.713)	+1.1
Helping students understand the value of music learning	3.1 (0.970)	4.3 (0.659)	+1.2
Assessing students' understanding of music	3.2 (0.967)	4.4 (0.690)	+1.2
Improve the understanding and skills of students who have difficulty learning music	3.1 (0.890)	4.2 (0.751)	+1.1
Making music relevant to students	3.6 (0.790)	4.5 (0.577)	+0.9
Develop students' higher-order thinking skills in learning music	2.9 (1.007)	4.1 (0.899)	+1.2
Practice-based and experiential music learning	3.1 (1.100)	4.2 (0.875)	+1.1
Overall average	3.3 (0.793)	4.3 (0.654)	+1.0

Based on Table 5 and Figure 1, the descriptive statistics indicate a clear improvement in teachers' competencies from the pre-test to the post-test across all assessment criteria. The overall mean score increased from 3.3 (SD = 0.793) in the pre-test to 4.3 (SD = 0.654) in the post-test, demonstrating substantial progress. Improvements ranged from +0.7 to +1.2 points, with the most notable gains seen in *Helping students understand the value of music learning*,

Assessing students' understanding of music, and *Developing higher-order thinking skills*, each showing a +1.2 increase.

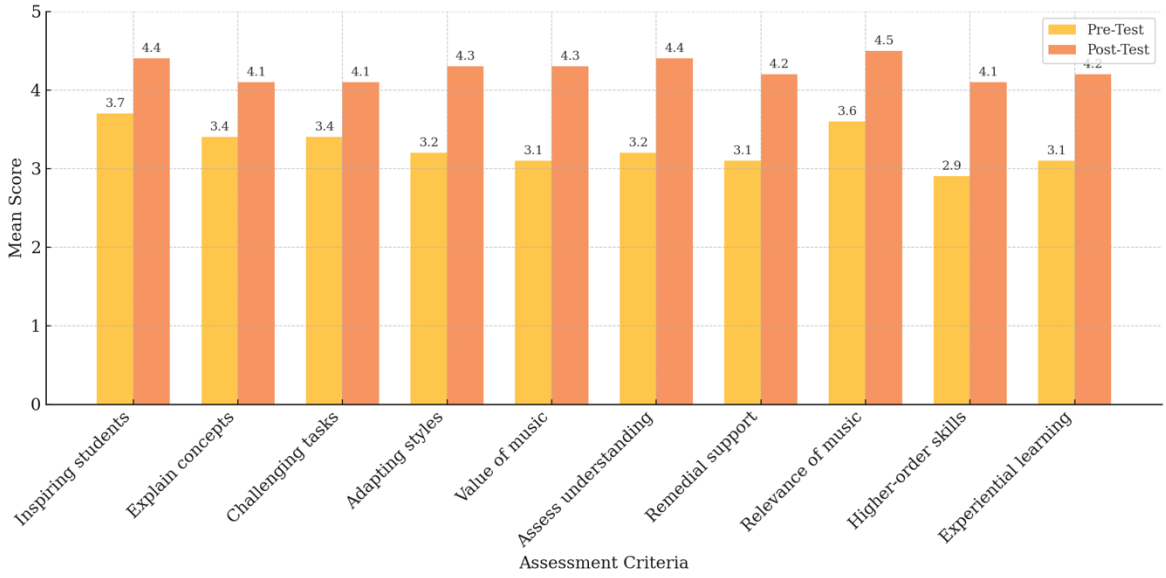

Figure 1. Comparison of Pre-Test and Post-Test Mean Scores

The narrowing standard deviations in the post-test suggest that participants not only improved but also became more consistent in their performance. These findings highlight the positive impact of the intervention program, which successfully enhanced teachers' pedagogical approaches, student-centered support, and assessment capabilities in music education.

Table 6. Paired Samples t-Test Results

Assessment Criteria	t-value	p-value	Significance
Inspiring students to learn music	-4.86	0.000	Significant
Explain the basic concepts of music by practicing music	-4.22	0.000	Significant
Providing challenging music assignments for high-achieving students	-4.23	0.000	Significant
Adapting music learning styles to interest students	-6.23	0.000	Significant
Helping students understand the value of music learning	-6.53	0.000	Significant
Assessing students' understanding of music	-6.78	0.000	Significant
Improve the understanding and skills of students who have difficulty learning music	-6.12	0.000	Significant
Making music relevant to students	-5.89	0.000	Significant
Develop students' higher-order thinking skills in learning music	-6.85	0.000	Significant
Practice-based and experiential music learning	-6.22	0.000	Significant
Overall average	-7.85	0.000	Highly significant

Based on Table 6, the paired samples t-test results confirm statistically significant improvements across all assessment criteria following the intervention. Each criterion yielded a p-value of 0.000, well below the threshold of 0.05, indicating highly significant differences between pre-test and post-test scores. The strongest statistical change was observed in the overall average ($t = -7.85$, $p = 0.000$), reinforcing the overall effectiveness of the program. Specific areas such as "Developing higher-order thinking skills" ($t = -6.85$) and *Assessing students' understanding of music* ($t = -6.78$) exhibited notably high t-values, suggesting that participants made substantial gains in fostering critical thinking and evaluation in music learning. These findings strongly support the effectiveness of the professional development intervention in enhancing teachers'

skills in music education, particularly in fostering active student engagement, differentiated instruction, and assessment practices.

Table 7. Effect Size (Cohen's d) of Pre-Test and Post-Test Differences

Assessment Criteria	Cohen's d	Effect Size Interpretation
Inspiring students to learn music	1.3	Large
Explain the basic concepts of music by practicing music	1.2	Large
Providing challenging music assignments for high-achieving students	1.2	Large
Adapting music learning styles to interest students	1.8	Large
Helping students understand the value of music learning	2.0	Very large
Assessing students' understanding of music	2.1	Very large
Improve the understanding and skills of students who have difficulty learning music	1.9	Very large
Making music relevant to students	1.6	Large
Develop students' higher-order thinking skills in learning music	2.2	Very large
Practice-based and experiential music learning	1.9	Very large
Overall average	2.5	Very large

Based on Table 7, the effect size analysis, using Cohen's d, demonstrates that the intervention had a large to very large impact across all assessment criteria. The overall average effect size reached 2.5, which is considered very large, indicating a substantial improvement in teachers' competencies. Several criteria showed exceptionally high effect sizes, notably *Developing higher-order thinking skills in music learning* (d = 2.2), *Assessing students' understanding of music* (d = 2.1), and *Helping students understand the value of music learning* (d = 2.0). Even the lowest effect sizes, such as *Explaining basic concepts of music by practicing* (d = 1.2) and *Providing challenging music assignments* (d = 1.2), were firmly within the large category. These results affirm that the professional development program was not only statistically significant but also practically meaningful, producing substantial educational improvements among participating teachers.

5. Discussion

The study's findings illustrate significant improvements in teachers' competencies in music education following the professional development program, supporting the inclusion of well-structured, reflective, and practice-based interventions in teacher education. The initial pre-test score of 3.3 indicates a baseline familiarity with basic pedagogical techniques; however, it also reveals gaps in areas such as fostering higher-order thinking and individualized support for students. This pattern emphasizes the necessity of ongoing professional development programs designed to address both foundational and advanced pedagogical skills (Petersson-Bloom et al., 2023).

Following the intervention, the marked increase in the post-test average score to 4.3, along with statistically significant paired samples t-test results (p = 0.000), confirms that the professional development program was effective in enhancing teaching practices. This improvement, particularly notable in criteria associated with valuing music learning, assessing students' understanding of music, and developing higher-order thinking skills, aligns with previous research highlighting the positive impacts of sustained, contextually relevant professional development on teacher performance (Conway et al., 2020). The high t-values and large Cohen's d effect size (2.5) indicate that the instructional changes were both statistically and practically significant—reinforcing the view that experiential and student-centered strategies can lead to profound improvements in teaching effectiveness (González et al., 2024).

Furthermore, the program's success in bolstering teachers' reflective and adaptive teaching strategies resonates with literature advocating for continuous professional learning as a vehicle for enhancing educators' long-term effectiveness in classroom settings. Studies stress the

importance of integrating reflective practices and context-sensitive training to foster the development of advanced pedagogical skills and creative teaching approaches, as evidenced by the measured gains across various assessment criteria (Conway et al., 2020; Petersson-Bloom et al., 2023). Additionally, research on the integration of innovative strategies into music education supports the conclusion that targeted professional development initiatives can effectively address initial competency gaps, leading to measurable improvements in teaching practice (Bilozerska et al., 2021).

The significant improvements observed in the study align with prior research underscoring the need for regular, reflective, and practice-based professional development. Such initiatives are essential not only for addressing current teaching challenges but also for sustaining long-term improvements in music education. With robust effect sizes and significant gains across multiple dimensions of teaching practice, the study reinforces the critical role of tailored professional development in ensuring that music educators are well-equipped to deliver high-quality, student-centered instruction.

6. Conclusion

The purpose of this study was to examine primary school teachers' self-efficacy in music instruction and assess the effects of a structured professional development program. Before the intervention, teachers' self-efficacy was moderate, as reflected in the overall pre-test score of 3.3. While teachers demonstrated some confidence in engaging students and making music relevant, significant gaps remained, particularly in developing higher-order thinking skills and providing differentiated support for learners (Q1). Following the series of critical actions implemented through the professional development program, teachers exhibited a substantial increase in self-efficacy, as evidenced by the post-test average score of 4.3. Improvements were consistently observed across all assessment criteria, with notable gains in assessment practices, promoting critical thinking, and student-centered learning approaches (Q2). The paired samples t-test results and large effect sizes confirm that the intervention effectively enhanced teachers' self-efficacy in teaching music (Q3). The findings underscore the value of sustained, reflective training that integrates practical strategies, differentiation, and assessment literacy. These improvements are not only statistically significant but also practically meaningful, equipping teachers to foster engaging and effective music learning experiences.

Limitation

While this study revealed notable gains in the self-efficacy of non-music specialist teachers following a structured training program, certain limitations must be recognized. First, the participant pool consisted of only 28 teachers from a single area (Sumedang Regency), which may limit the extent to which the results can be applied to wider educational settings. Second, the intervention's relatively brief duration may not adequately reflect its long-term effects on instructional practices and student achievement. Furthermore, the assessment of self-efficacy relied primarily on quantitative measures and observational data, without incorporating in-depth interviews that could offer richer insights into the psychological aspects influencing teachers' confidence. These constraints highlight the importance of conducting future studies with larger, more diverse samples, employing mixed-method research designs, and integrating longitudinal approaches to better understand sustained impacts.

Recommendation

Future studies should investigate the extent to which these improvements are sustained over time and how they influence student learning outcomes. Broadening the focus to incorporate collaborative mentoring and peer-support initiatives may also enhance the growth of teacher self-efficacy in music education.

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Conflict of Interest

The Authors declares that there is no conflict of interest.

Declaration of Generative AI-assisted Technologies

This manuscript was prepared with the assistance of Generative AI ChatGPT Plus. The AI was used to assist in language refinement and content organization. All intellectual contributions, critical analyses, and final revisions were conducted by the authors. The authors take full responsibility for the accuracy, originality, and integrity of the content presented in this work.

References

Alibakhshi, G., Nikdel, F., & Labbafi, A. (2020). Exploring the consequences of teachers' self-efficacy: a case of teachers of English as a foreign language. *Asian-Pacific Journal of Second and Foreign Language Education*, *5*(1), article 23. https://doi.org/10.1186/s40862-020-00102-1

Anic, A., Olsen, K. N., & Thompson, W. F. (2018). Investigating the Role of the Primary Motor Cortex in Musical Creativity: A Transcranial Direct Current Stimulation Study. *Frontiers in Psychology*, *9*, article 1758. https://doi.org/10.3389/fpsyg.2018.01758

Aubakirova, R. Z., Kabzhanova, G. A., Belenko, O. G., Pigovayeva, N. Yu., & Kostyunina, A. A. (2021). Consideration of the Basic Competencies of a Preschool Teacher in Curriculum Modernization. *International Journal of Cognitive Research in Science Engineering and Education*, 9(1), 91–103. https://doi.org/10.23947/2334-8496-2021-9-1-91-103

Biasutti, M., Concina, E., Deloughry, C., Frate, S., Konkol, G., Mangiacotti, A., Pance, B. R., & Vidulin, S. (2020). The Effective Music Teacher: A Model for Predicting Music Teacher's Self-Efficacy. *Psychology of Music*, *49*(6), 1498–1514. https://doi.org/10.1177/0305735620959436

Biasutti, M., Hennessy, S., & Vugt-Jansen, E. de. (2014). Confidence Development in Non-Music Specialist Trainee Primary Teachers After an Intensive Programme. *British Journal of Music Education*, *32*(2), 143–161. https://doi.org/10.1017/s0265051714000291

Bilozerska, A., Kushnir, K., Belinska, T., Rastruba, T., & Sizova, N. (2021). Formation of a Developmental Environment of Professional Training of Future Music Teachers in the Ukrainian Educational Space. *Revista Romaneasca Pentru Educatie Multidimensionala*, *13*(2), 90–109. https://doi.org/10.18662/rrem/13.2/412

Conway, C., Marra, C., & Marra, J. V. (2020). Perceptions of Program Directors Concerning Design and Implementation of the Master of Music Degree in Music Education. *Journal of Music Teacher Education*, *29*(3), 91–105. https://doi.org/10.1177/1057083720926740

Garvis, S. (2013). Beginning generalist teacher self-efficacy for music compared with maths and English. *British Journal of Music Education*, *30*(1), 85–101. https://doi.org/10.1017/S0265051712000411

González, Ó. C., Hernández-Dionis, P., Sanz, C. M., & Pérez-Jorge, D. (2024). The Integration of Musical Contents in the Classroom of the Second Cycle of Early Childhood Education. *International Journal of Music Education*, *43*(1), 75–91. https://doi.org/10.1177/02557614241309641

Guetterman, T. C., Creswell, J. W., Deutsch, C., & Gallo, J. J. (2019). Process Evaluation of a Retreat for Scholars in the First Cohort: The NIH Mixed Methods Research Training Program

for the Health Sciences. *Journal of Mixed Methods Research*, *13*(1), 52–68. https://doi.org/10.1177/1558689816674564

Heil, D. (2005). The internet and student research: Teaching critical evaluation skills. *Teacher Librarian*, *33*(2), 26–29. https://www.proquest.com/openview/45fbcd0cdff21188d423ff9932fc1a24/1?cbl=38018&pq-origsite=gscholar

Julia, J., Gunara, S., Supriyadi, T., Agustian, E., Khimmataliev, D., Qodirov, I., Ismoilova, D., & Omonova, N. (2025). The Effect of Training Participation on Self-efficacy and Innovative Work Activities of Non-Music Specialist Teachers. *International Research Journal of Multidisciplinary Scope*, *6*(2), 241–254. https://doi.org/10.47857/irjms.2025.v06i02.03563

Julia, J., Hakim, A., & Fadlilah, A. (2019). Shifting primary school teachers' understanding of songs teaching methods: An action research study in Indonesia. *International Journal of Education and Practice*, *7*(3), 158–167. https://doi.org/10.18488/journal.61.2019.73.158.167

Kaleli, Y. S. (2020). Investigation of the relationship between pre-service music teachers' attitudes towards teaching profession and their self-efficacy beliefs. *International Journal of Research in Education and Science*, *6*(4), 580–587. https://doi.org/10.46328/ijres.v6i4.1493

Malinauskas, R. K. (2017). Enhancing of Self-Efficacy in Teacher Education Students. *European Journal of Contemporary Education*, *6*(4), 732–738. https://eric.ed.gov/?id=EJ1164018

Mossafaie, M., Alibakhshi, G., & Tabrizi, H. H. (2024). Iranian EFL teachers' self-efficacy: structural equation modeling of the consequences. *Asian-Pacific Journal of Second and Foreign Language Education*, *9*(1), article 42. https://doi.org/10.1186/s40862-024-00264-2

Petersson-Bloom, L., Leifler, E., & Holmqvist, M. (2023). The Use of Professional Development to Enhance Education of Students With Autism: A Systematic Review. *Education Sciences*, *13*(9), 966. https://doi.org/10.3390/educsci13090966

Recio, C.J.D.C., Macasukit-Gernal, L., Jawabri, A., Oswal, N. (2025). An Examination of Educators' Perspectives on the Impact of Educational Reforms Implemented by the Abu Dhabi Education Council on Teacher Efficacy in Selected Government Schools. In: Hamdan, R.K. (eds) Tech Fusion in Business and Society . *Studies in Systems, Decision and Control, vol 233*. Springer, Cham. https://doi.org/10.1007/978-3-031-84628-1_50

Taryana, T., Budiman, A., Karyati, D., & Julia, J. (2021). Enhancing students' understanding and skills on dance music: An action research. *Cypriot Journal of Educational Sciences*, *16*(5), 2621–2639. https://doi.org/10.18844/CJES.V16I5.6334

Vasil, M., & Dockan, D. (2023). Orff Schulwerk and Popular Music Education. *Music Educators Journal*, *110*(2), 37–44. https://doi.org/10.1177/00274321231214695

Zhang, X., Admiraal, W., & Saab, N. (2024). Factors affecting teachers' self-efficacy in teaching in primary education. *Teachers and Teaching: Theory and Practice, 30, 1-13*. https://doi.org/10.1080/13540602.2024.2389384