



The Influence of Art Therapy, Growth Mindset, and Mindfulness Practices in Reducing Teacher Anxiety: A Mixed-Methods Approach

Robertus Heru Setyo Suhartono^{1*}, Yustina Sapan², Indrojiono³, Asmi Ode⁴,
Pierre Marcello Lopulalan⁵

¹Universitas Semarang, Indonesia

²PIP Semarang, Indonesia

³ASM Marsudirini Santa Maria, Yogyakarta, Indonesia

⁴Universitas Darussalam Ambon, Indonesia

⁵Politeknik Pelayaran Banten, Indonesia

Corresponding Author: Robertus Heru Setyo Suhartono,
hartonorbert6@gmail.com

ARTICLE INFO

Keywords: Art Therapy,
Growth Mindset,
Mindfulness, Teacher
Anxiety, Emotional
Regulation

Received: 27, November

Revised: 29, December

Accepted: 30, January

©2026 Suhartono, Sapan, Indrojiono,
Ode, Lopulalan: This is an open-
access article distributed under the
terms of the [Creative Commons](https://creativecommons.org/licenses/by-sa/4.0/)
[Atribusi 4.0 Internasional](https://creativecommons.org/licenses/by-sa/4.0/).



ABSTRACT

Teacher anxiety is a growing challenge in contemporary education, particularly as educators are expected to integrate mindfulness practices while managing complex emotional demands. This study examines the effects of an integrative intervention combining art therapy, growth mindset practices, and mindfulness on reducing teacher anxiety through enhanced emotional regulation. Using a mixed-methods sequential explanatory design, the findings show a significant reduction in anxiety and improved emotional regulation among participating teachers, with emotional regulation identified as a key mediating mechanism. The results highlight the value of integrating creative, cognitive, and self-awareness-based approaches as an evidence-based strategy for strengthening teachers' emotional well-being in mindfulness-oriented classroom contexts.

INTRODUCTION

Teachers' emotional well-being constitutes a fundamental foundation for maintaining the quality of the learning process, as it is closely associated with educators' capacity to manage occupational pressure, sustain emotional stability, and create safe and supportive learning environments for students. A growing body of international research demonstrates that teachers across diverse educational contexts experience elevated levels of anxiety and work-related stress stemming from increasing administrative workloads, pedagogical demands, and complex social-emotional dynamics within the classroom (Boison & Burke, 2025). An international literature review by Ma et al. (2022), reported that the prevalence of anxiety symptoms among teachers ranges from approximately 10% to nearly 70%, with median estimates between 26% and 39% during the 2020–2022 period. These findings suggest that a substantial proportion of educators experience clinically relevant anxiety in their professional practice. Such conditions have been consistently linked to diminished teaching effectiveness, reduced social-emotional responsiveness to students, and an increased risk of burnout (Zhang et al., 2023). Collectively, this evidence underscores the urgent need for systematic, evidence-based interventions that support teachers' mental health, particularly by strengthening emotional regulation capacities.

One approach increasingly emphasized in contemporary educational psychology is the integration of mindfulness into learning and teaching activities. Mindfulness practices have been shown to enhance emotional regulation, reduce psychological stress, and improve attentional control, enabling teachers to respond more adaptively to classroom challenges (Carroll et al., 2022). Despite robust empirical support, mindfulness-based research has predominantly focused on student populations, with comparatively limited attention given to teachers as primary intervention recipients. Moreover, mindfulness interventions are often examined as standalone approaches, with insufficient investigation into how their effectiveness may be enhanced through integration with creative therapeutic modalities. Combining mindfulness with creative approaches, such as art therapy, may enable teachers to engage more deeply with their internal emotional experiences through visual, symbolic, and reflective processes, thereby strengthening emotional awareness and regulation.

Within the domain of creative therapies, art therapy has been widely recognized as an effective strategy for reducing anxiety and enhancing emotional well-being through visual creation processes that facilitate emotional expression and regulation (Kaimal et al., 2022). Empirical evidence indicates that engagement in art-based activities can significantly reduce cortisol levels and promote emotional calm, reflecting improved physiological stress regulation (Barnett & Vasiu, 2024). Similarly, Cheshure et al., (2023) demonstrated that art therapy contributes to anxiety reduction across diverse populations through mechanisms of relaxation and attentional shifting. These findings provide a strong empirical foundation for integrating art therapy into teacher well-being interventions. However, despite its demonstrated effectiveness, empirical research examining art therapy as a structured, school-based intervention specifically designed for

teachers within everyday pedagogical contexts remains limited in the international literature.

Beyond affective and creative approaches, cognitive factors – particularly growth mindset play a critical role in shaping teachers' emotional responses to professional challenges. Teachers who endorse a growth mindset are more capable of coping with difficulties, accepting feedback constructively, and reframing mistakes as opportunities for learning, which in turn reduces anxiety in complex classroom situations (Boonma, 2025). Previous studies have shown that growth mindset-based interventions enhance psychological resilience and emotional regulation among educators (Namaziandost et al., 2025). Nevertheless, growth mindset is typically examined in isolation, and research explicitly integrating growth mindset practices within mindfulness-based or creative intervention frameworks for teachers remains scarce, particularly in addressing the emotional pressures of daily teaching practice.

Although mindfulness, art therapy, and growth mindset interventions have each independently demonstrated positive effects on mental health, studies that systematically integrate all three approaches to reduce teacher anxiety are rarely found in existing research. This lack of integration represents a significant gap, as the combination of present-moment awareness, creative emotional expression, and adaptive cognitive appraisal holds strong potential to generate synergistic effects on emotional regulation. Furthermore, much of the existing literature prioritizes intervention outcomes without sufficiently examining the psychological mechanisms through which anxiety reduction occurs. Emotional regulation, despite being widely recognized as a central determinant of teacher well-being, is often treated as an outcome variable rather than as a mediating psychological process that explains how interventions exert their effects (Wang et al., 2023).

Another critical limitation in current research is the continued prioritization of student populations over teachers as the primary targets of mental health interventions. Despite teachers' central role in shaping classroom climate, instructional quality, and students' socio-emotional development, they frequently lack access to structured and empirically validated well-being programs (Li & Ruppert, 2021). Given the substantial influence of teacher anxiety on classroom interaction quality, emotional learning environments, and student academic outcomes, addressing teacher anxiety is not only psychologically imperative but also pedagogically essential.

In response to these gaps, the present study examines the combined effects of art therapy and growth mindset practices on reducing teachers' anxiety through emotional regulation within mindfulness-integrated classroom activities. By proposing and empirically testing a comprehensive, mechanism-driven intervention model that integrates creative, cognitive, and self-awareness-based approaches, this study addresses a critical gap in the international literature. Theoretically, it advances understanding of the psychological mechanisms underlying teachers' emotional well-being by positioning emotional regulation as a central mediating process. Practically, it offers an evidence-based intervention framework that can be implemented by

schools, teacher education institutions, and policymakers to promote sustainable, emotionally supportive educational environments.

Novelty and Contribution of the Study

Aligned with the theoretical and empirical orientation of Educational Psychology, the novelty of the present study lies in its development and empirical testing of an integrative, mechanism-oriented intervention model that addresses teacher anxiety through emotional regulation. While previous research has largely examined mindfulness, art therapy, and growth mindset as independent constructs or focused primarily on student populations, this study positions teachers as the central beneficiaries and embeds these approaches within a unified psychological framework. Importantly, emotional regulation is explicitly conceptualized and tested as a mediating mechanism linking creative emotional expression (art therapy), adaptive cognitive appraisal (growth mindset), and present-moment awareness (mindfulness) to anxiety reduction. By shifting the analytical focus from outcomes alone to underlying psychological processes, this study extends existing educational psychology research and offers a theoretically grounded and empirically supported model for understanding and promoting teacher emotional well-being in authentic instructional contexts.

Research Questions

Grounded in educational psychology and aligned with the proposed integrative intervention model, this study addresses the following research questions:

RQ1. Does an integrative intervention combining art therapy, growth mindset, and mindfulness practices significantly reduce teachers' anxiety compared to baseline levels?

RQ2. To what extent does the integrative intervention enhance teachers' emotional regulation capacities?

RQ3. What is the relationship between emotional regulation and teachers' anxiety within mindfulness-integrated classroom contexts?

RQ4. Does emotional regulation function as a mediating psychological mechanism through which the integrative intervention influences teachers' anxiety?

RQ5. How do teachers perceive and experience the combined effects of art therapy, growth mindset, and mindfulness practices on their emotional awareness and regulation in daily teaching practice?

Hypotheses

Based on existing theory and empirical evidence in educational psychology, the following hypotheses are proposed:

H1. Participation in the integrative intervention (art therapy, growth mindset, and mindfulness) will lead to a significant reduction in teachers' anxiety levels.

H2. Participation in the integrative intervention will result in a significant improvement in teachers' emotional regulation capacities.

H3. Emotional regulation will be negatively associated with teachers' anxiety, such that higher levels of emotional regulation are associated with lower levels of anxiety.

H4. Emotional regulation will mediate the relationship between the integrative intervention and teachers' anxiety, such that the intervention reduces anxiety indirectly through improvements in emotional regulation.

H5. The integrative intervention will produce stronger effects on emotional regulation and anxiety reduction than any single intervention component examined independently.

LITERATURE REVIEW

Art Therapy as a Creative Mechanism for Reducing Teachers' Anxiety

Art therapy is a creative therapeutic approach that utilizes visual art-making processes to facilitate emotional regulation, physiological relaxation, and non-verbal emotional expression. Within the high-pressure context of the teaching profession, art therapy is particularly relevant because it enables educators to externalize emotional tension through symbolic representation, color engagement, and fine motor activity, thereby reducing internalized stress responses. Rather than relying solely on cognitively demanding strategies, art-based activities offer an alternative regulatory pathway that supports emotional processing through sensory and affective channels.

Empirical evidence substantiates the effectiveness of art therapy in reducing stress-related outcomes. Varnell (2022) demonstrated that participation in structured art activities significantly lowers cortisol levels and enhances subjective feelings of calm, indicating improved physiological stress regulation. Similarly, Izidro-Johnson (2025), reported that art therapy enhances emotional clarity and self-reflective capacity among educators both of which are essential components of adaptive emotion regulation. Further supporting this mechanism. Ranczakowska & Kuznetsova-Bogdanovitsh (2025) found that sustained engagement in art-based practices promotes cognitive flexibility, enabling individuals to shift perspectives more adaptively when facing professional challenges. Collectively, these findings suggest that art therapy functions as a creative regulatory mechanism that enhances emotional awareness and adaptive coping, thereby contributing to anxiety reduction among teachers, particularly when implemented within structured, school-based interventions.

Growth Mindset Practices and Teachers' Psychological Resilience

Growth mindset, defined as the belief that abilities and competencies can be developed through sustained effort, effective strategies, and constructive feedback, plays a critical role in shaping teachers' cognitive and emotional responses to professional challenges. Educators who endorse a growth mindset are more likely to interpret classroom difficulties, pedagogical changes, and instructional setbacks as opportunities for learning rather than as threats, thereby mitigating anxiety and emotional distress.

Empirical studies consistently highlight the protective function of growth mindset in high-demand professional contexts. Murch (2023) found that growth

mindset-based interventions reduce performance-related anxiety and enhance teachers' perceived sense of control over occupational demands. Similarly, Lia (2025) demonstrated that growth mindset practices strengthen psychological resilience by improving teachers' capacity to manage pressure, process feedback constructively, and reframe obstacles in adaptive ways. McKenzie (2022) further reported that sustained engagement in growth mindset reflection exercises enhances teachers' ability to regulate negative emotions in complex classroom situations. These findings underscore the role of growth mindset in promoting cognitive reappraisal – a core dimension of emotion regulation – and support its inclusion as a cognitive mechanism within integrative intervention models targeting teacher anxiety.

Mindfulness Integration in Learning Activities and Emotional Regulation

Mindfulness refers to the practice of maintaining nonjudgmental, present-moment awareness of internal experiences and external stimuli. In educational psychology, mindfulness has increasingly been applied as a self-regulatory strategy to support teachers' emotional well-being by fostering heightened self-awareness, emotional calm, and adaptive responses to stress. Unlike reactive coping strategies, mindfulness emphasizes early recognition of emotional and physiological cues, enabling more reflective and regulated responses.

Empirical evidence indicates that mindfulness-based interventions effectively reduce occupational stress and enhance relational functioning among teachers. Fedewa et al., (2022) found that mindfulness practices significantly reduce teacher work stress while improving teacher-student relationship quality. Khanal (2025) further demonstrated that mindfulness training enhances emotional resilience, attentional control, and impulse regulation capacities that are critical for managing classroom complexity. Additionally, Roberts et al., (2022) reported that mindfulness strengthens emotion regulation through increased bodily awareness and improved cognitive reappraisal processes. Together, these findings position mindfulness as a foundational self-regulatory mechanism that complements creative and cognitive approaches within multimodal interventions aimed at reducing teacher anxiety.

Teacher Anxiety and Its Impact on Learning Quality

Teacher anxiety is a multifaceted emotional response arising from sustained occupational pressure, pedagogical complexity, and intensive social-emotional interactions in educational settings. A substantial body of research indicates that elevated anxiety among teachers undermines instructional effectiveness, emotional sensitivity toward students, and overall professional functioning. Shirzadeh & Jajarmi (2023) reported that teacher anxiety is associated with diminished attentional capacity, impaired emotional control, and reduced communication quality in classroom interactions. Similarly, Li (2023) found that teachers experiencing high anxiety demonstrate lower adaptability and reduced responsiveness to classroom challenges. Roloff et al., (2022) further linked teacher anxiety to burnout and emotional exhaustion, highlighting its long-term consequences for teacher retention and instructional quality. These findings

emphasize that teacher anxiety is not only an individual psychological concern but also a critical determinant of learning quality and classroom climate.

Emotional Regulation as a Mediating Mechanism in Educational Psychology Interventions

Emotion regulation refers to individuals' capacity to monitor, evaluate, and modify emotional responses in ways that support adaptive functioning across contexts. Within the teaching profession, emotion regulation is particularly critical due to continuous interpersonal engagement and sustained emotional demands. Aldrup et al., (2024) found that teachers with stronger emotion regulation skills report lower anxiety levels and demonstrate more stable instructional performance. Scafuto et al., (2024) further identified emotion regulation as a key mediating mechanism linking psychological interventions to improved well-being outcomes.

Supporting a multimodal perspective, Hoge et al., (2021) demonstrated that creativity-based, cognitive-reflective, and mindfulness-oriented interventions each contribute to enhanced emotion regulation capacity. Building on this evidence, the present study conceptualizes emotional regulation as the central psychological mechanism through which art therapy, growth mindset, and mindfulness practices are integrated to explain reductions in teacher anxiety. By explicitly positioning emotion regulation as a mediating process rather than merely an outcome variable, this study aligns with contemporary educational psychology research that emphasizes mechanism-based intervention models and advances a more nuanced understanding of how complex interventions support teacher well-being.

METHODOLOGY

Research Design

This study employed a mixed-methods sequential explanatory design, in which quantitative data were collected and analyzed prior to qualitative inquiry to provide deeper interpretation of the quantitative results (Nagpal et al., 2021). The quantitative phase utilized a quasi-experimental pretest-posttest control group design to examine the effects of an integrative intervention combining art therapy, growth mindset, and mindfulness practices on teachers' anxiety and emotional regulation. This design is consistent with methodological recommendations in educational intervention research that emphasize the use of comparative control to strengthen internal validity and causal inference (Saharan et al., 2024).

The qualitative phase adopted Interpretative Phenomenological Analysis (IPA) to explore teachers' lived experiences, reflections, and meaning-making processes following participation in the intervention (Robinson & Williams, 2024). Integration of quantitative and qualitative findings was undertaken to elucidate both the effectiveness of the intervention and the psychological mechanisms underlying observed changes.

Participants and Sampling

The study population consisted of elementary school teachers in the Semarang region who were exposed to high occupational demands and actively engaged in implementing the current national curriculum. A total of 40 teachers were recruited using purposive sampling based on the following inclusion criteria: (a) a minimum of two years of teaching experience, (b) willingness to participate in all intervention sessions, and (c) absence of ongoing psychological or counseling therapy. Purposive sampling was employed to ensure alignment between participants' professional characteristics and the objectives of the intervention, in accordance with recommendations for educational intervention research (Ahmad & Wilkins, 2025).

Participants were assigned to an experimental group (n = 20) and a control group (n = 20) to facilitate objective comparison of pretest–posttest changes. For the qualitative phase, six teachers from the experimental group were selected using criterion-based sampling, specifically those demonstrating substantial changes in anxiety and emotional regulation scores. This sampling strategy aligns with established IPA guidelines emphasizing the selection of information-rich cases (Smith et al., 2021).

Intervention Procedure

The intervention was implemented over a six-week period, comprising two sessions per week, with each session lasting approximately 60–75 minutes. Intervention components were delivered in an integrated and sequential manner, combining art therapy, growth mindset practices, and mindfulness activities within each session. Each session consisted of three structured modules designed to target complementary aspects of emotional regulation.

The art therapy module (20–25 minutes) included expressive drawing, mandala coloring, and visual journaling, which have been empirically shown to reduce emotional distress through symbolic externalization and sensorimotor engagement (Wu, 2025). The growth mindset module (15–20 minutes) involved reflective exercises based on developmental statements and cognitive reframing strategies, consistent with evidence supporting growth mindset interventions in reducing occupational stress and enhancing adaptive appraisal (Crum et al., 2023). The mindfulness module (20–30 minutes) incorporated breathing exercises, body scans, grounding techniques, and guided application of mindfulness in classroom contexts, as recommended in research on mindfulness-based interventions for teachers (Song et al., 2021).

All sessions were facilitated by trained researchers with professional expertise in art therapy and mindfulness education. Intervention fidelity was maintained through the use of structured session protocols and ongoing monitoring throughout the implementation period.

Research Instruments

The study employed internationally validated instruments that had undergone cultural adaptation and psychometric evaluation to ensure measurement accuracy. Teachers' anxiety was assessed using the Teacher Anxiety Scale (TAS), administered on a five-point Likert scale and widely applied

in occupational and educational psychology research (Arik & Bozdoğan, 2022). Emotional regulation was measured using the Emotion Regulation Questionnaire (ERQ), which assesses two theoretically grounded dimensions – cognitive reappraisal and expressive suppression – that are directly aligned with the regulatory processes targeted by the intervention (Preece et al., 2023).

To support process evaluation, structured observation checklists were employed to monitor consistency and fidelity of intervention implementation across sessions. In addition, semi-structured phenomenological interview guides were developed to explore participants' emotional experiences, perceived changes, and contextual challenges during the intervention. The use of multiple and complementary instruments is consistent with best practices in multimodal intervention research in educational psychology (Taylor et al., 2025).

Data Collection Procedures

Quantitative data were collected using a pretest administered one week prior to intervention onset and a posttest administered one week following intervention completion. All survey instruments were administered digitally to enhance response reliability, minimize administrative bias, and improve data management efficiency, in line with contemporary educational survey practices (Rosli et al., 2021).

Qualitative data were collected through in-depth semi-structured interviews conducted after the completion of the intervention. Each interview lasted approximately 45–60 minutes and was audio-recorded with participants' informed consent to ensure accurate and comprehensive capture of participants' narratives (Zhang, 2024).

Data Analysis

Quantitative analyses were conducted using SPSS and AMOS. Preliminary analyses included tests of normality and homogeneity to verify statistical assumptions. Paired-samples t-tests were used to examine within-group pretest–posttest changes, while independent-samples t-tests were conducted to compare post-intervention outcomes between the experimental and control groups. Effect sizes were calculated using Cohen's *d* to estimate the magnitude of intervention effects, as recommended in experimental educational research (Schuetze & Yan, 2023).

To align with the mechanism-driven focus of the study, a mediation analysis was performed to examine emotional regulation as a mediating variable in the relationship between the integrative intervention and teachers' anxiety. This analysis provided empirical evidence regarding the psychological process underlying anxiety reduction.

Qualitative data were analyzed using Interpretative Phenomenological Analysis (IPA), following a systematic and iterative process that included repeated transcript reading, initial coding, theme development, and synthesis of superordinate themes. This analytical procedure aligns with contemporary qualitative standards in educational psychology research (Nigbur & Chatfield, 2025).

Data Validity and Ethical Considerations

Data validity was ensured through methodological triangulation, source triangulation, and the maintenance of audit trails, alongside the use of standardized and psychometrically sound instruments. Qualitative rigor was further enhanced through member checking and peer debriefing, consistent with established criteria for qualitative trustworthiness (Motulsky, 2021).

Ethical principles of educational research were strictly observed throughout the study. These included participant confidentiality, anonymity, and voluntary participation. All participants provided written informed consent and agreed to the use of anonymized data for academic publication, in accordance with international ethical standards for educational research (Alhabsi, 2024).

RESEARCH RESULTS

Reducing Teachers' Anxiety through Creative Expression in Art Therapy

Quantitative analysis revealed a statistically significant reduction in anxiety among teachers in the experimental group following the six-week intervention, whereas no significant change was observed in the control group. As shown in Table 1, the experimental group demonstrated a substantial mean decrease of 1.16 points in anxiety scores ($p < .001$), indicating a strong intervention effect. In contrast, the control group exhibited only a marginal and non-significant reduction. This pattern suggests that the observed decrease in anxiety is attributable to the intervention rather than to natural variation over time, supporting H1.

Table 1. Comparison of Anxiety Scores (Pre-Post-Test)

Groups	N	Pra Tes (Average $\pm$ SD)	Post-Test (Average $\pm$ SD)	Average Difference	t	p
Eksperimen	20	3.82 $\pm$ 0.41	2.66 $\pm$ 0.39	-1.16	-8.42	< 0.001
Controls	20	3.79 $\pm$ 0.37	3.58 $\pm$ 0.40	-0.21	-1.44	0.162

These findings are consistent with prior research demonstrating that creative expression facilitates emotional externalization and physiological calming (Varnell, 2022). From an educational psychology perspective, art therapy appears to provide a non-verbal regulatory pathway that reduces cognitive overload and supports emotional relief without requiring effortful cognitive control.

Qualitative findings further clarify the psychological processes underlying anxiety reduction. Teachers described art-based activities—such as expressive drawing, mandala coloring, and visual journaling—as producing a subjective sense of emotional deceleration, characterized by reduced mental clutter and increased sensory focus. As one participant noted, “When drawing, my mind feels like it belongs to me again, not as crowded as usual” (G-01). Another explained, “Mandala coloring makes me focus on colors instead of my anxiety” (G-03).

These accounts suggest that art therapy functions as a creative emotion regulation mechanism, enabling teachers to disengage temporarily from anxiety-provoking cognitions and access a calmer emotional state. Although individual responses varied in intensity, the overall pattern reinforces art therapy as an effective creative pathway for reducing teacher anxiety.

Improving Emotional Regulation through Growth Mindset Training

Growth mindset training produced a significant improvement in teachers' cognitive reappraisal abilities, a core component of emotional regulation. As presented in Table 2, the experimental group demonstrated a statistically significant increase in cognitive reappraisal scores ($p < .001$), whereas the control group showed no meaningful change. This finding supports H2 and aligns with educational psychology research identifying growth mindset as a facilitator of adaptive cognitive appraisal and psychological resilience (Murch, 2023).

Table 2. Differences in Cognitive Reappraisal Scores

Groups	Pre-Test	Post-Tests	Differences	t	p
Experiments (n=20)	4.12	5.01	+0.89	6.17	< 0.001
Control (n=20)	4.09	4.23	+0.14	1.09	0.285

The magnitude of improvement – nearly one point – indicates enhanced cognitive flexibility and a greater capacity to reinterpret stressful teaching situations in adaptive ways. Qualitative data corroborate this interpretation. Teachers reported shifts in how they perceived mistakes, classroom disruptions, and professional challenges. One participant stated, *"Before, when I made a mistake, I panicked. Now I remind myself that this is part of learning"* (G-02), while another reflected, *"Reframing helps me not blame myself too much when the class is chaotic"* (G-04). These reflections indicate that growth mindset practices supported more adaptive emotional appraisals, thereby strengthening emotion regulation.

However, several teachers noted that mindset change required sustained effort, particularly among those accustomed to perfectionistic standards. This suggests that cognitive-based interventions may involve a longer adjustment period, yet they offer durable benefits for emotional regulation once internalized.

Strengthening Emotional Awareness through Mindfulness-Based Classroom Practices

Mindfulness practices significantly reduced teachers' reliance on expressive suppression, indicating improved emotional awareness and acceptance. As shown in Table 3, the experimental group experienced a statistically significant decline in expressive suppression scores ($p < .001$), while no significant change was observed in the control group. This finding further supports H2 and aligns with previous evidence that mindfulness enhances emotional awareness and impulse regulation (Roberts et al., 2022).

Table 3. Skor Expressive Suppression

Groups	Pre-Test	Post-Tests	Differences	t	p
Experiments (n=20)	3.44	2.71	-0.73	-5.22	< 0.001
Control (n=20)	3.41	3.33	-0.08	-0.66	0.517

Qualitative accounts illustrate how mindfulness facilitated early recognition of emotional and physiological stress cues. Teachers described pausing, breathing, and grounding before reacting emotionally. One participant explained, *“Now I take a deep breath before reacting when I feel angry”* (G-03), while another noted, *“Mindfulness makes me more aware of my body – when I’m tense and when I’m about to panic”* (G-01). These narratives suggest that mindfulness supported proactive emotion regulation by interrupting automatic emotional reactions. Although some teachers emphasized physical relaxation benefits and others highlighted emotional control, mindfulness consistently functioned as a foundational self-regulatory component within the intervention.

Emotional Regulation as a Mediating Mechanism in Multimodal Interventions

To test the mechanism underlying anxiety reduction, a mediation analysis was conducted with emotional regulation as the mediating variable. As summarized in Table 4, the intervention exerted a significant positive effect on emotional regulation ($\beta = 0.52$, $p < .001$), which in turn was significantly associated with reduced anxiety ($\beta = -0.47$, $p < .001$). Although the direct effect of the intervention on anxiety remained significant ($\beta = -0.28$, $p = .014$), its reduced magnitude indicates partial mediation, thereby supporting H4.

Table 4. Mediation Model Summary

Pathway	Coeficin (β)	p
Intervention → Emotion Regulation	0.52	< 0.001
Emotion Regulation → Anxiety Reduction	-0.47	< 0.001
Anxiety → Intervention (Direct Effects)	-0.28	0.014

These results confirm the study’s theoretical premise that emotional regulation operates as a central psychological mechanism linking creative, cognitive, and mindfulness-based interventions to anxiety reduction. Qualitative findings further substantiate this mechanism, as teachers consistently emphasized the synergistic impact of combining the three approaches. One participant remarked, *“All the training together makes me stronger to face difficult days”* (G-06), while another stated, *“I feel like I have a complete strategy now, not just relying on patience”* (G-02). These reflections indicate that, although stressors

remained present, teachers developed enhanced emotional resilience and regulatory capacity.

Collectively, the findings demonstrate that multimodal interventions yield synergistic benefits by simultaneously targeting emotional expression (art therapy), cognitive appraisal (growth mindset), and present-moment awareness (mindfulness). By strengthening emotional regulation across these complementary pathways, the intervention offers a sustainable and mechanism-driven approach to reducing teacher anxiety in complex educational contexts.

DISCUSSION

The findings of this study demonstrate that art therapy exerts a significant and meaningful impact on reducing teachers' anxiety by facilitating adaptive emotional processing. Beyond statistical effectiveness, the results suggest that creative expression through drawing, mandala coloring, and visual journaling enables teachers to externalize emotional tension in a gradual and non-threatening manner. This supports the conceptualization of art-based activities as mechanisms of emotional externalization that allow individuals to process psychological distress without relying exclusively on cognitively demanding strategies (Liu, 2025). In high-pressure teaching contexts, such non-verbal regulatory pathways may be particularly beneficial, as they provide emotional relief while minimizing additional cognitive load.

Consistent with the work of Haeyen (2024) and Weisner (2025), the present findings indicate that art therapy reduces anxiety through the activation of sensorimotor and affective processes that support non-verbal emotion regulation. Teachers' reports of experiencing a subjective slowing of mental activity during art-making further highlight the function of art therapy as a psychologically safe space for emotional regulation, free from evaluative pressure. By demonstrating these effects among teachers, this study extends existing literature that has largely focused on clinical or general populations and strengthens the theoretical positioning of art therapy as an adaptive emotion regulation strategy within professional educational practice.

Beyond its immediate affective benefits, growth mindset training emerged as an important contributor to teachers' professional resilience. Rather than merely improving outcome scores, the findings indicate that growth mindset practices supported teachers in cognitively reframing pedagogical challenges as opportunities for learning rather than as threats to competence. This aligns with theoretical perspectives suggesting that growth-oriented beliefs enhance cognitive flexibility and perceived self-efficacy (Kumar & Gautam, 2021). Consistent with Cleven et al. (2023), growth mindset appears to function as a protective cognitive factor against anxiety by transforming stressors into manageable professional challenges. These findings underscore the value of embedding growth mindset training within continuous professional development, particularly as a means of reducing long-term emotional strain and enhancing adaptability in changing educational environments.

The integration of mindfulness practices further contributed to sustainable emotional regulation by reducing teachers' reliance on expressive

suppression. Rather than reiterating outcome differences, the present findings suggest that mindfulness enhances teachers' awareness of emotional and physiological cues prior to reactive responses. This supports mindfulness-based self-regulation frameworks that emphasize reflective pauses between stimuli and emotional reactions (Broderick, 2021; Pickerell, 2022). In practical terms, mindfulness appears to operate as a preventive regulatory strategy, enabling teachers to manage emotional demands proactively within daily classroom routines rather than responding reactively to accumulated stress.

Critically, the findings related to the multimodal intervention model highlight emotional regulation as a central psychological mechanism linking intervention exposure to anxiety reduction. The observed mediation pattern indicates that the effectiveness of the intervention does not arise from isolated components but from the synergistic interaction of creative, cognitive, and self-awareness-based strategies. This finding supports integrative models in educational psychology that argue emotional well-being is most effectively strengthened through multimodal approaches (Khotele, 2024; Chakraborty, 2024). Theoretically, this study contributes by empirically reinforcing emotional regulation as a bridging construct that connects diverse intervention strategies in reducing teacher anxiety.

The study also identified contextual factors that appear to enhance intervention effectiveness, including teachers' readiness to engage, consistency of implementation, and institutional support for mindfulness practices. These findings align with perspectives emphasizing that psychological interventions are shaped by both individual and organizational contexts (Lambert et al., 2022). Accordingly, teacher well-being initiatives should be designed flexibly, taking into account variations in motivation, reflective capacity, and school culture to maximize intervention impact.

Despite its contributions, this study has several limitations. The relatively small sample size and limited research setting constrain the generalizability of the findings. In addition, the six-week intervention period does not capture long-term sustainability, and reliance on self-report measures introduces potential response bias. In line with recommendations in the teacher well-being literature (Pham et al., 2025), future research should employ longitudinal designs and incorporate multi-method data sources—such as classroom observations or physiological indicators—to strengthen evidential robustness.

Overall, this study offers both theoretical and practical insights into reducing teacher anxiety through emotion regulation-based interventions. The integration of art therapy, growth mindset, and mindfulness provides a coherent and mechanism-driven framework for developing comprehensive teacher well-being programs. For educators, institutions, and policymakers, these findings highlight the importance of evidence-based professional development that prioritizes emotional resilience as a core component of sustainable teaching practice in increasingly demanding educational contexts.

Research Questions

Grounded in educational psychology and aligned with the proposed integrative intervention model, this study addresses the following research questions:

RQ1. Does an integrative intervention combining art therapy, growth mindset, and mindfulness practices lead to a significant reduction in teachers' anxiety?

RQ2. To what extent does the integrative intervention enhance teachers' emotional regulation capacities?

RQ3. How is emotional regulation associated with teachers' anxiety within mindfulness-integrated classroom contexts?

RQ4. Does emotional regulation function as a mediating psychological mechanism through which the integrative intervention influences teachers' anxiety?

RQ5. How do teachers perceive and experience the combined effects of art therapy, growth mindset, and mindfulness practices on their emotional awareness and regulation in daily teaching practice?

RQ5 supports the mixed-methods design by providing qualitative insight into teachers' lived experiences and the psychological processes underlying the quantitative findings.

Hypotheses

Based on process-based models of emotion regulation in educational psychology and a mechanism-driven integrative intervention framework, the following hypotheses are proposed:

H1. Teachers who participate in the integrative intervention will exhibit a significant reduction in anxiety levels.

H2. Teachers who participate in the integrative intervention will demonstrate significant improvements in emotional regulation capacities.

H3. Emotional regulation will be negatively associated with teachers' anxiety, such that higher levels of emotional regulation are associated with lower anxiety.

H4. Emotional regulation will mediate the relationship between the integrative intervention and teachers' anxiety, such that the intervention reduces anxiety indirectly through improvements in emotional regulation.

H5. The integrative intervention will produce stronger effects on emotional regulation and anxiety reduction than any single intervention component examined independently.

Theoretical Basis

These research questions and hypotheses are informed by process-based models of emotion regulation, which emphasize regulatory mechanisms as central pathways linking interventions to emotional outcomes (Gross, 2015; Aldrup et al., 2024). They are further supported by socio-humanistic perspectives on stress regulation in professional contexts, which highlight adaptive emotional and cognitive regulation in response to occupational stress (Suhartono & Anggreani, 2025).

CONCLUSION AND RECOMMENDATION

Teacher anxiety represents a critical challenge in contemporary education, particularly as educators are increasingly expected to integrate mindfulness practices into classroom instruction while managing complex emotional demands. This study examined the effects of an integrative intervention combining art therapy, growth mindset practices, and mindfulness on reducing teachers' anxiety through emotional regulation within mindfulness-based classroom contexts. Using a mixed-methods approach that integrated quantitative and qualitative analyses, the study provided a comprehensive examination of both intervention effectiveness and teachers' emotional experiences during implementation.

The findings indicate that the combined application of art therapy, growth mindset, and mindfulness practices significantly reduces teachers' anxiety and enhances their emotional regulation capacities. Importantly, emotional regulation was empirically identified as a central mediating mechanism through which the intervention exerted its effects. These results advance educational psychology by demonstrating the value of a mechanism-driven, multimodal intervention framework and highlight the practical relevance of integrating creative, cognitive, and self-awareness-based approaches to promote sustainable teacher emotional well-being in educational settings.

ADVANCED RESEARCH

Future research is recommended to examine the long-term effects of integrative interventions on teacher well-being using longitudinal and experimental designs. Further studies could also explore the application of this multimodal approach across different educational levels and cultural contexts, as well as investigate additional mediating variables such as resilience, self-efficacy, and institutional support to strengthen the generalizability of the findings.

REFERENCES

- Ahmad, M., & Wilkins, S. (2025). Purposive sampling in qualitative research: A framework for the entire journey. *Quality & Quantity*, 59(2), 1461–1479.
- Aldrup, K., Carstensen, B., & Klusmann, U. (2024). The role of teachers' emotion regulation in teaching effectiveness: A systematic review integrating four lines of research. *Educational Psychologist*, 59(2), 89–110.
- Alhabsi, S. S. (2024). Ethical considerations in obtaining informed consent in research participation. *International Journal of Contemporary Educational Explorations*, 1(1), 22–32.
- Arik, S., & Bozdoğan, A. E. (2022). Teacher anxiety scale for organizing trips to out-of-school learning environments: Development and validity of the scale. *Participatory Educational Research*, 9(4), 111–130.
- Barnett, K. S., & Vasiu, F. (2024). How the arts heal: A review of the neural mechanisms behind the therapeutic effects of creative arts on mental and physical health. *Frontiers in Behavioral Neuroscience*, 18, 1422361.

- Boison, B., & Burke, A. (2025). Navigating emotional and professional challenges in remote teaching: Examining teacher well-being, burnout, and socio-emotional learning through the Job Demands–Resources model. *British Journal of Teacher Education and Pedagogy*, 4(2), 15–27.
- Boonma, M. (2025). The power of resilience in 21st-century education: How growth mindset and mental well-being support teachers and students. *Nakhon Ratchasima Journal of Humanities and Social Sciences*, 1(3), 1–26.
- Broderick, P. C. (2021). *Learning to breathe: A mindfulness curriculum for adolescents to cultivate emotion regulation, attention, and performance*. New Harbinger Publications.
- Carroll, A., Sanders-O'Connor, E., Forrest, K., Fynes-Clinton, S., York, A., Ziaei, M., Flynn, L., Bower, J. M., & Reutens, D. (2022). Improving emotion regulation, well-being, and neurocognitive functioning in teachers: A matched controlled study comparing mindfulness-based stress reduction and health enhancement programs. *Mindfulness*, 13(1), 123–144.
- Chakraborty, S. (2024). Integrating education and psychology: A holistic approach to enhance learning and well-being in school settings. *SSRN Electronic Journal*.
- Cheshure, A., Stanwood, G. D., Van Lith, T., & Pickett, S. M. (2023). Distinguishing difference through determining the mechanistic properties of mindfulness-based art therapy. *Current Research in Behavioral Sciences*, 4, 100106.
- Cleven, A. J., Renaud, A., Larose-Pierre, M., McQuade, B., Griffin, B. L., Johnson, C., & Hughes, J. A. (2023). Associating growth mindset with emotional intelligence and its relevance for professional identity formation. *American Journal of Pharmaceutical Education*, 87(6), 100110.
- Crum, A. J., Santoro, E., Handley-Miner, I., Smith, E. N., Evans, K., Moraveji, N., Achor, S., & Salovey, P. (2023). Evaluation of the “Rethink Stress” mindset intervention: A metacognitive approach to changing mindsets. *Journal of Experimental Psychology: General*, 152(9), 2603–2619.
- Fedewa, A. L., Ahn, S., & Aspiranti, K. B. (2022). Mindfulness in elementary school teachers: Effects on teacher stress, mental health, and mindfulness in the classroom. *International Journal of School Health*, 9(2), 73–82.
- Haeyen, S. (2024). A theoretical exploration of polyvagal theory in creative arts and psychomotor therapies for emotion regulation in stress and trauma. *Frontiers in Psychology*, 15, 1382007.
- Hoge, E. A., Acabchuk, R. L., Kimmel, H., Moitra, E., Britton, W. B., Dumais, T., Ferrer, R. A., Lazar, S. W., Vago, D., & Lipsky, J. (2021). Emotion-related constructs engaged by mindfulness-based interventions: A systematic review and meta-analysis. *Mindfulness*, 12(5), 1041–1062.

- Izidro-Johnson, V. A. (2025). Arts-based leadership in special education: A qualitative study of creativity, emotional intelligence, and institutional barriers (Doctoral dissertation). South College.
- Khanal, D. R. (2025). Impact of Buddhist meditation and mindfulness on cognitive ability of students. *SMC Journal: Shadananda Multiple Campus*, 1, 26–45.
- Khotele, N. (2024). Integrating education and psychology: A holistic approach to enhance learning and well-being in school settings. *International Journal of Creative Research Thoughts*, 12(1), 702–709.
- Kumar, K., & Gautam, S. (2021). Conscious adaptability: Exploring mindfulness, cognitive flexibility, and self-efficacy among students. *Positive Psychology*, 101.
- Lambert, B., Caza, B. B., Trinh, E., & Ashford, S. (2022). Individual-centered interventions: Identifying what, how, and why interventions work in organizational contexts. *Academy of Management Annals*, 16(2), 508–546.
- Li, L., & Ruppert, A. (2021). Conceptualizing teacher agency for inclusive education: A systematic and international review. *Teacher Education and Special Education*, 44(1), 42–59.
- Li, S. (2023). The effect of teacher self-efficacy, teacher resilience, and emotion regulation on teacher burnout: A mediation model. *Frontiers in Psychology*, 14, 1185079.
- Liu, R. (2025). Therapeutic mechanisms of art: An interdisciplinary exploration of how painting facilitates psychological healing and well-being. *Art Horizons*, 1(3), 29–37.
- Ma, K., Liang, L., Chutiyami, M., Nicoll, S., Khaerudin, T., & Van Ha, X. (2022). COVID-19 pandemic-related anxiety, stress, and depression among teachers: A systematic review and meta-analysis. *Work*, 73(1), 3–27.
- Motulsky, S. L. (2021). Is member checking the gold standard of quality in qualitative research? *Qualitative Psychology*, 8(3), 389–406.
- Nagpal, D., Kornerup, I., & Gibson, M. P. (2021). Mixed-method research: A basic understanding. *CODS Journal of Dentistry*, 12(1), 11–16.
- Nigbur, D., & Chatfield, S. L. (2025). Naming themes in interpretative phenomenological analysis (IPA): Recommendations and examples. *International Journal of Qualitative Methods*, 24, 16094069241312792.
- Preece, D. A., Petrova, K., Mehta, A., & Gross, J. J. (2023). The Emotion Regulation Questionnaire–Short Form (ERQ-S): A six-item measure of cognitive reappraisal and expressive suppression. *Journal of Affective Disorders*, 340, 855–861.
- Roberts, R. L., Ledermann, K., & Garland, E. L. (2022). Mindfulness-oriented recovery enhancement improves negative emotion regulation by

- increasing interoceptive awareness. *Journal of Psychosomatic Research*, 152, 110677.
- Robinson, C., & Williams, H. (2024). Interpretative phenomenological analysis: Learnings from employing IPA as a qualitative methodology in educational research. *The Qualitative Report*, 29(4).
- Roloff, J., Kirstges, J., Grund, S., & Klusmann, U. (2022). How strongly is personality associated with burnout among teachers? A meta-analysis. *Educational Psychology Review*, 34(3), 1613–1650.
- Rosli, M. S., Saleh, N. S., Alshammari, S. H., Ibrahim, M. M., Atan, A. S., & Atan, N. A. (2021). Improving questionnaire reliability using construct reliability in educational technology research. *International Journal of Interactive Mobile Technologies*, 15(4), 109–116.
- Saharan, V. A., Kulhari, H., Jadhav, H., Pooja, D., Banerjee, S., & Singh, A. (2024). Introduction to research methodology. In *Principles of research methodology and ethics in pharmaceutical sciences* (pp. 1–46). CRC Press.
- Scafuto, F., Quinto, R. M., Ghiroldi, S., Montecucco, N. F., Presaghi, F., Iani, L., & De Vincenzo, F. (2024). The mediating role of emotion regulation strategies in mindfulness interventions. *Current Psychology*, 43(29), 24295–24307.
- Schuetze, B. A., & Yan, V. X. (2023). Psychology faculty overestimate the magnitude of Cohen's d effect sizes. *Collabra: Psychology*, 9(1), 74020.
- Shirzadeh, F., & Jajarmi, H. (2023). Teachers' stroking behavior in anxiety, willingness to communicate, and achievement. *Journal of Cognition, Emotion & Education*, 1(1), 43–57.
- Smith, J. A., Larkin, M., & Flowers, P. (2021). Interpretative phenomenological analysis: Theory, method, and research. SAGE.
- Song, Z., Pan, B., & Wang, Y. (2021). Trait mindfulness and job satisfaction of preschool teachers. *Frontiers in Psychology*, 12, 788035.
- Suhartono, R., & Anggraeni, A. (2025). Humanistic regulation of social stress in professional contexts: The RHSS framework. *Journal of Humanistic Psychology*. Advance online publication.
- Taylor, P., Harris, D., & Aidman, E. (2025). Effects of a multimodal psychophysiological training intervention on cognitive fitness and well-being. *Sustainability*, 17(17), 7845.
- Varnell, S. (2022). Visual arts activities relate to cortisol and observed interest for preschool children. (Unpublished manuscript).
- Wang, H., Burić, I., Chang, M.-L., & Gross, J. J. (2023). Teachers' emotion regulation and related environmental, personal, instructional, and well-being factors: A meta-analysis. *Social Psychology of Education*, 26(6), 1651–1696.

- Zhang, H. (2024). Translanguaging space and classroom climate created by teachers' emotional scaffolding. *International Journal of Multilingualism*, 21(1), 298–324.
- Zhang, W., He, E., Mao, Y., Pang, S., & Tian, J. (2023). Teacher social-emotional competence and job burnout. *Sustainability*, 15(3), 2061.