

Integration of Visual Arts Methods in Education: Reducing Stress, Enhancing Introspection, and Emotional Well-being

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Abstract

Contemporary global trends, marked by increasing levels of stress and anxiety, underscore the need for innovative approaches in education, visual arts and therapy. The therapeutic potential of artistic activities within educational settings highlighting their contribution to stress reduction, enhancement of emotional and cognitive abilities.

This study analyzes the impact of artistic activity on the emotional and cognitive state of students, with a focus on the therapeutic application of drawing as a method for reducing stress assessing their emotional states before and after participation in the exercises. The aim was to examine how artistic expression can affect emotional stability and to explore the potential of this method in the educational process. The workshop integrated artistic, pedagogical and therapeutic approaches, positioning drawing as a powerful tool for enhancing emotional well-being and cognitive abilities. The research included 21 participants, fourth year students, who took part in the art activity. Quantitative analysis showed that emotions related to happiness, such as “joyful,” increased by 52.89%, calmness by 47.93%, while negative emotions such as “nervous” decreased by 48.19%. A questionnaire revealed that 85.71% of participants felt relaxed after the workshop, while 100% reported a reduction in stress.

Article history

Received: 30.5.2025.

Accepted: 25.6.2025.

Keywords:

Visual art;
Art Therapy;
Stress reduction;
Creativity.

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Introduction

Contemporary education faces the challenges posed by increasing levels of stress and anxiety in society, emphasizing the need for innovative pedagogical approaches that encompass the emotional, cognitive, and creative aspects of student development. Simultaneously, educational systems are increasingly turning toward interdisciplinary methods, allowing the integration of artistic, psychological, and pedagogical approaches into the teaching process. In this context, the teaching of visual arts and psychology offers significant opportunities for strengthening the emotional stability and introspective capacities of students. Of particular importance are structured art activities that enable deeper emotional expression and the reinforcement of self-confidence. The integration of such methods not only enriches the curriculum but also contributes to the development of more resilient, creative, and emotionally aware individuals. Numerous recent studies confirm the significance of artistic expression in educational and therapeutic contexts. A systematic review of the literature conducted by Cohen-Yatziv and Regev (2019) demonstrates that art therapy in children and adolescents significantly contributes to reducing symptoms of stress, anxiety, and depression, as well as improving emotional expression and social skills. Similar findings are reported by Regev and Snir (2015), who emphasize the important role of art therapy in the emotional and social development of students within the school system. Gersch and S. J. Goncalves (2006) pointed to the effectiveness of applying art therapy in working with children in educational contexts. These authors suggest that, regardless of the type of creative therapy used, they all share the common goal of enabling children to express their emotions and inner conflicts in a safe manner. Through art, children are able to process difficult topics without fear, which helps them understand and resolve such issues more effectively. This process offers immediate relief and strengthens the ability to cope with future challenges, as creative therapies help create distance from emotionally overwhelming situations and allow those situations to be viewed from a new perspective. Stress arises when an individual feels incapable of meeting demands imposed by the environment or by themselves. In such situations, various coping mechanisms are employed to reduce or eliminate the negative effects of stress, and the body undergoes changes that increase alertness and readiness to deal with demanding circumstances. However, this heightened state of tension is not sustainable over extended periods (Bajraktarević, 2015). Therefore, it is essential to develop strategies for calming and restoring balance, and art therapy has proven to be an effective means for achieving this internal regulation. Van Lith (2016) highlights the significant implications art therapy can have on mental health, emphasizing its potential to enhance psychological well-being and suggesting that this approach can be successfully applied in working with various types of mental disorders. Insights drawn from the book *The Well-being of Art* by J. Kovačević (2023) emphasize the importance of linking artistic and reflective activities as tools for nurturing personal resilience and mental health. Self-care is presented as a fundamental aspect of personal development and the preservation of mental well-being, associated with the concept of growth motivation or the pursuit of self-actualization (Maslow, 2007). The World Health Organization (WHO) defines self-care as the ability to promote and preserve health and to cope with challenges using one's own resources. Systematic efforts to maintain mental, emotional, and physical well-being are also emphasized in contemporary approaches to therapy and counseling (BACP). Self-care involves the conscious establishment of personal boundaries, the recognition of individual needs, and the engagement in activities that encourage a state of complete focus and presence, known as *flow* (Csikszentmihalyi, 2006). Such activities reduce psychological entropy and enhance

the ability to make high-quality decisions. Additionally, the concept of mindfulness, as described by Kabat-Zinn (2005), further stresses the importance of accepting the present moment without judgment, thereby strengthening inner stability. In the context of social work, research shows that evaluating one's own experiences, whether positive or negative can stimulate behavioral change and contribute to stress reduction (Pleić & Leutar, 2019).

Artistic activities aimed at improving mental health are often viewed through the lens of art as therapy and art therapy, where the importance of creative expression in preserving emotional well-being is emphasized. Contemporary approaches are grounded in theoretical reflections by various authors who highlight the psychodynamic aspects of creativity, while others such as Kandinsky and Worringer underscore the unique feelings and intuitive processes involved in artistic creation. In the reception of artworks, research by L. Petric (2015) and M. Peić (1968) highlights the presence of artistic intuition and the creative component, which is linked to psychotherapeutic models of art perception. In the educational context, the significance of visual expression is also confirmed by neuroaesthetic research (Mikulec, 2015), which emphasizes visual reading as a process requiring specific knowledge of visual theory and supporting the structuring of teaching content. Art therapy, defined as an integrative discipline focused on mental health through artistic creation, encompasses a variety of theoretical approaches psychodynamic, humanistic, contemplative, cognitive, neuroscientific, systemic, and integrative each emphasizing different aspects of creative expression and the therapeutic process. In the educational context, art therapeutic principles can be applied to encourage emotional expression, develop social skills, and strengthen self-confidence, thereby endowing art in education with a therapeutic dimension aimed at the holistic development of the individual (Kovačević, 2023). Thus, art therapy represents a distinct form of psychotherapy, different from the general application of art for the purposes of relaxation and enhancing quality of life, known as art as therapy (Štalekar, 2014). Art enables the expression and organization of emotions, creating an emotional structure for coping with the challenges of daily life (Turković, 2002). When art is consciously used for therapeutic purposes, it initiates a process of transformation and improvement in quality of life through deeper self-exploration and self-care. It is important to distinguish that art as therapy does not engage in the deep psychotherapeutic processes that art therapy, conducted under the guidance of a trained therapist, does. The contribution of art is particularly emphasized in inclusive education, where artistic methods enhance engagement and emotional involvement among students with special needs (Anderson, 2014). In this context, art is affirmed as an autonomous domain that contributes to the comprehensive development of the individual, a claim further supported by the findings of López-Martínez and colleagues (2016). Artistic expression, particularly through visual art activities, has long been recognized as a powerful tool for fostering introspection, creativity, and emotional well-being. Previous and numerous studies confirm the therapeutic potential of visual art methods, emphasizing their contribution to stress reduction and the enhancement of cognitive capacities (Malchiodi, 2012). Visual arts education, at all levels of schooling, through its specific language of visual communication and artistic expression, allows individuals to creatively explore their own emotions and develop skills essential for coping with the challenges of modern society. Such contemporary art pedagogy, especially within the context of structured workshops, provides a safe environment for introspective processes and emotional regulation. Creative individuals often explore multiple approaches to problem-solving and derive satisfaction from identifying various options. They typically score above average on tests measuring creative potential (Bajraktarević, 2013). In the context of art therapy, creativity plays a crucial role by enabling individuals to discover alternative ways of coping with emotions and to explore internal conflicts in a different, often safer, manner.

Through the artistic process, individuals are empowered to express themselves nonverbally. The educational aspects of psychology can provide a theoretical foundation for a deeper understanding of how creative activities influence emotional and cognitive processes, offering explanations of the mechanisms that connect creative expression with psychological functioning. Through this interdisciplinary perspective, art becomes a tool for personal development, while psychology provides the scientific basis for analyzing the effects of such activities. An individual's creativity depends on their mental abilities, acquired knowledge, and developed skills, as well as on how that knowledge is organized and applied in various situations (Bajraktarević, 2013). The integration of structured visual art exercises into the educational process offers a significant contribution to the development of emotional stability and introspective skills. Innovative approaches in visual arts education not only enhance students' artistic competencies but also foster emotional maturity through the therapeutic application of artistic methods (Potočnik, 2022). Similarly, (Dobronić 2020) emphasizes that the creative process in visual arts instruction can help students manage their emotions, thus contributing to their emotional and psychological development. These approaches affirm the value of artistic expression in bridging visual arts education and therapy. Interdisciplinarity, as a key feature of contemporary education, enables synergy between visual arts and psychology, providing students with tools for a deeper understanding and expression of their emotions, as well as for the enhancement of cognitive abilities. This approach empowers emotionally more stable and introspective individuals, underscoring the layered importance of artistic expression as an essential part of the educational process. Visual arts activities are not merely daily assignments drawn from the curriculum, where students disengagedly paint open themes; rather, they can serve as effective pedagogical tools for more meaningful and efficient acquisition of knowledge and skills related to visual language, which can be purposefully applied to strengthen emotional stability and cognitive development. Potočnik (2018) notes that incorporating visual art methods into teaching can positively influence students' emotional states, reducing levels of stress and anxiety. Additionally, Bajraktarević (2022) highlights the importance of creative methods in education, particularly in fostering personal development and creativity in students. According to Bajraktarević (2013), the psychological aspects of education should include methods that enable students to express emotions and develop introspective abilities something that artistic expression uniquely provides. He emphasizes that integrating artistic methods into the educational process can significantly contribute to the holistic development of students by providing them with tools to cope with emotional challenges and strengthen creative capacities. Ivanović and Vučković (2012) emphasize that art therapy allows individuals to symbolically express their emotions through the creative process, thereby reducing stress and enhancing emotional resilience.

Research Methodology

This methodology enabled a precise evaluation of emotional changes through a structured visual drawing process, ensuring relevant data for analyzing the impact of artistic activities on participants' emotional states. The workshop was led by Martina Kosec, a professor of visual arts, practitioner of expressive art therapy, and specialist in the Fractal Drawing Method. The study examined the effects of fractal drawing on stress reduction, enhancement of introspection, and emotional well-being in university students. The two-hour activity was conducted according to pre-structured guidelines, in which visual elements, line and color, were used as tools to encourage positive emotional states. The approach was inspired by the research of Y. Hu, R. Lyu, and X. Liu, who found that different line patterns convey different emotions, which, according to empirical theories, is interpreted as the result of the implicit

motion of lines. Guided by these insights, students created two fractal drawings: one using predominantly curved lines, and the other using predominantly straight lines. By alternating between line forms, participants worked on establishing emotional balance. The second part of the activity focused on color as an emotional stimulus. Based on an analysis of 132 relevant scientific papers conducted by Jonauskaite and Mohr (2025), it was established that light colors are associated with positive emotions and dark colors with negative ones. Accordingly, students were instructed to prefer lighter colors, further promoting the creation of a positive emotional experience. An important component of the process was the act of coloring itself continuous and rhythmic hand movement contributed to relaxation and calming. A specific feature of the technique was that drawings were made with eyes closed, which encouraged an internal experience and release from expectations. Since the drawings were abstract, no prior artistic knowledge was required, allowing for a free and authentic mode of expression.

The aim of the study

Was to examine the effects of drawing on students' emotional states, with particular focus on stress reduction, stimulation of introspective processes, and the strengthening of creative and emotional capacities. The research was conducted as a single-group quasi-experimental study with two measurement points (before and after the intervention). The study involved 21 participants, fourth-year university students, who engaged in a carefully structured drawing task over a two-hour period. Participants completed emotional scales that included 47 emotional states. The average values (P1 and P2) for each emotion were calculated and compared as percentage changes. All participants had similar prior artistic skills and took part in the research voluntarily.

Data Processing

Quantitative Analysis: Average scores for each emotion were calculated at two measurement points P1 (pre-intervention) and P2 (post-intervention). The difference between P1 and P2 was expressed in absolute values (Δ) and as percentage changes. Emotion Categorization: Emotions were grouped into key categories (e.g., happiness, relaxation, fear, unhappiness) to facilitate interpretation. Change Ranking: Positive and negative changes were ranked according to their percentage values, with significant changes defined as those exceeding 30%.

Research Design

The study was designed as a single-group investigation with two measurement points: Measurement Point 1(P1): Assessment of emotional state before the start of the drawing. Measurement Point 2(P2): Assessment of emotional state after the completion of the drawing.

Instruments

To evaluate emotional states, a structured questionnaire, Scale for Measuring Emotional State (Sorić, 2002) was used. This instrument consists of 47 items offered as answers to the question, *"How do you feel right now?"* Each item was rated on a scale from 1 to 5, with lower values indicating lower intensity of the emotion and higher values indicating greater intensity. The responses are categorized into seven dimensions (subscales): Happiness, Relaxation, Pride, Anger, Unhappiness, Humiliation, and Fear/Anxiety. Each of these subscales demonstrated a good level of internal consistency in the original studies.

Research Protocol

1. Initial Evaluation (P1): Prior to the start of the drawing cycle, all participants completed the questionnaire to assess their initial emotional state.
2. Art-Therapeutic Drawing: Conducted over a single day, participants engaged in a structured drawing process designed to achieve specific psychological effects:
 Phases 1–3: Focused on relaxation and development through the drawing technique.
 Phases 4–5: Emphasis on releasing creative expression.
 Phases 6–7: Enhancement of self-confidence, introspective exploration, and the discovery of new insights.
3. Final Evaluation (P2): After completing the art workshop, participants once again filled out the same questionnaire to record changes in their emotional states.

For the purposes of investigating the effects of art workshops on the emotional and cognitive development of participants, an additional structured questionnaire was specifically designed. The questionnaire focused on evaluating several key areas: the development of emotional stability and introspection, the encouragement of creative expression through education, the strengthening of emotional and cognitive capacities, the enhancement of cognitive abilities, and the integration of artistic and pedagogical approaches. The questionnaire consisted of 10 items, combining responses on a Likert scale (ranging from 1 to 5) and binary (Yes/No) questions. In this way, data were collected on participants' subjective experiences related to emotional changes, creativity development, and improvements in cognitive functioning.

Results

The data analysis illustrates the changes in participants' emotional states before and after the implementation of the visual art activity. The focus of the study was to identify key emotional changes that reflect the impact of art-based activities on participants' psychological well-being. Emotional states were analyzed before and after the intervention based on 47 distinct emotions, categorized into the following groups: happiness, relaxation, pride, anger, unhappiness, humiliation, and fear/anxiety. The goal of the analysis was to identify the emotional states affected and to determine the extent of change. Results were presented through an overview of both positive and negative emotional changes, with the aim of gaining deeper insight into the therapeutic potential of visual art expression. In final statistical elaboration, quantitative data analysis was conducted based on absolute differences in mean scores ($P2 - P1$) and relative changes expressed in percentages. Statistically significant changes were defined as those involving increases or decreases greater than 30%. Key statistics indicate the following:
 Positive changes ($\geq 30\%$): A total of 12 emotions showed significant improvement.
 Negative changes ($\geq 30\%$): A total of 15 negative emotions were significantly reduced.

The results demonstrate improvements in emotional states and significant changes after the completion of the art workshop cycle. The most pronounced positive effects were observed in emotions related to happiness, calmness, and a sense of pride. Changes across 47 different emotional states were analyzed, with the following being key highlights:

1. Happiness. This category includes emotions such as "Joyful," "Pleasant," and "Happy." The key findings show a substantial increase in positive emotions: "*Joyful*" increased by 52.89%, representing the largest growth in this category, "*Pleasant*" rose by 38%, "*Happy*" increased by 30.86%. The overall average for the "Happiness" category showed a consistent upward

trend, although individual emotions such as “*Well*” showed a slight decrease of 5.85%. These findings suggest that the creative process significantly contributed to an increase in participants’ feelings of satisfaction and joy. The category of happiness-related emotions, including “*Joyful*” (+52.89%), “*Pleasant*” (+38%), and “*Happy*” (+30.86%), demonstrated a clear upward shift, indicating a strong positive influence of visual arts activities on participants’ overall emotional states.

2. Relaxation, emotions associated with relaxation, such as “*Calm*” and “*Relaxed*,” also showed notable improvements. “*Calm*” recorded an increase of +47.93%, while “*Relaxed*” rose by +26.09%. These results emphasize the soothing effect of creative activities, pointing to increased inner stability. However, the feeling of “*Safe*” showed a decrease of -23.67%, which may reflect the complex nature of safety perception during the research process.

3. Pride, this category includes emotions such as: “*Victorious*”, which showed the highest increase among all analyzed emotions at +79.03%, “*Confident*” with a more modest increase of +5.71%, and “*Encouraged*” with a rise of +29.46%. Other emotions such as “*Proud*” maintained stable average values, suggesting long-term emotional stabilization through the creative process. These results indicate a positive impact of the activity on participants’ self-perception and sense of accomplishment. In the continuation of result interpretation, a significant reduction in negative emotions was observed. Notably, categories such as “*Unhappy*,” “*Dissatisfied*,” “*Nervous*,” and “*Tense*” showed large percentage reductions, further affirming the therapeutic potential of this drawing method.

4. Anger, emotions such as: “*Aggressive*” decreased by -24.13%, and “*Angry*” declined by 39.51%. In general, all feelings related to anger showed a decrease, highlighting the calming effect of the activity.

5. Unhappiness, this category showed the greatest reduction among all emotional groups: “*Unhappy*” decreased by 41.92%, “*Dissatisfied*” by 49.11%. “*Depressed*” was the only emotion in this category that did not show any change. These results confirm that participants experienced significantly fewer negative emotions after engaging in the activity.

6. Fear and Anxiety, this category includes emotions such as “*Afraid*” and “*Nervous*”: “*Nervous*” recorded the largest decrease, at 48.19%. Other emotions such as “*Tense*” and “*Worried*” also showed significant declines of 41.15% and 33.33%, respectively. These findings underscore the importance of creative activities in reducing anxiety and promoting emotional relief.

Interpretation of questionnaire results on the effects of art workshops on participants' emotional and cognitive development

The results of the second part of the study, based on the questionnaire, indicate a significant impact of visual art expression on stress reduction and the stimulation of introspective processes among students. These findings support the initial assumptions of the interdisciplinary research. The data analysis, based on responses from 21 participants, clearly highlighted the positive effects of the art workshop on emotional well-being, creative abilities, and personal development.

The first two items in the questionnaire *"How relaxed do you feel after participating in the art workshop?"* and *"Did you notice a reduction in stress or anxiety after the exercises?"* demonstrated that 85.71% of participants felt relaxed or completely relaxed after the workshop, while 100% reported a reduction in stress or anxiety. These results emphasize the therapeutic value of fractal drawing and visual expression as a method for emotional release and calming, consistent with previous research on the effects of artistic methods in stress regulation. In addition to emotional regulation, the art workshop significantly contributed to participants' ability to express their emotions through drawing. In response to the third question *"To what extent did participation in the workshop help you better express your emotions through drawing?"* 61.91% of participants reported a high or complete level of support in emotional expression. This confirms the importance of artistic expression as a tool for introspection and emotional release, which is essential in contemporary pedagogical approaches. The data also reveal a positive impact on participants' creative abilities. The fourth question *"Do you believe that the drawing exercises increased your confidence in your own creative abilities?"* showed that 85.71% of participants felt that the workshop had strengthened their confidence in their creative potential. This suggests that artistic expression holds strong potential for enhancing self-confidence in the context of creative expression and divergent thinking. These results are in line with Torrance's theory of divergent thinking, which emphasizes the importance of fluency, flexibility, and elaboration in the development of creative potential. The workshop's contribution to personal development and introspective insight was evident in the responses to the fifth question *"To what extent do you believe that the art exercises contributed to your personal development or self-discovery?"*, with 76.19% of participants stating that the workshop significantly or completely contributed to their growth and process of self-exploration. This confirms the importance of visual art methods not only for emotional regulation, but also for introspective inquiry and the development of emotional maturity. The sixth question *"After participating in the workshop, do you feel better prepared to face life's challenges?"* indicated that 71.43% of participants felt more prepared to handle life challenges, pointing to the long-term benefits of integrating visual art exercises into educational programs. Furthermore, 85.71% of participants reported improved concentration and visual thinking, while 95.24% stated that therapeutic drawing was beneficial for their personal and academic development. These results suggest that artistic methods serve multiple functions in supporting both academic and personal growth, making them a valuable pedagogical tool. Questions regarding the usefulness of drawing in problem-solving and understanding art as a pedagogical tool also yielded important insights: over 60% of participants rated drawing as useful for both analytical and intuitive problem-solving, while 80.95% fully recognized art as a valuable pedagogical and therapeutic tool, reinforcing the thesis of art's interdisciplinary application in education.

Discussion

This study focused on the therapeutic application of drawing as a method that not only reduces stress levels but also stimulates introspective insight and the development of creativity in students. The findings clearly highlight the significance of visual expression specifically fractal drawing, as an effective tool for stress reduction, fostering introspective processes, and enhancing creativity and emotional maturity in students. These results are supported by whose research demonstrates that art therapy activities can significantly reduce symptoms of stress and anxiety and contribute to strengthening psychological resilience (Ivanović, N., Barun, I., & Jovanović, N. 2014). The application of artistic methods in educational contexts has proven to be an important factor in supporting students' personal development, while simultaneously

enriching pedagogical practices and confirming the need for broader integration of such approaches across all levels of education. The reduction of stressful emotions, along with an increase in feelings of joy and calmness, further reinforces the therapeutic potential of creative activities an observation aligned with in the context of using art in education. Notably, the increase in feelings such as "*Victorious*" and "*Calm*" suggests not only improved emotional well-being but also enhanced self-confidence and inner balance among participants. These findings confirm the hypothesis that structured visual expression can have a significant positive impact on the emotional and cognitive state of students. Creative activities such as drawing and painting help participants better understand their own emotions through an introspective process and foster emotional stability. In the educational context, the implementation of art-therapeutic methods can also contribute to the development of social and communication skills, particularly in students with autism spectrum disorder (Pšihistal, 2021). Visual expression enables the articulation of thoughts and feelings in a nonverbal manner, which is especially important for individuals who find verbal expression challenging. Artistic expression particularly through visual activities is increasingly recognized as an effective tool for promoting emotional stability, introspective insight, and cognitive development among young people. Art therapy, as a form of expressive psychotherapy, utilizes artistic creation to uncover inner potential and develop positive traits that aid in coping with life challenges.

Conclusion

This study demonstrates the significant positive impact of structured fractal drawing on participants' emotional well-being. Its therapeutic effect is evidenced by results showing that drawing these specific patterns notably improved participants' emotional states, particularly in the domains of happiness, relaxation, and pride. The reduction of negative emotions such as unhappiness, anger, and anxiety further affirms the therapeutic value of visual art activities. The obtained results have broad applicability in the fields of art therapy, education, and mental health research, highlighting the important role of creative methods in enhancing emotional stability and introspective capacities. The integration of visual and psychological approaches into the educational process has proven to be an effective strategy for equipping students with tools to better cope with stress, foster introspection, and develop creative potential. These findings also support the argument that such interdisciplinary approaches align with contemporary educational trends, which emphasize the holistic development of individuals through the combination of emotional, cognitive, and creative dimensions. Art therapy has become increasingly present across a wide range of educational institutions. Since the mid-20th century, it has been introduced and implemented not only in mental health centers but also in hospitals worldwide. Within the educational system, the primary goal of art therapy is to support the integration of students on emotional, social, and educational levels (Mazzola, R. S.2023). In today's world, marked by growing challenges to young people's mental health, creative and integrated teaching approaches are not only modern but necessary for cultivating emotionally stable, resilient, and introspective individuals. Future research could focus on the long-term effects of such visual activities and their broader application across different populations and educational contexts, further validating the value of artistic methods in education and the promotion of mental well-being. In conclusion, it is important to emphasize that programs utilizing visual expression to reduce stress can serve as valuable complements to the work of school support services. While direct integration into existing curricula may be challenging particularly within the scope of certain subjects such programs can function as support mechanisms for students' emotional development through collaboration with teachers and school specialists. Furthermore, the education of visual arts educators and teachers in the

psychological aspects of artistic expression represents a crucial step toward the successful implementation of these programs within the educational system.

Conflict of interest

None.

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