

THE IMPACT OF A STRUCTURED CREATIVE DRAWING CYCLE ON PERCEIVED STRESS AND STUDENTS' INTROSPECTIVE CAPACITIES: A QUASI-EXPERIMENTAL RETROSPECTIVE STUDY**^{1,*}Maja Žmukić, ²Martina Kosec and ³Danijela Domljan**¹Faculty of Educational Sciences Sarajevo, University of Sarajevo, Bosnia and Herzegovina²Puni Potencijal, Center for Development through Art, Zagreb, Croatia³Faculty of Forestry and Wood Technology, University of Zagreb, Croatia**Received 24th January 2026; Accepted 17th February 2026; Published online 20th March 2026**

Abstract

Contemporary educational trends increasingly emphasize interdisciplinary approaches and student development through the integration of cognitive, emotional, and creative capacities. Within this framework, artistic activities can function as an effective bridge between learning, self-reflection, and well-being. The aim of this international study was to examine the impact of participation in a structured creative cycle on perceived stress and students' introspective capacities among students from Sarajevo (Bosnia and Herzegovina) and Zagreb (Croatia). The study employed a quasi-experimental retrospective design with a sample of 57 students (40 from Sarajevo and 17 from Zagreb), based on voluntary participation and informed consent. The program lasted ten weeks and included eight creative drawing workshops. Data were collected using a retrospective self-assessment of participants' state before and after the program (with the "before" assessment conducted retrospectively), a Likert-type questionnaire (1–5), and open-ended reflective questions. The results indicate a statistically significant reduction in perceived stress (Wilcoxon test: $W = 73.5, p < .001$) and a statistically significant increase in introspective capacities ($W = 31.0, p < .001$). Students reported high levels of relaxation ($M = 4.23, SD = 1.05$), emotional relief ($M = 4.56, SD = 0.70$), and creative development ($M = 4.56, SD = 0.70$). A thematic analysis of open-ended responses identified dominant themes: emotional relief, increased introspective awareness, freer creative expression, and a positive group experience. These findings suggest that structured visual-art activities may represent a valuable pedagogical strategy for supporting students' self-regulation and reflection, while clearly acknowledging the methodological limitations of a retrospective design.

Keywords: Creative drawing, Perceived stress, Introspective capacities, Students, Higher education, Creative methods.

INTRODUCTION

Contemporary educational discourse increasingly highlights the need to foster student development through the integration of cognitive, emotional, and creative dimensions of learning. In this context, creative activity is no longer viewed as a marginal or supplementary practice, but rather as an important pedagogical resource that contributes to academic achievement, emotional regulation, motivation, and the social development of pupils and students (Brauer, 2025; Egana-delSol *et al.*, 2023). Artistic activities, especially those grounded in experiential and reflective learning enable the integration of thinking, feeling, and acting, thereby allowing knowledge not only to be acquired but also actively transformed. Empirical research confirms that creative approaches in teaching have multiple benefits. Art-based programs show positive effects not only on the development of creativity, but also on academic achievement across different subject areas (Egana-delSol *et al.*, 2023). These findings indicate that creativity cannot be reduced to an aesthetic dimension alone; rather, it represents a complex, multidimensional capacity. A particular emphasis is placed on integrating the arts into other disciplines. Interdisciplinary models contribute to greater learner engagement, the development of divergent thinking, and the strengthening of emotional intelligence (Kyomugisha, 2024; Winner *et al.*, 2013). Contemporary creative approaches are also linked to project-based learning and design-thinking methods, and research suggests that combining project-based learning with

structured creative techniques can enhance creative thinking and metacognitive capacities. At the level of the school context, research underscores the key role of teachers and the educational environment in fostering creativity (Brauer, 2025; Zhang, 2023). The development of emotional creativity is associated with a greater ability to recognize and transform emotions, as well as strengthened self-regulation (González-Zamar *et al.*, 2021). In educational settings, these results suggest that creative activities can have an important developmental function without necessarily shifting into a clinical or therapeutic framework. Building on these insights, the present study conceptualizes the creative cycle as a pedagogical-developmental program grounded in structured visual-art activities, with the aim of examining the relationship between participation in the program and changes in subjectively assessed stress and students' introspective capacities. In doing so, the study seeks to contribute to a deeper understanding of the role of creative methods in higher education, with a particular focus on their potential to support emotional regulation, reflection, and student well-being.

METHODOLOGY**Aim of the Study**

The aim of the study was to examine the impact of participation in a structured creative cycle of drawing workshops on perceived stress and students' introspective capacities, and to qualitatively describe their subjective experiences.

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Sample

The study included 57 students: 40 second-year students from the Faculty of Educational Sciences, University of Sarajevo, and 17 students from the Wood Technology study program at the Faculty of Forestry and Wood Technology, University of Zagreb. Participation was voluntary and based on informed consent. The sample was relatively homogeneous in terms of age and academic level.

Research Design

A quasi-experimental retrospective design was applied, using self-assessment of participants' state before and after participation in the program.

Instruments

A questionnaire assessing emotional state and introspective capacities (Likert scale 1–5) was used, along with open-ended reflective questions.

Protocol of the Creative Cycle

The program consisted of eight two-hour workshops: initial drawing, drawing curved and straight lines, bilateral drawing, fractal drawing, group drawing, expressive drawing, a combination of line and sound, and croquis drawing.

Data Analysis

Descriptive statistics, the Wilcoxon signed-rank test for dependent samples, and thematic analysis of qualitative responses were applied.

RESULTS

The results indicate a statistically significant reduction in perceived stress and a significant increase in introspective capacities following participation in the creative cycle. Baseline measurements indicated a higher level of stress, whereas after the cycle more than one third of participants reported low or absent stress. The Wilcoxon signed-rank test showed a statistically significant decrease in stress levels ($W = 73.5$, $p < 0.001$) and a statistically significant increase in introspective capacities ($W = 31.0$, $p < 0.001$). These results support the assumption that structured visual-art activities within a creative cycle may be associated with reduced subjectively assessed stress and strengthened students' introspective capacities. The qualitative analysis of open-ended responses identified dominant themes: emotional relief and calmness, increased introspective awareness, freer creative expression, and a positive experience of group work and support. It is particularly important to note that students, as future educators, emphasized the value of this approach for their future pedagogical practice and expressed interest in applying similar methods in work with children and pupils. This further supports the notion that structured creative cycles have substantial potential in educational contexts—both for self-regulation and emotional clarity and for the development of reflective and creative educational practice. Additionally, students from Zagreb, as future engineers expected to work in highly stressful production environments, recognized the applicability of this method in everyday life, particularly as a tool for preventing stress and reducing internal tensions.

Descriptive indicators for the main variables ($N = 57$) are presented in Table 1.

Variable	M	SD	Min	Max
Stress before the cycle	3.37	1.19	1	5
Stress after the cycle	2.33	1.17	1	5
Introspective capacities before	2.74	1.09	1	5
Introspective capacities after	3.79	0.92	1	5
Relaxation after workshops	4.23	1.05	1	5
Creative development	4.56	0.70	2	5
Connecting thoughts and feelings	4.51	0.73	2	5
Emotional relief	4.56	0.70	2	5
Motivation to continue	4.46	0.79	2	5

DISCUSSION

The findings indicate that participation in the creative cycle was associated with reduced perceived stress and strengthened students' introspective capacities. These results align with contemporary research demonstrating the multiple effects of creative and art-based approaches in education (Egana-delSol *et al.*, 2023; Brauer, 2025). One possible explanation is that a structured visual-art process helps focus attention on immediate experience, symbolic organization of subjective experience, and nonverbal processing of inner states, thereby facilitating emotional regulation and reflection (Lusebrink, 2004). The group-based dimension of the creative cycle may further contribute to a sense of support and belonging, which is particularly important for student populations exposed to increased academic demands.

Conclusion

The results indicate that participation in the creative cycle was associated with a reduction in subjectively assessed stress and an increase in students' introspective capacities. Initial findings showed a high level of stress: as many as 36.8% of participants rated their state at the highest value on the scale (5), while only 7% reported no stress. After completion of the cycle, the distribution of responses changed substantially: 12.3% of participants reported feeling completely without stress (1), and an additional 21.1% rated their stress as low (2). Thus, more than one third of participants reported a marked reduction in perceived burden. Overall, the post-program distribution suggests a shift toward lower stress levels among a substantial proportion of participants. Creative processes particularly through continuous work and tasks that promote introspective and expressive modes of expression may have the potential to function as a regulator of emotional tension and stress. This supports theoretical assumptions regarding the benefits of visual expression in educational contexts. The findings contribute to an understanding of the role of creative methods in promoting student mental health and open space for further interdisciplinary research at the intersection of pedagogy, psychology, and art therapy.

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