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Integration of mindfulness practices in vocal training: Enhancing performance and well-being

Integração de práticas de mindfulness no treino vocal: Melhorar o desempenho e o bem-estar

Xia Wang
Music Academy, Xinzhou Normal University, Shanxi, China
sxdtwx1990@gmail.com

Abstract: This study aims to identify and analyze the impact of mindfulness techniques on the development of vocal skills and the psychological state of student-musicians. The effectiveness of incorporating meditative practices and concentration techniques into vocal training was assessed using mindfulness, attention, and performance anxiety scales. The experimental study, involving both an experimental group (100 participants) and a control group (100 participants), demonstrated a significant improvement in vocal skills, a reduction in anxiety levels, and an increase in overall mindfulness among the students in the experimental group. Notable improvements were observed in pitch accuracy (from 7.2 to 8.5 points), breath control (from 7.6 to 8.7 points), timbre quality (from 7.5 to 8.3 points), and articulation (from 8.1 to 8.9 points), as well as a decrease in stage fright (from 4.0 to 2.5 on the Kenny anxiety scale) and an increase in concentration (difficulty focusing decreased from 4.5 to 3.0). The practical significance of this study lies in the development of an innovative approach to vocal training, which could be implemented in music educational institutions to enhance the effectiveness of professional preparation for performers, improve their emotional well-being, and reduce stress associated with public performances.

Keywords: emotional balance; mindful singing; performance enhancement; self-awareness; vocal exercises.

Resumo: O objetivo deste estudo é identificar e analisar o impacto das técnicas de mindfulness no desenvolvimento das competências vocais e no estado psicológico dos estudantes-músicos. A eficácia da incorporação de práticas meditativas e técnicas de concentração no treino vocal foi avaliada através de escalas de mindfulness e ansiedade de desempenho. O estudo experimental, envolvendo um grupo experimental (100 participantes) e um grupo de controle (100 participantes), demonstrou uma melhoria significativa das capacidades vocais, uma redução dos níveis de ansiedade e um aumento da atenção plena geral entre os alunos do grupo experimental. Foram observadas melhorias notáveis na precisão do tom (de 7,2 para 8,5 pontos), no controle da respiração (de 7,6 para 8,7 pontos), na qualidade do timbre (de 7,5 para 8,3 pontos) e na articulação (de 8,1 para 8,9 pontos), bem como uma diminuição do medo do palco (de 4,0 para 2,5 na escala de ansiedade de Kenny) e um aumento da concentração (a dificuldade de foco diminuiu de 4,5 para 3,0). O significado prático deste estudo reside no desenvolvimento de uma abordagem inovadora ao treino vocal, que poderia ser implementada em instituições de ensino musical para aumentar a eficácia da preparação profissional dos artistas, melhorar o seu bem-estar emocional e reduzir o estresse associado às apresentações públicas.

Palavras-chave: equilíbrio emocional; canto consciente; melhoria do desempenho; autoconsciência; exercícios vocais.

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1. Introduction

Currently, mindfulness practices (the observation of one's thoughts, emotions, sensations, and the surrounding environment with openness and acceptance) have gained popularity, becoming a global phenomenon applied in meditation, psychotherapy, education, and personal development (Holm & Islam, 2024). The widespread adoption of mindfulness is driven by the accumulation of scientific evidence supporting its effectiveness, as well as the need for mental balance in the era of digital technologies, which has made these methods more accessible and convenient to use. Mindfulness has found its place in healthcare, education, business, and personal development, reflecting a global trend towards seeking inner harmony and effective stress management practices in the fast-paced modern world (Chui, 2021). Furthermore, the practice of mindfulness continues to evolve, integrating into various aspects of social life and opening new pathways for personal and professional growth in an increasingly complex global context (Urcola-Pardo, 2023). However, maintaining objectivity ensures a rigorous assessment of the impact of mindfulness practices without using them as tools for promoting any ideological perspectives (Mehta & Talwar, 2022).

Vocal education provides students with a unique opportunity for self-expression and emotional release. Singing enables the expression of a wide range of emotions, which promotes a better promoting of one's feelings and enhances emotional intelligence. This, in turn, helps manage stress related to academic demands and improves overall psychological well-being (Wang, 2018). Additionally, the skills acquired during vocal training are often transferable to other areas of students' lives. Increased self-confidence, developed presentation skills, and the ability to perform before an audience are valuable in various academic and professional contexts (Yang, 2024).

Mindfulness practices are also significant in vocal art, as they help students develop technical skills by focusing on breathing and reducing stress and anxiety levels during performances. The integration of such methods into the educational process may lead to an improvement in students' performance skills, as the approach can address issues faced by vocalists, specifically breathing techniques and bodily tension, while simultaneously enhancing auditory sensitivity and self-awareness (Becker et al., 2025). The use of this technique can enable students to significantly improve concentration and focus, which is crucial for choral singing, where performers must coordinate multiple elements simultaneously.

Mindfulness contributes to better behavior management, enhancing self-control and interaction with others. Over time, increased mindfulness enhances understanding of music, emotional expressiveness, and creative interpretation, thereby fostering competent, confident, and emotionally mature musicians (Elder, 2020). Mindfulness, which involves complete attention to the present moment, allows singers to experience their voice, body, and music more deeply. Performers gain better control over their vocal apparatus and emotional expression, while self-regulation enables vocalists to effectively manage the learning process (Panditharathne & Chen, 2021). The ability to understand one's learning needs, set goals, plan practice, and assess progress is crucial in classical singing, where independent work and continuous self-improvement are key to success. The combination of these two concepts creates a solid foundation for effective learning and healthy vocal development, promoting a more holistic approach to education that considers both the physical and psychological aspects of vocal artistry (Chan, 2020).

This methodology is considered truly revolutionary, as musicians face extraordinarily high demands on their artistry, requiring intensive and continuous practice. These demands encompass not only technical excellence but also profound emotional expressiveness in performance. Achieving such a level of mastery requires many hours of daily practice, often starting

from early childhood and continuing throughout one's career (Steenstrup et al., 2021). Musicians must develop exceptional precision in movements, endurance, auditory control, and emotional depth. At the same time, the competitive environment of classical music adds further pressure, as each performance can be crucial for one's career. Therefore, musicians also face the need for constant repertoire updating, learning new works, and adapting to various acoustic conditions and ensemble compositions, which requires not only technical skill but also emotional maturity and self-organization (Lücking & Claßen, 2023).

Mindfulness practices demonstrate significant potential for enhancing both technical skills and the psychological well-being of performers and educators. For instance, one study examined the experiences of music teachers related to flow during music performance and instruction (Kang, 2023). By employing a model with four prerequisites (challenge, skills, clarity of goals, and feedback) and three dimensions of the flow state (absorption, satisfaction, and intrinsic motivation), the study identified results showing that these prerequisites significantly influence the flow state in both performances (54.0%) and teaching music (34.7%). Open descriptions of teachers' experiences highlighted the importance of challenge, skills, and absorption in performance, as well as feedback, goal clarity, and group flow in teaching. These findings are corroborated by subsequent research, which reveals the complex interplay between individual and team factors affecting flow experiences in workgroups (Xie, 2022). This study focused on three key prerequisites: emotional regulation and voice at the individual level, and team mindfulness at the group level. Results indicated that team members with better emotional regulation skills and a greater propensity to express their ideas demonstrated higher levels of team mindfulness and were more likely to enter the flow state. Ornoy and Cohen (2022) analyzed the impact of short-term mindfulness meditation on the quality of vocal performance. The focus was on pitch accuracy, dynamic control, and resonance quality. Statistical analysis revealed no

significant differences between the control and experimental groups; however, the researchers did observe improvements in pitch stability, better control over dynamic nuances, and enhanced resonance quality. Thus, although the described changes did not reach statistical significance, the study suggests the potential effectiveness of meditative practices in vocal training, even when applied in the short term.

The CRAFT program ("Consciousness," "Relaxation," "Attention," "Happiness," "Transcendence"), implemented at the Royal Conservatory of Music in Granada, demonstrates the effectiveness of integrating mindfulness practices into music education (de Julián & Pérez, 2022). This program, which combines mindfulness, yoga, positive psychology, and emotional intelligence, has shown potential for improving the physical and psychological health, as well as the overall well-being of music students. Similar results were obtained in a study that examined the impact of mindfulness and contemplative learning methods on the development of singers over 12 weeks (Blackhurst, 2021). Participants reported enhanced self-awareness, increased confidence in their abilities, and more effective coping with learning challenges. Another research investigation analyzed the impact of mindfulness on the expressive performance of vocalists (Tan et al., 2020). The experimental group that underwent mindfulness induction exhibited higher levels of attentiveness and noted improvements in focus. The results confirmed the use of specific acoustic cues for conveying emotions and indicated the potential role of mindfulness in enhancing performers' focus and awareness. Additionally, subsequent research by Morris (2019) investigated the integration of yoga and mindfulness practices into vocal education, showing positive effects on vocal function and mental health. The application of specially designed yoga sequences helped students achieve better body awareness, improved breath support, and enhanced smoothness.

Varner (2022) focused on the use of focused breathing and singing as tools to enhance self-awareness among students in a general music class. The results indicated that these practices

possess significant therapeutic potential, effectively reducing anxiety levels and increasing present-moment awareness. In a subsequent scientific investigation examining the impact of the Bel Canto singing technique on cognitive and emotional health, findings revealed that Bel Canto enhances sensory, emotional, cognitive, and social experiences during musical performances, fostering emotional resonance and cognitive interaction between the singer and the audience (Jia, 2024).

Leiper (2024) explored the effects of a self-assessment protocol on amateur choral singers. The results demonstrated an increased awareness of healthy and unhealthy singing habits, changes in thinking and behavior, and improvements in practice. This research emphasized the importance of educating singers about vocal health and encouraging self-assessment. The significance of vocal health is further underscored in another study, which revealed a substantial impact of music teachers' mental health on their work performance, mediated by vocal fatigue (Muthuswamy, 2024).

Thus, the reviewed studies demonstrate the significant potential of mindfulness and contemplative learning methods for enhancing music education and vocal art. They underscore the importance of a holistic approach to training that addresses both the technical aspects of performance and the psychological well-being of musicians. Consequently, the relevance of our work lies in the necessity of exploring ways to enhance the effectiveness of vocal training and improve the overall well-being of singers in contemporary music educational institutions. The analysis of the potential impact of mindfulness techniques may substantially improve performers' technical proficiency, support their emotional balance, reduce stress, and increase stage confidence.

1.1 Problem Statement

The study aims to investigate the potential impact of mindfulness techniques on the development of vocal skills and the overall well-being of singers. The developed program will focus on enhancing performers' technical proficiency, supporting

their emotional balance, reducing stress, and increasing stage confidence.

The research objectives include:

1. Examining the impact of integrating mindfulness techniques on the development of vocal skills and technical mastery among music students through a comparative analysis of the results from experimental and control groups.

2. Assessing changes in participants' psychological states, specifically stress levels, emotional balance, and stage confidence, by analyzing results from psychological testing and questionnaires administered before and after the experiment.

3. Developing recommendations for the optimal combination of traditional vocal exercises with mindfulness practices in the educational process.

2. Methods and Materials

The experiment aimed to assess the effectiveness of integrating mindfulness techniques into the vocal training process, focusing on evaluating both educational outcomes and the psychological well-being of students. Educational outcomes included improvements in technical skills (pitch accuracy, breath control, timbre quality, articulation, and technical mastery), the development of creative abilities (musical interpretation, improvisation, creative self-expression), the ability to apply acquired knowledge in real performances, as well as progress in self-reflection, which involves awareness of one's development and identifying pathways for further improvement.

2.1 Sampling

The sample consisted of over 200 undergraduate music students, who were divided into an experimental group (n = 100) and a control group (n = 100). For two months, participants in the experimental group participated in an online mindfulness course in

addition to their standard vocal training. They participated in weekly online meditation and mindful singing sessions and maintained reflective journals. A demographic questionnaire was used to collect baseline information about the participants, consisting of a series of questions aimed at obtaining details regarding their vocal experience, education level, age, and gender. In the section on vocal experience, participants indicated the duration of their vocal training, the number of stage performances, their level of preparation (amateur, semi-professional, professional), and specialization (classical vocal, pop vocal, etc.). The education level section included questions about general education and specific musical training. Data was also collected on age, gender, native language, and any previous experience with mindfulness courses or similar programs. This approach enabled the consideration of individual participant characteristics and ensured the accuracy of the study results analysis.

The online mindfulness course included regular sessions where students engaged in various meditative and reflective practices. The online mindfulness course provided accessibility to a wide range of participants, allowing students to engage regardless of geographical location and adapt to the constraints imposed by the pandemic. This format facilitated flexible scheduling of sessions, which conveniently aligned with participants' academic and personal commitments. However, previous research highlights the drawbacks of the online format, particularly the risk of decreased motivation, lack of social interaction, and technical difficulties. To minimize these challenges, the course was structured with a clear schedule, incorporating interactive elements such as group discussions and individual feedback, as well as providing materials for independent study. This ensured continued participant engagement and enhanced the effectiveness of the learning experience.

They performed exercises designed to enhance attention focus, learning to concentrate on their breathing, bodily sensations, and the surrounding environment (Table 1). Participants then

followed instructions and guidance on observing their thoughts and emotions without judgment. The sessions combined practical exercises with thematic explanations, facilitating an understanding of mindfulness concepts.

Table 1 - Mindfulness Course Program for Vocalists

Module	Course content	Practical tasks	Expected Results
Mindfulness Foundation	-Introduction to the concept of mindfulness -Basic breathing exercises	-Theoretical lecture -Guided breathing practice	-Improved Concentration -Reduced Anxiety
Body Awareness	-Working with bodily sensations -Muscle relaxation techniques	-Audio meditations - Vocal posture exercises	-Better Physical Relaxation -Improved Posture
Mindful Breathing	-Diaphragmatic breathing -Long exhalations	-Working with a metronome -Homework	-Improved Vocal Technique -Increased Stress Tolerance
Observation of Thoughts and Their Awareness	-Non-judgmental observation techniques (an approach in which a person consciously observes events, thoughts, emotions, or actions without trying to evaluate them as “right” or “wrong”) -Exercises for identifying disturbing thoughts and emotions	-Group discussions -Keeping a journal	-Better Anxiety Management -Emotional Stability
Focus on Listening	-Focus on environmental sounds -Analysis of one’s own voice	-Silent vocal exercises -Working with notes	-Improved Musical Ear -Better Vocal Performance
Integration of Practices	-Meditation while singing -Stage simulations	-Presence practice -Assessing progress	-Confidence on Stage -Reduced Stage Anxiety

The control group continued their training according to the standard vocal curriculum. To assess the impact of mindfulness practices on the psychological state and educational effectiveness of the music students, the "Mindful Attention Awareness Scale" (MAAS) was employed (Appendix A: "Mindful Attention Awareness Scale"). This scale was adapted for the context of music education, maintaining a 6-point Likert rating system. The questions were tailored to reflect the specifics of musical practice, including aspects of vocal training, rehearsals, and performances. The use of this scale at both the beginning and end of the experiment allowed for tracking the dynamics of participants' mindfulness levels and their influence on their musical achievements and psychological well-being.

The data analysis included statistical processing (t-test) of quantitative data, a comparative analysis of vocal performance indicators and psychological state, as well as a qualitative analysis of students' subjective experiences. To measure levels of stress, anxiety, self-confidence, emotional resilience, sound quality, breathing techniques, musicality, and stage presence, the "Kenny Music Performance Anxiety Inventory" (K-MPAI) scale was employed (Appendix B: "Kenny Music Performance Anxiety Inventory" (K-MPAI)). This scale was administered at the beginning of the study, during intermediate evaluations, and at the conclusion of the experiment. This approach enabled precise tracking of the dynamics of performance anxiety levels among the music students and allowed for an assessment of the effectiveness of mindfulness practices on this crucial aspect of their psychological state and professional activities.

Subsequently, all participants completed a post-experiment survey designed to evaluate their experiences, impressions, and progress over the two-month period (Appendix C: "Post-Experiment Survey"). The survey consisted of open-ended questions in which participants from both groups described their learning experiences, changes in musical practice, and emotional state.

2.2 Statistical Analysis

The study employed Student's t-test to compare the mean values of two independent samples and test hypotheses regarding the equality of means between these samples. The t-test was used to assess the statistical significance of the difference in mean values between the two groups, enabling the determination of whether this difference was due to chance or was statistically significant.

Thus, a comprehensive approach was applied to data collection and analysis. The research employed a self-reporting method, implemented through structured surveys with open-ended questions. Quantitative analysis helped identify statistical patterns and trends, while qualitative analysis provided more profound insight into the participants' individual experiences and transformations during the training. The application of thematic coding facilitated the identification of key patterns in respondents' answers, including changes in emotional state, development of technical skills, and overall perception of mindfulness practices.

2.3 Ethical Issues

All data collected during the study were processed and presented as anonymized results. The research was conducted ethically in accordance with the World Medical Association Declaration of Helsinki. The research was approved by the local ethics committee of Xinzhou Normal University (Protocol No. 55, dated March 22, 2023). All participants provided voluntary consent to participate in the study and received comprehensive information about the study's objectives, methods, and potential risks. Consequently, all participants had a clear understanding of the nature and purpose of the research, as well as their rights as participants. They were also informed of their right to withdraw from the study at any time without any negative consequences.

3. Results

The results of the experiment demonstrate a significant positive impact of mindfulness techniques on the development of vocal and technical skills among student-musicians, as evidenced by the comprehensive statistical analysis presented in Table 2. The experimental group consistently outperformed the control group on all measured parameters, with particularly noticeable improvements in pitch accuracy (8.5 ± 0.7 vs. 7.2 ± 0.9) and overall technical proficiency (8.6 ± 0.5 vs. 7.4 ± 0.8). Students practicing mindfulness showed better breath control (8.7 ± 0.6 vs. 7.6 ± 0.8), which aligns with the focus of mindfulness on awareness and regulation of breathing. Additionally, there was a substantial improvement in timbre quality (8.3 ± 0.5 vs. 7.5 ± 0.7) and articulation (8.9 ± 0.4 vs. 8.1 ± 0.6), with all differences demonstrating strong statistical significance ($p < 0.05$).

Table 2 - The Impact of Mindfulness Techniques on the Development of Vocal Skills and Technical Proficiency of Music Students

Evaluation Parameter	Experimental group	Control group	t-statistic	p-value
Pitch Accuracy (1-10 points)	8.5 ± 0.7	7.2 ± 0.9	3.76	0.0003
Breath Control (1-10 points)	8.7 ± 0.6	7.6 ± 0.8	3.92	0.0001
Timbral Quality (1-10 points)	8.3 ± 0.5	7.5 ± 0.7	3.28	0.0014
Articulation (1-10 points)	8.9 ± 0.4	8.1 ± 0.6	3.85	0.0002
Overall Technical Proficiency (1-10 points)	8.6 ± 0.5	7.4 ± 0.8	4.53	0.0001

Thus, it can be asserted that the application of mindfulness techniques significantly enhances the vocal skills and technical proficiency of music students.

Table 3 - Mindfulness, Attention, and Awareness Scales (MAAS) Pre- and Post-Experiment for Both Groups

Statement	Experimental group		Control group	
	Before	After	Before	After
Unawareness of Emotions	4.2 ± 0.8	2.8 ± 0.6	4.1 ± 0.7	3.9 ± 0.8
Inattention to Actions	3.8 ± 0.7	2.5 ± 0.5	3.7 ± 0.8	3.6 ± 0.7
Difficulty Concentrating	4.5 ± 0.9	3.0 ± 0.7	4.4 ± 0.8	4.2 ± 0.9
Inattention to the Environment	4.0 ± 0.8	2.7 ± 0.6	3.9 ± 0.7	3.8 ± 0.8
Ignoring Physical Sensations	4.3 ± 0.9	2.9 ± 0.7	4.2 ± 0.8	4.0 ± 0.9
Forgetting Names	3.9 ± 0.7	2.6 ± 0.5	3.8 ± 0.8	3.7 ± 0.7
"Automatic" Functioning	4.1 ± 0.8	2.8 ± 0.6	4.0 ± 0.7	3.9 ± 0.8
Rushing through Tasks	4.4 ± 0.9	3.1 ± 0.7	4.3 ± 0.8	4.1 ± 0.9
Loss of Connection with the Present Moment	4.2 ± 0.8	2.9 ± 0.6	4.1 ± 0.7	4.0 ± 0.8
Preoccupation with the Past/ Future	4.5 ± 0.9	3.1 ± 0.7	4.4 ± 0.8	4.3 ± 0.9

The data highlight a significant impact of mindfulness techniques on reducing indicators of mindlessness, inattentiveness, and difficulty concentrating in the experimental group (Table 3). Specifically, there was a notable decrease in the following areas: emotional mindlessness (from 4.2 to 2.8), inattentiveness to actions (from 3.8 to 2.5), difficulty concentrating (from 4.5 to 3.0), inattentiveness to the environment (from 4.0 to 2.7), ignoring physical sensations (from 4.3 to 2.9), forgetting names (from 3.9 to 2.6), "automatic" functioning (from 4.1 to 2.8), hasty task execution (from 4.4 to 3.1), loss of connection with the present moment (from 4.2 to 2.9), and preoccupation with the past/future (from 4.5 to 3.1). In contrast, the control group exhibited minimal changes in these indicators, indicating a lack of significant alterations in levels of mindfulness and awareness.

Table 4 - Kenny Music Performance Anxiety Inventory (K-MPAI)

Statement	Experimental group		Control group	
	Before	After	Before	After
Dryness in the mouth, throat tension	4.2 ± 0.8	2.6 ± 0.7	4.1 ± 0.9	3.9 ± 0.8
Doubts about career success	3.8 ± 1.0	2.3 ± 0.8	3.7 ± 1.1	3.5 ± 1.0
Impact of failure on confidence	4.5 ± 0.7	2.8 ± 0.6	4.4 ± 0.8	4.2 ± 0.7
Muscle tension during performance	4.3 ± 0.9	2.7 ± 0.7	4.2 ± 0.9	4.0 ± 0.8
Anxiety after performance	4.1 ± 0.8	2.5 ± 0.6	4.0 ± 0.9	3.8 ± 0.8
Effect of anxiety on concentration	4.4 ± 0.7	2.9 ± 0.6	4.3 ± 0.8	4.1 ± 0.7
Errors despite preparation	3.9 ± 1.0	2.4 ± 0.8	3.8 ± 1.1	3.6 ± 1.0
Lack of relaxation during performance	4.6 ± 0.8	3.0 ± 0.7	4.5 ± 0.9	4.3 ± 0.8
Fear of negative audience reactions	4.2 ± 0.9	2.6 ± 0.7	4.1 ± 1.0	3.9 ± 0.9
Stage fright	4.0 ± 1.1	2.5 ± 0.9	3.9 ± 1.2	3.7 ± 1.1

According to the comparison, the experimental group exhibited a reduction in the mean scores for all anxiety indicators: dryness of the mouth and throat tension (from 4.2 to 2.6), doubts about career success (from 3.8 to 2.3), impact of failure on confidence (from 4.5 to 2.8), muscle tension during performance (from 4.3 to 2.7), anxiety after performance (from 4.1 to 2.5), effect of anxiety on concentration (from 4.4 to 2.9), mistakes despite preparation (from 3.9 to 2.4), lack of relaxation during performance (from 4.6 to 3.0), fear of adverse audience reaction (from 4.2 to 2.6), and panic before going on stage (from 4.0 to 2.5) (Table 4). In contrast, the control group, which did not employ mindfulness techniques, exhibited only minor changes. These results confirm that mindfulness techniques effectively reduce performance anxiety, which can significantly enhance the psychological state of student musicians, thereby improving their confidence and performance quality on stage.

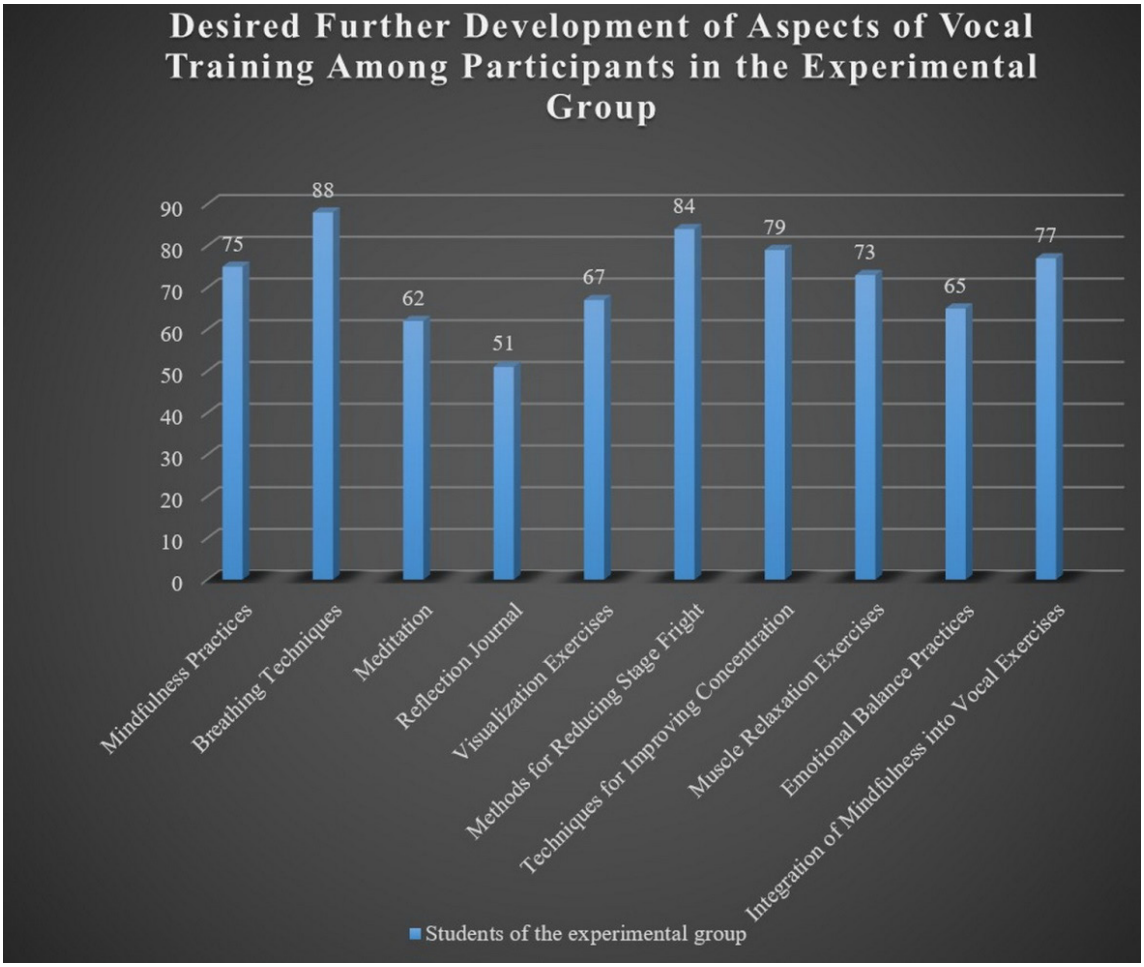
The comments provided below were collected from participants in the experimental group after the study was completed. The feedback reflects qualitative data, capturing personal experiences, impressions, and insights regarding the advantages and limitations of the intervention.

Respondent A: "The techniques employed in the experiment significantly improved my concentration skills during performances, reduced my level of anxiety, and allowed me to showcase my vocal abilities better. However, achieving these results required dedicating additional time to exercises and meditation. Initially, I did not fully understand how some of these techniques were related to vocal performance and how they could enhance singing. Still, after observing the effects, I plan to continue using these practices in the future."

Respondent B: "From the very beginning, I noticed an improvement in breath control, as I experienced emotional calm during performances. The reflective journaling technique helped me identify areas for further development and track my progress. A drawback I observed was my tendency towards self-criticism, which stemmed from excessive analysis of my vocal performance. There were times when I felt that I was overanalyzing my singing, which sometimes led to excessive self-criticism. Nonetheless, this experience has been truly valuable for both my professional and personal growth."

Respondent C: "On one hand, I experienced a reduction in stage fright, decreased anxiety, and improved ability to recover from unsuccessful performances. Additionally, the deep breathing and visualization techniques helped me manage my voice in stressful situations. However, I frequently felt exhausted due to my inability to relax during meditation, as I constantly thought that this time could have been used for additional vocal exercises."

Figure 1 - Desired Further Development of Aspects of Vocal Training among Participants in the Experimental Group



Students participating in the survey had the option to select multiple methods and practices that interested them the most. The number of students choosing each proposed aspect was counted, and these data were used to create a graph illustrating the distribution of popularity among different techniques and approaches. High ratings across all aspects indicate the success of the experimental program and its potential for further integration into vocal education (Fig. 1). Breathing techniques (N = 88) and methods for reducing stage fright (N = 84) were the most popular, reflecting their high practical value for performers. Significant interest in mindfulness practices (N = 75) and the integration of mindfulness into vocal exercises (N = 77) suggests a positive reception of this innovative approach. A somewhat smaller number

of students plan to continue maintaining a reflection journal (N = 51), which may indicate a need for additional motivation or clarification regarding the importance of this practice.

4. Discussion

Our study, which involved the development of a mindfulness techniques program, demonstrated significant improvements across all parameters of vocal performance, including intonation accuracy, breath control, timbral quality, and articulation. Additionally, a substantial reduction in performance anxiety and a high level of student interest in the continued application of the learned techniques were observed. We focused on a detailed examination of subjective assessments of vocal proficiency, utilizing quantitative methods to analyze self-evaluations of specific performance parameters. Despite these positive results, it is essential to consider the study by Ornoy and Cohen (2022), which examined the effect of short-term mindfulness meditation on vocal performance quality. Although their study did not reveal statistically significant effects, it noted specific trends toward improvement in key vocal parameters. These observations were further developed in the work of Czajkowski (2018), who extended the study's time frame to 8 weeks, examining the effects of mindfulness practices on conservatory and university students. This evolution of research from short-term to longer programs allows for a better understanding of the dynamics of mindfulness practices' influence on vocal performance. It helps to determine the optimal duration of their application. This study revealed increased performance satisfaction. Our results, in conjunction with these findings, indicate improvements in the technical aspects of performance and a reduction in anxiety. However, our focus was specifically on vocal performance, utilizing more detailed quantitative methods to assess specific parameters such as intonation accuracy and breath control. According to the self-reports, participants noted an increase in satisfaction with their work and a subjective improvement in the technical aspects of their performance. Specifically, respondents

reported a sense of enhanced breath control, pitch accuracy, and a reduction in performance anxiety. It is important to emphasize that these conclusions are based on the personal impressions of the participants, rather than on objective measurements.

The similarity lies in confirming the effectiveness of integrating mindfulness practices into music education, albeit with different emphases. Czajkowski et al. (2021) dedicated themselves to analyzing the impact of mindfulness, which showed increased awareness, improved concentration, enhanced vocal technique, reduced performance anxiety, and increased performance satisfaction. However, our research employed more detailed quantitative methods to evaluate intonation accuracy, breath control, and timbral quality. At the same time, the latter study focused more on qualitative aspects and perceptions of changes by instructors.

Bartos et al. (2022) investigated the effectiveness of a 25-week CRAFT program, which incorporates mindfulness, yoga, and positive psychology, for conservatory students in Spain. The results indicated significant improvements in mindfulness, psychological well-being, emotional regulation, and physical flexibility among participants. However, our research, conducted over a shorter period, demonstrated more detailed quantitative measures of improvement in vocal skills. A subsequent study assessed the level of mindfulness among 120 vocal students in Turkey using the MAAS scale. Results revealed an average level of mindfulness ($\bar{X}$ = 3.90) among participants, with some variations based on demographic factors (Kar, 2023). In contrast, our research involved an active intervention through a mindfulness practice program, while the Turkish study was more descriptive.

A key topic was the investigation into the impact of breathing techniques and modern technologies on vocal performance quality (Wang, 2024). The results showed that body coordination and mixed breathing significantly affected the naturalness of sound. Students who trained using the proposed methodology demonstrated higher performance effectiveness. All studies

demonstrated a positive impact of targeted practices on vocal performance quality, albeit with different methodologies and assessment tools. Additionally, results from another study exploring the effect of meditation on music performance anxiety (MPA) revealed that 48% of participants practiced meditation, and those who meditated at least weekly reported lower levels of MPA (Diaz, 2018). Higher levels of mindfulness were correlated with lower anxiety, while higher perfectionism was associated with higher MPA. Both studies highlighted the potential of mindfulness practices in improving musicians' performance skills, though they focused on different aspects.

Thus, the results of the participants' self-reports confirmed the increase in performance satisfaction, indicating the program's success. Comparison with previous studies shows that although other works have also confirmed the positive effects of mindfulness practices, our approach, focusing on more detailed quantitative methods, allows for a deeper assessment of the technical aspects of vocal performance.

4.1 Research Limitations

The sample of students may not have been fully representative of all music specializations and proficiency levels. Additionally, the study was limited in its ability to observe the long-term effects of the program due to the short duration of the experiment (two months). Moreover, it is essential to note that the psychological state and self-assessment of vocal skills were evaluated subjectively, which may have influenced the interpretation of the results due to the participants' personal biases.

5. Conclusions

The study's results reveal a significant impact of integrating mindfulness practices into vocal education on the development of professional vocal skills and the psychological well-being of student musicians. The data indicate a substantial improvement

in key aspects of vocal performance, including pitch accuracy, breath control, timbral quality, and articulation. Additionally, there was a marked reduction in stage fright, while concentration levels increased, enhancing performance quality. Specifically, improvements were noted in pitch accuracy (from 7.2 to 8.5 points), breath control (from 7.6 to 8.7 points), timbral quality (from 7.5 to 8.3 points), and articulation (from 8.1 to 8.9 points). Concurrently, stage fright decreased (from 4.0 to 2.5 on the Kenny anxiety scale), and concentration improved (difficulty focusing decreased from 4.5 to 3.0). Participants' open-ended responses indicated a strong desire and motivation to continue using the techniques due to their effectiveness and practical value. The participants' open-ended responses indicated their intention to continue using mindfulness techniques, highlighting their effectiveness and practical value. Many participants expressed the opinion that these techniques were beneficial for managing stress, improving concentration, and improving overall vocal technique.

5.1 Limitations and Implications for Future Investigation

Based on these results, there is potential for developing innovative programs that integrate such techniques into broader music education. Future research could focus on the long-term effects of mindfulness practices and explore their potential application with musicians of various skill levels and age groups.

References

BARTOS, L. J.; FUNES, M. J.; OUELLET, M.; POSADAS, M. P.; IMMINK, M. A.; KRÄGELOH, C. A feasibility study of a program integrating mindfulness, yoga, positive psychology, and emotional intelligence in tertiary-level student musicians. **Mindfulness**, v. 13, n. 10, p. 2507-2528, 2022. doi:10.1007/s12671-022-01976-7

BECKER, D. R.; SHELLY, S.; KAVALIERATOS, D.; MAIRA, C.; GILLESPIE, A. I. Immediate effects of mindfulness meditation on the voice. **Journal of Voice,** v. 39, n. 3, p. 718-727, 2025. doi:10.1016/j.jvoice.2022.10.022

BLACKHURST, L. E. **Exploring the whole singing self with technique, contemplative education, and mindfulness.** Thesis. Columbia University, 2021.

CHAN, V. L. **Mindful singing: Exploring mindfulness and self-regulation in classical singing.** Thesis. York University, 2020.

CHUI, P. L. Mindful breathing: Effects of a five-minute practice on perceived stress and mindfulness among patients with cancer. **Clinical Journal of Oncology Nursing**, v. 25, n. 2, p. 174-180, 2021. doi:10.1188/21.CJON.174-180

CZAJKOWSKI, A. M. L.; GREASLEY, A. E.; ALLIS, M. Mindfulness for singers: A mixed methods replication study. **Music & Science**, v. 4, p. 1-16, 2021. doi:10.1177/20592043211044816

CZAJKOWSKI, A. M. L. **Mindfulness for musicians: The effects of teaching 8-week mindfulness courses to student musicians in higher education**. Unpublished doctoral dissertation. University of Leeds, 2018.

DE JULIÁN, M. P. P.; PÉREZ, L. J. B. Mindfulness, yoga, and emotional intelligence for music and language education: The CRAFT program. **The International Journal of Arts Education**, v. 16, n. 2, p. 13-43, 2022. doi:10.18848/2326-9944/CGP/v16i02/13-43

DIAZ, F. M. Relationships among meditation, perfectionism, mindfulness, and performance anxiety among collegiate music students. **Journal of Research in Music Education**, v. 66, n. 2, p. 150-167, 2018. doi:10.1177/0022429418765447

ELDER, H. H. **Be Still: A pedagogical analysis of mindfulness-based practices in vocal music education**. Thesis. Liberty University, 2020.

HOLM, M.; ISLAM, G. Peace of our mind: Managerial interventions and the search for collective mindfulness. **Academy of Management Learning & Education**, v. 23, n. 1, p. 128-157, 2024. doi:10.5465/amle.2022.0076

JIA, Y. Analyzing the health and cognitive benefits of bel canto singing technique in music performance through biocognitive science. **Journal of Commercial Biotechnology**, v. 29, n. 1, Art. no. 279, 2024. doi:10.5912/jcb1967

KANG, S. An exploratory study of music teachers' flow experiences between performing and teaching music. **Journal of Research in Music Education**, v. 70, n. 4, p. 407-424, 2023. doi:10.1177/00224294221099833

KAR, T. Determining of the voice training students' mindfulness levels. **Journal for the Interdisciplinary Art and Education**, v. 4, n. 4, p. 163-174, 2023.

LEIPER, T. Healthy and efficient voice use awareness in amateur group singers: a multi-sensory self-assessment protocol trial. **Voice and Speech Review**, v. 18, n. 2, p. 181-198, 2024. doi:10.1080/23268263.2024.2349979

LÜCKING, C.; CLAßEN, K. Influences of preventive voice training on the vocal, mental health, and voice-related self-concept of University Teachers and Academic Advisers: A pilot study. **Journal of Voice**, 2023, in press. doi:10.1016/j.jvoice.2023.12.003

MEHTA, N. N.; TALWAR, G. Recognizing roots and not just leaves: the use of integrative mindfulness in education, research, and practice. **Psychology from the Margins**, v. 4, n. 1, Art. no. 6, 2022.

MORRIS, Z. D. **A singer's stress: yoga and meditation techniques in the collegiate voice studio**. Thesis. University of Kentucky, 2019.

MUTHUSWAMY, V. V. Music teacher mental health and job performance: Role of voice fatigue and vocal performance. **Educational Sciences: Theory & Practice**, v. 24, n. 1, p. 1-14, 2024. doi:10.12738/jestp.2024.1.001

ORNOY, E.; COHEN, S. The effect of mindfulness meditation on the vocal proficiencies of music education students. **Psychology of Music**, v. 50, n. 5, p. 1676-1695, 2022. doi:10.1177/03057356211062262

PANDITHARATHNE, P. N. K. W.; CHEN, Z. An integrative review on the research progress of mindfulness and its implications at the workplace. **Sustainability**, v. 13, n. 24, Art. no. 13852, 2021. doi:10.3390/su132413852

STEENSTRUP, K.; HAUMANN, N. T.; KLEBER, B.; CAMARASA, C.; VUUST, P.; PETERSEN, B. Imagine, sing, play-combined mental, vocal and physical practice improves musical performance. **Frontiers in Psychology**, v. 12, Art. no. 757052, 2021. doi:10.3389/fpsyg.2021.757052

TAN, D.; DIAZ, F. M.; MIKSZA, P. Expressing emotion through vocal performance: Acoustic cues and the effects of a mindfulness induction. **Psychology of Music**, v. 48, n. 4, p. 495-512, 2020. doi:10.1177/0305735618809873

URCOLA-PARDO, F. Incorporating mindfulness practice for better performance in work and daily life. In: Rezaei, N. (Eds.). **Brain, decision making and mental health.** Cham: Springer, 2023. p. 317-345. doi:10.1007/978-3-031-15959-6_16

VARNER, E. Mindfulness access points in general music: Singing, breathing, and self-awareness. **Journal of General Music Education**, v. 35, n. 2, p. 43-46, 2022. doi:10.1177/27527646211060294

WANG, R. The Influence of Mental State on Vocal Music Learning. In **Proceedings of the 2018 1st International Conference on Internet and e-Business.** New York: ACM, 2018. p. 375-377. doi:10.1145/3230348.3230440

WANG, Y. The effectiveness of innovative technologies to manage vocal training: The knowledge of breathing physiology and conscious control in singing. **Education and Information Technologies**, v. 29, n. 6, p. 7303-7319, 2024. doi:10.1007/s10639-023-12108-6

XIE, L. Flow in work teams: the role of emotional regulation, voice, and team mindfulness. **Current Psychology**, v. 41, n. 11, p. 7867-7877, 2022. doi:10.1007/s12144-020-01179-0

YANG, Y. Fuzzy control algorithm for analyzing the effects of vocal music on college students' social and emotional learning. **Journal of Intelligent & Fuzzy Systems**, v. 47, n. 5-6, p. 949-964, 2024. doi:10.3233/JIFS-233922

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Research ethics committee approval

The research was conducted ethically in accordance with the World Medical Association Declaration of Helsinki. The research was approved by the local ethics committees of Xinzhou Normal University (Protocol No. 55 of March 22, 2023). All participants gave written informed consent to participate in the research.

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APPENDICES

Appendix A: "Scale for Assessing Mindfulness, Attention, and Awareness"

Rating (1-6)

1. I can experience an emotion without being aware of it until I pay attention to it later during singing.

2. I break things or spill water due to inattention or thinking about something else while preparing for a performance.

3. I find it difficult to stay focused on what is happening in the present moment during rehearsal or performance.

4. I tend to walk quickly to my destination without paying attention to what I am experiencing on the way to my vocal lessons.

5. I tend to not notice physical tension or discomfort until it really draws my attention during singing.

6. I forget someone's name almost immediately after they tell me for the first time at musical events.

7. It seems like I "function automatically," not really being aware of what I am doing during vocal exercises.

8. I hastily complete musical tasks without being truly attentive to them.

9. I become so focused on the goal I want to achieve that I lose connection with what I am doing right now to achieve it in musical practice.

10. I perform tasks or work automatically without being aware of what I am doing, even during important musical projectsI catch myself listening to someone with one ear while doing something else at the same time during music classes or rehearsals.

11. I drive on "autopilot" and then wonder how I ended up where I was going, even on the way to an important musical performance.

12. I catch myself being preoccupied with the future or the past instead of focusing on the current musical task.

13. I catch myself doing things without paying attention to them while preparing for a performance.

Appendix B: "Kenny's Performance Anxiety Scale" (K-MPAI)

Rating (1-6)

1. Before or during a performance, I feel dryness in my mouth and tension in my throat.

2. I often feel that I have no prospects for a successful musical career.

3. One bad performance can destroy my confidence for a long time.

4. During a performance, I often feel that my muscles are tense.

5. After finishing a performance, I continue to worry about how it went.

6. My performance anxiety often prevents me from fully concentrating.

7. Even when I prepare thoroughly for a performance, I often make mistakes.

8. I rarely feel relaxed during performances.

9. I often worry about the audience's negative reaction.

10. Sometimes I feel panic before going on stage.

Appendix C: "Post-Experiment Survey for Students"

1. Please describe your overall learning experience during the past semester. Which aspects were most significant for you?

2. How has your musical practice changed during this period? Please provide specific examples.

3. Have you noticed any changes in your emotional state or stress levels related to musical performances? If so, please describe these changes.

4. Which methods or practices you learned this semester have been most beneficial for you? Why?

5. How has your attitude towards music education and your future career changed during this period?

6. What are your plans for further musical development?

7. How do you assess the impact of this experience on your future professional career?

8. Which aspects of your learning do you plan to continue developing independently?

9. Which techniques and methods presented in the program do you plan to continue using in your vocal practice? (You may list several techniques and methods.)