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Coping Strategies for Piano Learning Anxiety Among Preschool at Qujing Technician College in Yunnan Province, China

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ABSTRACT

This study aimed to propose appropriate teaching methods to alleviate students' piano learning anxiety among students majoring in preschool education. The research utilized the "Piano Learning Anxiety Scale" to measure students' anxiety levels and adopted SPSS 25.0 for data analysis. Before the experiment, an independent sample T-test was conducted to ensure the comparability of the experimental and control groups. The experiment spanned two semesters, during which anxiety-alleviating teaching methods were implemented in the experimental class, while the control class received traditional teaching.

The results showed that the anxiety levels in the experimental class significantly decreased after the intervention, whereas the control class displayed no significant change. The independent sample T-test confirmed the effectiveness of the anxiety-alleviating intervention in reducing anxiety levels. Furthermore, the experimental class achieved significantly higher average scores compared to the control class, indicating the positive influence of the intervention on learning outcomes. These findings highlight the positive impact of anxiety-alleviating teaching methods on teaching effectiveness and learning outcomes in the piano foundation course for preschool education students. The study supports the importance of creating a supportive and anxiety-free learning environment to enhance students' overall learning experiences. The results are essential steps to continuous improvement of anxiety-alleviating teaching methods in music education.

1. Introduction

With the advancement of society, an increasing number of individuals, after meeting their physiological needs, seek beauty. As people pursue the wonders of music and the enhancement of their skills, the piano, as a prominent instrument, has attracted numerous students to embark on its study. However, piano learning is not without challenges, and students often face anxiety and pressure during the learning process. Piano learning anxiety has become a topic of significant concern due to its impact on students' learning experiences and musical development.

Piano learning anxiety refers to the anxiety and psychological state experienced by students during piano learning. Current research suggests that piano learning anxiety is prevalent among students, especially in situations involving performances or exams (Smith & Johnson, 2020: 45-67). Manifestations of piano learning anxiety vary and may include tense and strained physical states, feelings of unease and pressure, and worries and fears about their playing abilities and performance. Students may lack confidence, fear making mistakes or being judged, and may even display behaviors of avoiding learning or evading performances. Piano learning anxiety negatively affects students' learning and performance. Anxiety may lead to reduced focus and memory, limited technical and performance abilities, and even impact the fluency and confidence of their performances. Therefore, gaining an in-depth understanding of and addressing piano learning anxiety and exploring effective intervention strategies are crucial to enhancing students' learning outcomes and promoting musical development.

Among the beginners of piano learners in China are the preschool education majors at vocational schools. From the perspective of student sources, most of these students have only received basic music education in schools and have had little exposure to learning musical instruments before entering vocational schools. Students' musical foundation is weak, lacking musical performance skills and music theory knowledge. Vocational schools do not require students to possess music skills during admission assessments, and their admission does not involve examinations of music skills and theory knowledge. However, the preschool education majors at vocational schools have high requirements for music cultivation. Students are expected to master music theory knowledge and possess multiple music performance skills. As a result, these students often experience high levels of anxiety during piano learning.

Anxiety can be a temporary emotional state or internalized as a stable individual emotional trait. When anxiety arises, it must be addressed with a positive attitude. Comprehensive anxiety intervention programs include physiological, emotional, behavioral, psychological, interpersonal, self, and existential aspects (Edmund Bourne, 2018: 32). Thus, we choose two classes with similar backgrounds and conduct a comparative study on anxiety intervention. Through interviews with piano teachers and psychiatrists, combined with student characteristics, we seek methods from anxiety disorder treatment that are applicable to vocational college students. We then validate the effectiveness of the program based on anxiety measurement results.

The purpose of this paper is to explore coping strategies to address piano learning anxiety and introduce some effective intervention methods. By gaining a deeper understanding of the nature and mechanisms of piano learning anxiety, we hope to provide valuable guidance for piano educators and students, helping them overcome anxiety, enjoy the pleasure of music learning, and achieve higher levels of musical performance.

2. Objectives

In order to propose appropriate teaching methods to alleviate students' piano learning anxiety among students majoring in preschool education.

Anxiety in Music Education

Music education, particularly piano instruction, is known to elicit anxiety in students due to performance pressures and the complexity of mastering the instrument. Research indicates that music performance anxiety (MPA) is prevalent across various age groups and skill levels (Kenny, 2011). For preschoolers, the structured environment and high expectations can exacerbate feelings of inadequacy and stress, leading to heightened anxiety levels (Boucher, 2017).

Coping Strategies for Learning Anxiety

Coping strategies are essential in mitigating the adverse effects of anxiety. According to Lazarus and Folkman's (1984) stress and coping theory, coping strategies can be broadly categorized into problem-focused and emotion-focused strategies. Problem-focused strategies involve direct actions to address the source of anxiety, such as increased practice or seeking additional instruction. Emotion-focused strategies, on the other hand, aim to manage the emotional responses to anxiety, such as relaxation techniques and cognitive restructuring (Folkman & Moskowitz, 2004).

Problem-Focused Strategies in Piano Learning

In the context of piano learning, problem-focused strategies include structured practice schedules, breaking down complex pieces into manageable sections, and seeking feedback from instructors. Studies have shown that these strategies can significantly reduce anxiety by increasing the student's sense of control and competence (Jørgensen, 2001). For preschoolers, incorporating playful elements into practice sessions can make learning more engaging and less intimidating (Nardo et al., 2014).

Emotion-Focused Strategies in Piano Learning

Emotion-focused strategies for managing piano learning anxiety among preschoolers include mindfulness, deep breathing exercises, and positive visualization. Mindfulness practices, such as focusing on the present moment and acknowledging anxious thoughts without judgment, have been effective in reducing anxiety (Kabat-Zinn, 1990). Visualization techniques, where students imagine successful performances, can also boost confidence and reduce performance anxiety (Clark & Williamon, 2011).

Social Support and Parental Involvement

Social support from parents, teachers, and peers plays a crucial role in managing anxiety. Parental involvement in practice sessions and positive reinforcement can help preschoolers feel more secure and motivated (Lehmann & Kristensen, 2014). Teachers who create a supportive and non-judgmental environment also contribute significantly to reducing anxiety (Ryan & Deci, 2000).

Cultural Considerations in Coping Strategies

Cultural factors influence the effectiveness of coping strategies. In China, where academic and musical excellence are highly valued, there may be additional pressure on children to

perform well, leading to increased anxiety (Cheng, 2016). Understanding the cultural context and incorporating culturally appropriate coping mechanisms is essential. For instance, integrating traditional Chinese relaxation techniques, such as Tai Chi, into the curriculum could provide culturally relevant ways to manage anxiety (Chow & Tsang, 2007).

Effective coping strategies for piano learning anxiety among preschoolers at Qujing Technician College include a combination of problem-focused and emotion-focused approaches, enhanced by social support and cultural sensitivity. By addressing both the practical and emotional aspects of anxiety, educators can create a more supportive learning environment that fosters both musical proficiency and psychological well-being.

3. Research Methodology

Content scope

This study focuses on proposing strategies to alleviate piano learning anxiety among students majoring in early childhood education at Qujing Technician College in Yunnan Province, China. The study aims to analyze the outcomes of implementing these strategies.

Population scope

The study's population consists of 54 first-year students majoring in early childhood education at Qujing Technician College in Yunnan Province, China.

Regional scope

The research will be conducted in Qujing city, Yunnan Province, at Qujing Technician College.

Time boundary

May 2022—March 2023

Source of studies

A comprehensive literature review was conducted using resources such as the China National Knowledge Infrastructure (CNKI) (https://www.cnki.net) and Metstr (https:/ /www.metstr.com/). Various Chinese and foreign language sources were searched, including academic journals, dissertations, books, and other relevant materials. The literature search covered topics related to music education, psychology, and educational methods, aiming to expand the knowledge framework while studying the subject.

Testing

The "Piano Learning Anxiety Scale" was administered twice. Prior to the start of the experiment, both the experimental and control class students underwent anxiety level testing. After two semesters of different teaching methods, anxiety level testing was conducted on both the experimental and control class students at the same time. The collected data on anxiety

levels were analyzed. For two classes starting at the same point, the learning outcomes were evaluated after two semesters of different teaching methods. Following the second anxiety testing, the "Piano Learning Effectiveness Assessment Form" was used to assess each student's learning outcomes, providing a detailed analysis of the learning effectiveness.

Interviews

Based on the results obtained from the questionnaire survey on anxiety levels and in combination with psychological therapy and teaching methods, a series of teaching strategies were proposed. Through online interviews, one psychiatrist and two piano teachers from vocational colleges were invited to participate in the interviews.

Expected Benefits

1. Provide effective teaching methods: By researching means to alleviate piano learning anxiety among students majoring in early childhood education, it is expected to propose effective teaching methods to help students overcome anxiety and improve learning outcomes.
2. Enhance the music learning experience: Through effective teaching methods and intervention strategies, it is expected to reduce students' anxiety and pressure during the learning process, thereby enhancing their interest and enthusiasm for music learning and improving their overall music learning experience.

4. Results

The research focused on developing teaching methods to alleviate piano learning anxiety among students majoring in early childhood education in vocational colleges. Through literature review and interviews, various approaches were identified. Firstly, addressing physical aspects like good physical foundation and suitable exercise helps enhance self-efficacy and cope with stress. Secondly, seeking social support, especially from peers, proved effective in dealing with anxiety. Lastly, adjusting teaching objectives to suit students' characteristics and recognizing their progress positively impacted self-esteem and motivation. The effectiveness of these methods was evaluated through a two-semester experiment on two classes, with one following the proposed techniques and the other using traditional methods. In the traditional piano teaching model, teachers conduct group lessons with students following the progression of the "Bayer Piano Basic Tutorial" textbook. All students receive instruction in the same content and pace. At the end of the term, the teacher selects a piece, and students perform it after practicing. The teacher assigns a performance score as the final grade. The research aimed to propose appropriate teaching methods to alleviate students' piano learning anxiety among students majoring in preschool education.

Set teaching goals hierarchically to improve students' self - efficacy

1) To improve students' self-efficacy and alleviate anxiety in piano learning, teachers can adopt the following strategies:
2) Set Hierarchical Teaching Goals: Provide clear and achievable objectives, focusing on foundational skills and music theory for most students, while offering additional challenges for those excelling in their progress.

3) Communicate Clear Expectations: Clearly explain different levels of teaching objectives at the beginning of each lesson or unit, managing students' expectations and reducing anxiety.

4) Recognize and Celebrate Achievements: Regularly acknowledge students' accomplishments, praise their efforts, and highlight their progress to boost self-efficacy and motivation.

5) Individualize Learning Experiences: Respect students' individual differences, tailor teaching objectives and strategies based on their abilities and pace, offering extra support or challenges as needed.

6) Promote a Growth Mindset: Encourage students to view challenges as opportunities for growth, emphasizing that abilities can be developed through effort and practice.

7) By implementing these strategies, teachers create a supportive learning environment, empowering students and enhancing their musical abilities with a positive learning experience (Figure 1).

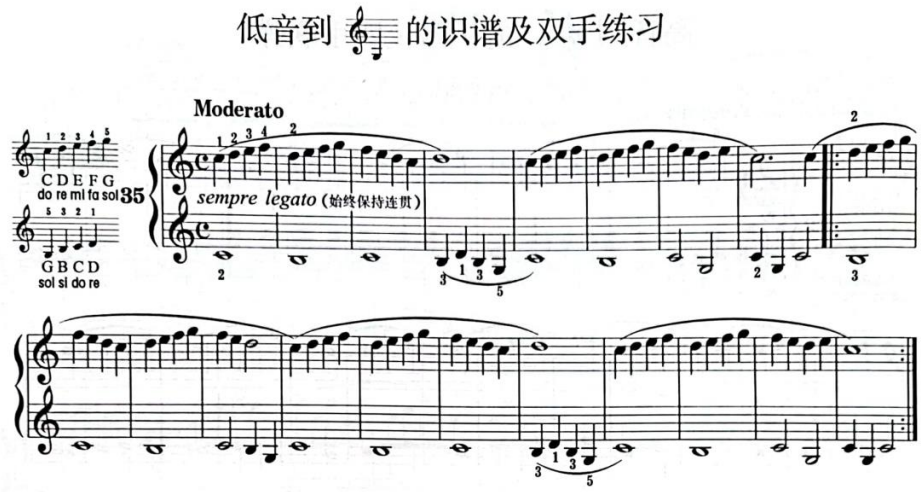

Figure 1: Spectrum recognition and hands-on practice from bass to g
Source: Wei Zichun (2023)

Table 1: Teaching goal setting

Teaching content: Spectrum recognition and hands-on practice from bass to g		Teaching grade: first year and second semester
Module Name: Piano Basic Practice		Teaching hours: 2 hours
Teaching location: Electric Piano Classroom		Teaching format: group class
	Knowledge objectives	Capability objectives
Teaching objectives	Fundamentals: Through course learning, become familiar with the notes above and below g, and be able to quickly find the corresponding keyboard when practicing with both hands.	Fundamentals: Being able to master the correct rhythm and play smoothly according to the music score.
Teaching objectives	Improvement: Through course learning, familiarize yourself with the notes above and below g,	Improvement: Able to grasp the strong and weak rhythms in each section, and play fluently and emotionally based on understanding.

Teaching content: Spectrum recognition and hands-on practice from bass to g		Teaching grade: first year and second semester
Module Name: Piano Basic Practice		Teaching hours: 2 hours
Teaching location: Electric Piano Classroom		Teaching format: group class
	Knowledge objectives	Capability objectives
	quickly find the corresponding keyboard, and be able to transpose and play, completing two practice tracks.	
Important points	1. Coordination of hand coordination. 2. Improve spectral recognition ability and master the conversion of high and low spectral numbers.	

In the teaching of "Low to G Spectrum Recognition and Hands-on Practice" (Figure 1), the teaching goals are divided into basic goals and improvement goals, addressing both knowledge and ability aspects.

For the knowledge aspect, the basic goal is for students to recognize and identify the notes from the bass to G on the spectrum. This involves understanding the positioning and names of the different notes on the piano keyboard. Regarding the ability aspect, the basic goal is for students to be able to play the notes from bass to G accurately, ensuring that they can hit the correct keys and produce the desired sound. This requires developing finger coordination and positioning.

During the 2-hour course, the basic goals are designed to be achievable by almost all students. This approach helps alleviate learning pressure in the classroom and ensures that students can keep up with the teaching progress. Once students achieve their basic goals, it is crucial to provide timely encouragement and motivation to further pursue the improvement goals. The improvement goals focus on enhancing the students' overall performance and coordination while playing the notes from bass to G. The course includes three practice tracks, allowing students to practice and reinforce their skills in playing the designated notes. Additionally, item 36 serves as an after-school assignment, providing further practice opportunities outside the classroom. Items 35 and 37 are designed to accommodate students' varying practice efficiency. The basic goal is for students to complete item 35 successfully. For students who have a solid grasp of item 35, they can progress to item 37 as an improvement goal, further enhancing their skills and understanding.

By setting differentiated goals and allowing for progression, this teaching approach caters to students at different proficiency levels and ensures a balanced and effective learning experience for the entire class.

Learning anxiety relief methods

To alleviate learning anxiety, two internationally recognized exercise methods will be taught to students in the experimental class.

The first method is the Abdominal Breathing Technique, which will be combined with piano playing and singing while maintaining the rhythm. This approach helps cultivate a relaxed state of the body from the beginning of practice, improving breath control and musical performance while promoting a sense of calm and relaxation. The second method is Full Body Progressive Muscle Relaxation, which will be practiced at the start of each class. This technique

involves consciously tensing and then relaxing each muscle group in the body, promoting deep relaxation and releasing tension. By learning to relax their muscles, students can create a more relaxed state both physically and mentally, enhancing their overall piano playing experience.

By incorporating these anxiety relief methods into the piano learning process, students in the experimental class can develop effective strategies to manage and alleviate their learning anxiety. These techniques promote relaxation, reduce muscle tension, and create a conducive environment for focused and enjoyable piano practice.

Abdominal breathing method

The abdominal breathing method is a powerful technique to alleviate learning anxiety and promote relaxation during piano practice. By incorporating this technique into hands-on practice, students can experience a deeper sense of physical and mental relaxation while engaging with the music.

To apply the abdominal breathing method during hands-on practice, students can follow these steps using a specific practice piece, such as the third practice piece in the "Bayer Piano Basic Tutorial" (Figure 2), as a reference.

1) Set the tempo to Moderato or a suitable pace for the exercise.

2) Focus on the breathing pattern, In the first measure of the piece, inhale slowly and deeply for four beats, allowing the breath to reach the diaphragm. During this inhalation, the abdomen should noticeably expand, and there may be slight movement in the chest.

3) In the second measure, exhale gradually for four beats, releasing all the air and allowing the body to relax.

4) Continue practicing by inhaling in the third measure and exhaling in the fourth measure, repeating this process throughout the piece.

By maintaining a steady rhythm and coordination between the breath and piano playing, students can experience a more relaxed and mindful approach to piano practice. The abdominal breathing method promotes physical relaxation, helps regulate breathing patterns, and enhances the overall musical experience.

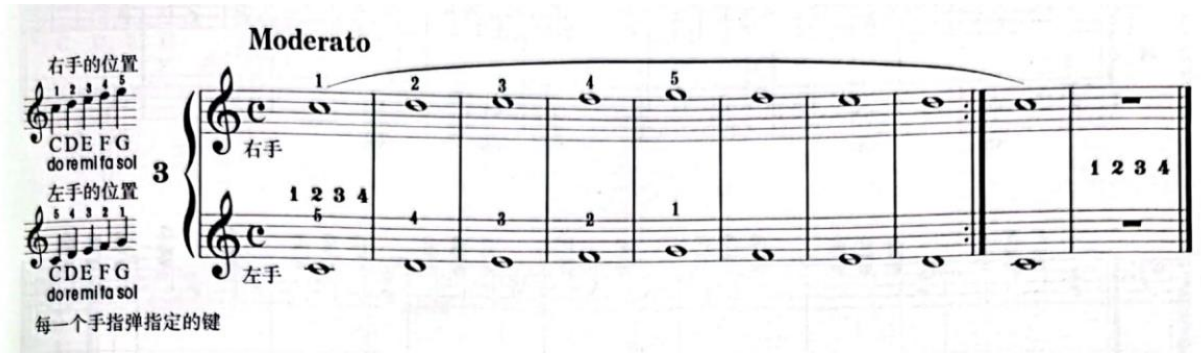

Figure 2: Bayer Piano Basic Tutorial Etude 3

Source: Wei Zichun (2023)

Progressive muscle relaxation

Progressive Muscle Relaxation (PMR) is a technique that involves systematically tensing and relaxing different muscle groups to promote relaxation and relieve muscle tension. By

practicing PMR, individuals can become more aware of the sensations associated with muscle tension and relaxation, helping them achieve a state of physical and mental calmness. Here are the detailed steps for practicing PMR:

1) Begin by taking three abdominal breaths, focusing on exhaling and imagining the tension in your body starting to dissipate.

2) Tighten your fists, squeezing them tightly for 7-10 seconds, and then release and relax your hands for 15-20 seconds.

3) Raise your forearms towards your shoulders, tensing your biceps brachii muscles. Apply force to both arms, revealing the muscle shape. Hold the tension for a few seconds and then release and relax.

4) Straighten your arms and rotate your elbows outward, creating tension in the triceps muscles. Hold the tension for a few seconds and then release and relax.

5) Close your eyes tightly, tensing the muscles around your eyes. Hold the tension and then release and relax.

6) Open your mouth wide, stretching the muscles around your jaw. Hold the tension and then release and relax.

7) Lean your head back, tightening the muscles in the front of your neck as if you were trying to touch your back with your head. Hold the tension and then release and relax.

8) Raise your shoulders towards your ears, tensing the shoulder muscles. Hold the tension and then release and relax.

9) Draw your shoulder blades backward, creating tension in the muscles around the shoulder blades. Hold the tension and then release and relax.

10) Take a deep breath, expanding your chest, and hold the tension in the chest muscles for 10 seconds. Slowly exhale and relax.

11) Tighten your abdomen, engaging the abdominal muscles. Hold the tension and then release and relax.

12) Arch your back, creating tension in the muscles of your lower back. Hold the tension and then release and relax.

13) Squeeze your buttocks muscles together, tensing them towards the middle. Hold the tension and then release and relax.

14) Squeeze the muscles in your thighs, moving all the way down to your knees. Hold the tension and then release and relax.

15) Raise your toes upward and inward, creating tension in the muscles of your calves. Hold the tension and then release and relax.

16) Bend your toes downwards, tensing the muscles on your feet. Hold the tension and then release and relax (Bourne, 2018: 32).

By systematically tensing and releasing each muscle group, you can experience a deep state of relaxation throughout your body. Practicing PMR regularly can help reduce muscle tension, promote relaxation, and alleviate anxiety and stress.

Group Mutual Aid Teaching

Group-based mutual aid teaching is an effective method to cultivate students' autonomous learning ability, cooperative skills, and problem-solving ability while alleviating anxiety. By establishing learning groups within the classroom, students can work together, support each other, and solve problems collectively. This approach promotes communication, reduces the feeling of isolation, and provides social support to students.

To implement group-based mutual aid teaching, six students with strong piano foundations and high learning efficiency were selected as team leaders based on their voluntary participation. The team leaders communicated with each student and explained their responsibilities. Six groups were formed, consisting of three groups of four members and three groups of five members, with fixed seating arrangements. In each class, the teacher provides instruction and demonstration, followed by group members practicing and correcting each other's performance. The teacher then offers guidance on specific details, identifies difficult areas, and provides further practice opportunities.

The team leaders play a crucial role in urging and assisting each group member in practicing diligently. Through repeated exercises, group members can discover effective cooperative learning methods that suit their group dynamics. They help each other grasp the course content more efficiently by dividing tasks and supporting each other. At the end of each class, the group performs together, and the overall performance of the group is evaluated and scored.

This group-based teaching method enhances students' sense of collective awareness. It allows for collective progress and supports individual students, reducing pressure and anxiety during the learning process. Additionally, it provides an opportunity for students with high learning efficiency to reinforce their own knowledge while teaching others. Simultaneously, students with lower learning efficiency benefit from increased learning opportunities, leading to positive outcomes and improved learning effectiveness.

Overall, group-based mutual aid teaching fosters cooperation, support, and a sense of belonging among students, promoting a conducive learning environment while alleviating anxiety.

Optimize assessment methods

To optimize the assessment methods in the piano foundation course for preschool education students, it is important to address the limitations of the traditional assessment approach and create a more comprehensive and diversified evaluation system. The goal is to provide a fair and accurate assessment that promotes students' confidence, engagement, and overall learning effectiveness.

To achieve this, the big goal of the course can be divided into multiple small goals. This allows for a step-by-step approach, where students can achieve smaller milestones and build their skills and confidence gradually. Each small goal can be assessed formatively throughout the teaching activity, providing ongoing feedback and guidance to students. This formative evaluation should take into account both individual and group performance, reflecting the collaborative nature of the learning process.

In the proposed assessment system, formative evaluation carries a weightage of 30 points. It is divided into two parts: group score and individual score. Group scores are based on the completion of classroom assignments, which encourage cooperation and mutual support among group members. The instructor assigns scores based on evaluation indicators, promoting the development of teamwork and collaborative skills. Individual scores are earned through individual performance opportunities provided in each course. This allows students to gain experience in performing in public, boosting their confidence and reducing performance anxiety.

For the final evaluation, the teaching teacher assigns three assessment tracks based on the teaching progress and difficulty levels. These tracks should include a variety of musical

pieces, covering different aspects such as emotional expression, rhythm, and pronunciation. By incorporating these criteria, the final evaluation can comprehensively assess students' musical abilities and their understanding of the course material. The final evaluation carries a weightage of 20 points.

By implementing this diversified evaluation system, the assessment content becomes broader and more comprehensive, taking into account students' learning attitudes, daily performance, teamwork, and individual progress. This approach promotes a positive learning environment, encourages active engagement, and reduces anxiety associated with assessments. It also allows students to see their progress over time and fosters a sense of accomplishment and self-worth.

Table 2: Piano Student Comprehensive Evaluation Form

Category	Evaluation project	Evaluating Indicator	Evaluation score
Formative evaluation (30 points)	Group score (24 times)	All members of the group played in unison, with complete performance and accurate rhythm	1
		Group play in unison, complete performance	0.8
		Group performance	0.5
	Individual score (cumulative score)	Proactively perform on stage during each class	1
Final evaluation (20 points)	Track difficulty (5 points)	Difficult	5
		Secondary	3
		Easier	1
	Emotional expression (5 points)	Can better interpret the style of the work	5
		Playing is complete and coherent, with a certain level of expressiveness	3
		Complete playing	1
	Rhythm (5 points)	Deduct 1 point for each rhythm error	5
	Mispronunciation (5 points)	Deduct 1 point for each mispronounce	5

Table 2 can serve as a reference for the assessment criteria and weightage distribution, aligning with the proposed formative and summative evaluation components. The specific weightages and assessment criteria can be adjusted according to the specific needs and context of the course and students.

Overall, optimizing the assessment methods in the piano foundation course will contribute to a more holistic and effective learning experience for preschool education students, supporting their growth, confidence, and enjoyment of music education.

The impact of alleviating anxiety on teaching effectiveness

The impact of alleviating anxiety on teaching effectiveness was assessed using data analysis in this study, employing SPSS 25.0 software. The reliability of the "Piano Learning Anxiety Scale" was confirmed, with a Cronbach's Alpha α coefficient above 0.9 for the overall

scale and above 0.7 for each dimension, indicating its reliability as a measurement tool (Table 3).

Table 3: Reliability Analysis

Dimension	Cronbach's Alpha	Number of items
Whole	0.924	33
communication apprehension anxiety	0.756	11
fear of negative evaluation	0.706	11
test anxiety	0.806	3
general anxiety	0.796	8

Before the experiment, an independent sample T-test was conducted to compare the anxiety levels of the experimental and control classes. The analysis showed no significant difference in anxiety levels between the two classes, ensuring their comparability and reliability as research groups.

Table 4: Anxiety values measured after two classes.

	class	cases	average value	standard deviation	Mean standard error
Mean value of posterior anxiety	1	27	3.3115	.54871	.10560
	2	27	2.9922	.40415	.07778

After two semesters of comparative teaching, the research results demonstrated that the anxiety-alleviating teaching methods had a positive impact on the teaching effectiveness of the piano foundation course for preschool education students in vocational colleges. The average anxiety level in the experimental class significantly decreased from 3.21 to 2.99 after the intervention, while the control class showed a higher average anxiety level of 3.31 (Table 4). The independent sample T-test analysis confirmed a significant difference in anxiety values between the two classes, indicating the effectiveness of the intervention methods in alleviating anxiety (Table 5).

Table 5: Independent Sample t-Test for Anxiety Values in Two Classes

		Levin's variance equivalence test		Mean equivalence t-test						
		F	Significance	t	freedom	Significance (Double tailed)	Mean difference	Standard error difference	95% confidence interval for difference	
									lower limit	upper limit
Anxious degree	Assuming equal variance	1.737	.193	-2.434	52	.018	-.31926	.13115	-.58243	-.05609
	Not assuming equal variance			-2.434	47.795	.019	-.31926	.13115	-.58299	-.05553

Additionally, the study evaluated the learning effectiveness by comparing the grades of the two classes. The experimental class, which received the anxiety-alleviating intervention, achieved significantly higher average scores (38.25) compared to the control class (33.55) (Table 6). The independent sample T-test analysis also indicated a significant difference in grades between the two classes, supporting the positive impact of the implemented intervention methods on learning effectiveness (Table 7).

Table 6: Average score of two classes

	class	cases	average value	standard deviation	Mean standard error
Mean value of posterior anxiety	1	27	33.5556	8.61722	1.65838
	2	27	38.2593	7.90614	1.52154

Table 7: Independent Sample t-Test for Average score of two classes

		Levin's variance equivalence test		Mean equivalence t-test						
		F	Significance	t	freedom	Significance (Double tailed)	Mean difference	Standard error difference	95% confidence interval for difference	
									lower limit	upper limit
Anxious degree	Assuming equal variance	.849	.361	-2.090	52	.042	-4.70370	2.25063	-9.21991	-.18749
	Not assuming equal variance			-2.090	51.619	.042	-4.70370	2.25063	-9.22071	-.18670

These findings indicate that the proposed teaching methods not only successfully reduced students' anxiety levels but also had a beneficial impact on their learning outcomes. By addressing anxiety and creating a supportive learning environment, the teaching methods enhanced the overall teaching effectiveness of the piano foundation course.

It is important to note that the experimental and control classes started with similar grades, minimizing the influence of pre-existing variations in student abilities. Therefore, the observed differences in anxiety levels and learning outcomes can be attributed to the impact of the anxiety-alleviating teaching methods.

In conclusion, the study provides evidence that the adoption of anxiety-alleviating teaching methods in the piano foundation course positively affected teaching effectiveness. By reducing anxiety and enhancing the learning environment, these methods contributed to improved teaching outcomes and promoted better learning experiences for preschool education students in vocational colleges.

5. Discussion

Comparing the results of this study with existing relevant research, it is evident that previous studies have primarily focused on piano performance anxiety, which often affects the

performance outcome and subsequent learning of performers. For instance, Wang Pei (2020) emphasized that stable psychological factors are essential guarantees for high-quality performances. Some researchers have explored coping strategies for performance or learning anxiety from both psychological and physiological perspectives. For instance, Craigan Usher (2021) asserts that realizing one is not alone can relieve anxiety. In this study, we achieved similar positive results by implementing group mutual aid learning as a psychological approach to anxiety relief. Simona Scaini (2022) believes that learning anxiety management skills can reduce certain anxiety symptoms and improve learning efficiency.

While there is some similarity in the impact of anxiety between piano performance and piano learning, addressing these two aspects requires different approaches. This study specifically targeted anxiety during the learning process and proposed distinct teaching methods to intervene in learners' anxiety states, with data validation confirming the effectiveness of these methods. A review of relevant academic literature indicates that research on anxiety in piano learning is still scarce. Therefore, this study, which focused on anxiety in piano learning and conducted a comparative investigation among preschool education students, contributes to filling this research gap. Moreover, through the assessment of anxiety levels and learning outcomes, it was found that the measures taken effectively alleviated anxiety and improved students' learning performance. However, it is essential to acknowledge the limitations of this study. The sample size was limited to students in the preschool education program at Qujing Technician College in Yunnan Province, China. Considering regional and cultural differences, future research should aim to increase the sample size and include students from diverse regions and cultural backgrounds. Additionally, this study primarily focused on school-related factors, and future research should comprehensively consider students' individual characteristics and family backgrounds. Further investigations can delve deeper into the relationship between piano learning and anxiety and provide more comprehensive teaching interventions, making valuable contributions to the field of piano education.

6. Conclusion

In this study, anxiety-alleviating teaching methods were implemented in the piano foundation course for preschool education students in vocational colleges. The impact of these methods on teaching effectiveness was assessed through data analysis using SPSS 25.0 software. Before the experiment, anxiety levels were similar in both the experimental and control classes, ensuring comparability. After two semesters of teaching, the anxiety-alleviating methods positively impacted the experimental class, leading to a significant reduction in anxiety levels. The intervention also resulted in higher average scores compared to the control class, demonstrating improved learning outcomes. The study highlights the effectiveness of anxiety-alleviating teaching methods in enhancing teaching effectiveness and student performance.

Overall, the study provides evidence that the adoption of anxiety-alleviating teaching methods in the piano foundation course improved teaching effectiveness and learning outcomes for preschool education students in vocational colleges. By reducing anxiety and creating a supportive learning environment, these methods enhanced the overall learning experience and academic performance of the students. The research findings suggest that addressing anxiety and promoting a positive learning environment are crucial factors in achieving effective teaching outcomes. These results highlight the importance of considering

students' emotional well-being and providing appropriate support and intervention to enhance their learning experiences. Implementing anxiety-alleviating teaching methods can be beneficial for educators and institutions seeking to create a conducive and successful learning environment for their students.

7. Suggestion

Expand the Sample Size and Diversity

Your current study focused on a relatively homogeneous group of preschool education students in a specific region. Future studies should aim to include a larger, more diverse sample, incorporating students from different regions, cultural backgrounds, and educational settings. This will help to generalize the findings and understand how anxiety-alleviating methods perform across varied contexts.

Longitudinal Impact Assessment

The short-term nature of your study provides an initial understanding of the effectiveness of anxiety-alleviating methods. Conduct longitudinal studies to assess the long-term impact of these methods on both anxiety levels and learning outcomes. Tracking students over several years would provide insights into the sustainability of the interventions and their long-term benefits.

Multifactorial Analysis

Anxiety in learning is multifaceted, influenced by personal, familial, and environmental factors. Future research should adopt a multifactorial approach, examining how individual characteristics (e.g., personality, prior experience), family background, and school environment interact with anxiety-alleviating methods. This could involve mixed-methods research combining quantitative and qualitative data.

Cross-Educational Level Comparisons

Your study was confined to preschool education students, which may not reflect the broader educational landscape. Investigate the effectiveness of anxiety-alleviating teaching methods across different educational levels, such as primary, secondary, and tertiary education. This comparison would identify specific needs and effective strategies for each educational stage.

Integration of Technological Interventions

Technological advancements offer innovative ways to address learning anxiety. Explore the use of technological tools and platforms, such as virtual reality, gamified learning, and interactive applications, to create engaging and supportive learning environments. Assess their effectiveness in reducing anxiety and improving learning outcomes.

In-Depth Qualitative Studies

While quantitative data provides measurable outcomes, qualitative insights are crucial for understanding the nuances of anxiety and learning. Conduct in-depth qualitative studies, such as interviews and focus groups with students and educators, to gain a deeper understanding of their experiences and perceptions of anxiety-alleviating methods. This approach can uncover the contextual factors and personal experiences that quantitative data might miss.

Exploration of Complementary Interventions

Your study focused on group mutual aid learning; however, multiple approaches could be combined for greater efficacy. Investigate other complementary interventions, such as mindfulness training, cognitive-behavioral therapy techniques, and physical relaxation exercises. Assess how these interventions can be integrated with group learning to enhance overall effectiveness.

Policy and Curriculum Development

Institutional support is crucial for the successful implementation of anxiety-alleviating methods. Collaborate with educational policymakers and curriculum developers to integrate anxiety-alleviating strategies into standard teaching practices. Conduct policy-oriented research to evaluate how these methods can be systematically included in teacher training programs and school curricula. By pursuing these advanced research directions, the field can gain a more comprehensive understanding of how to effectively manage anxiety in piano learning and other educational contexts. These insights will ultimately contribute to the development of more effective, evidence-based teaching practices that enhance student well-being and academic performance.

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