

# ENHANCING IMAGINATION SKILLS AMONG STUDENTS THROUGH CREATIVE THINKING STRATEGIES

DR. FRANKY RANI

ASSISTANT PROFESSOR, GURU NANAK DEV UNIVERSITY, AMRITSAR

NEELAM BALI

RESEARCH SCHOLAR, GURU NANAK DEV UNIVERSITY, AMRITSAR

---

## ABSTRACT

The present study aimed to examine the effectiveness of a creative thinking intervention on the three dimensions of imagination—vividness, originality, and transformativeness—among school students. A total of 50 participants were selected and equally divided into an experimental group (n=25) and a control group (n=25). A pre-test–post-test experimental-control group design was employed. Both groups were administered an imagination assessment tool measuring vividness, originality, and transformativeness. The experimental group was exposed to SCAMPER techniques and activities, while the control group followed the regular curriculum. The SCAMPER is a creative problem-solving tool that pushes individuals to think differently and produce inventive solutions. After the pre-test, the experimental group received a structured creativity-based intervention for four weeks, whereas the control group continued with regular classroom activities. Post-test data were collected following the intervention. Statistical analysis using mean, standard deviation, and t-tests revealed that while pre-test scores showed no significant differences, the post-test results indicated a significant improvement in all three dimensions of imagination among the experimental group compared to the control group. The findings revealed significant improvement in the experimental group's imagination scores across all three dimensions, indicating that imagination can be systematically developed through structured activities.

**Keywords:** Creativity, Imagination, Scamper, Preschool learners.

---

## INTRODUCTION:

Fostering creativity in children requires both the growth of imagination and the improvement of expressive skills that allow them to share and bring to life their unique ideas. This approach aligns with existing creativity research, which emphasizes imagination as a key part of creative thinking and expression as the way ideas are communicated (Vygotsky, 1967/2004; Kim, Kaufman, & Sriraman, 2013). Imagination is a foundation of early childhood development, recognized globally as essential for a child's healthy growth and overall well-being (Niland, 2023). Young children frequently demonstrate a notably rich and active imaginative capacity (Gelman & Gottfried, 2010). Development of imagination, particularly in young children, has garnered increasing research attention due to its profound impact on various critical developmental domains (Yu et al., 2024). Imagination plays a central role in allowing entities to move beyond routine patterns of thought and engage creatively with their environment, making it an indispensable element of modern cognitive and educational processes (Egan, 1992).

Imaginative play facilitates cognitive advancements, strengthens social-emotional competencies, and acts as a catalyst for creative expression (Harris, 2021). The imagination plays an imperative role in inspecting its indispensable contributions to nurturing creativity and facilitating holistic development, encircling academic and classroom proficiency in young learners (Smith & Mathur, 2009). Furthermore, the capacity for imaginative engagement in early years is inextricably linked to the acquisition of problem-solving skills and the cultivation of innovative thought processes, which are vital for navigating complex societal challenges (Berson et al., 2023; Yonzon et al., 2022). This foundational aspect of early learning extends beyond mere fanciful thinking, establishing neural pathways that support abstract reasoning and divergent thinking from an early age (Kasioura et al., 2025). This early cognitive scaffolding, often facilitated through possibility thinking and playful activity, lays the groundwork for complex narrative development and sophisticated inquiry in later educational stages (Cremin et al., 2012). Moreover, structured imaginative play, such as "Playworlds," provides a rich environment for adult-child joint engagement, frequently centered around literary works, which demonstrably enhances learning outcomes for children up to eight years of age. The SCAMPER technique, which was first developed to promote imaginative thinking (Eberle, 1972), has been used in a variety of educational contexts (Khawaldeh & Ali, 2016; Mijares-Colmenares et al., 1993; Moreno et al., 2014; Poon et al., 2014). Research shows that there are many other approaches that have been proposed to enhance creativity (Smith, 1998). Scamper is an imaginative exercise that helps generate a lot of ideas in the realm of pretend play. The terms "substitute," "combine," "adjust,"

"modify," "magnify," "minify," "put to other uses," "eliminate," and "reverse/rearrange" are the definitions of the SCAMPER. The participants' responses are noted during pauses as the leader reads the script (Eberle, 2008). In order to increase children's creative idea output, SCAMPER questions were asked after an activity was completed with them in the current study. According to research, SCAMPER primarily promotes creative thinking (Hussain & Carignan, 2016) and improves knowledge of animal adaptations (Rule et al., 2009; Yuen et al., 2015). Numerous methods for enhancing creativity have been found in the literature. For example, the CREAT technique boosted students' creativity in language arts, but there was no comparable improvement in paradoxical tasks (Sak & Öz, 2010). CORT teaches the person to consider a subject from various angles. The CORT approach benefited from problem-solving, interpersonal, and lateral thinking abilities (Barak & Doppelt, 1999). The hats in various hues highlight several ways of thinking while using the six hats technique. The mind mapping technique uses lines, colours, symbols, keywords, numbers, and images to visualise, combine, and integrate concepts that have been learnt (Wang, Lee, & Chu, 2010). These methods deliver a very pleasant environment for creative thinking. In order to develop creative imagination, drama, role playing method (Gundogan, Ari, & Gonen, 2013, Karwowski & Soszynski, 2008) are also used. The study of creativity in the context of COVID (Elisondo, 2022) or specific global events that can be described using SCAMPER approaches are examples of how SCAMPER embraces other disciplines or even general lifestyle concerns (Toraman, 2013).

**OBJECTIVES**

1. To compare the pre-test imagination scores across three dimensions- vividness, originality, transformativeness between the experimental and control groups.
2. To examine the effect of the Imagination Enhancement Programme on post-test imagination scores over all imagination test's dimensions.
3. To analyze the pre-test and post-test differences within each group across all three dimensions.

**HYPOTHESES:**

There will be no significant difference between the pre-test scores of experimental and control groups on vividness, originality, and transformativeness.

There will be no significant difference between the post-test scores of experimental and control groups on vividness, originality, and transformativeness.

There will be no significant difference between pre-test and post-test scores within the experimental group.

There will be no significant difference between pre-test and post-test scores within the control group.

**METHOD**

To investigate the impact of SCAMPER, the current study used a pre-test–post-test experimental design with an experimental group and a control group. Participants in the experimental group were exposed to the SCAMPER educational approach, while the control group received traditional instruction. By comparing the results of the two groups' pre- and post-tests, the study aimed to determine the effectiveness of the SCAMPER technique in enhancing imagination skills.

**SAMPLE**

The study sample comprised fifth-grade students from Amritsar, Punjab. Their ages ranged from 10 to 12 years. While there were 50 students, equally divided in both groups. Random sampling technique have been used to assigned the experimental and control group.

**TOOL**

Students across the ages of 10 and 12 did the Test of Creative Imagination. Participants in the test had to use twelve concrete shapes for generating new, imaginary schematic formations. This test has three subscales: vividness, originality and transformativeness.

**PROCEDURE**

In the first phase, both the experimental and control groups were administered a pre-test of imagination to obtain baseline scores. In the second phase, the experimental group was uncovered to a series of imagination-based activities over a period of four weeks. SCAMPER thinking technique was used as a treatment, i.e., story creation, picture completion, dramatization, and divergent thinking exercises, all designed to stimulate vividness, originality, and the ability to transform ideas. During the same period, the control group followed their regular school curriculum without additional interventions. In the final phase, a post-test of imagination, post-test has been administered to both groups in accordance with the pre-test to assess how significantly their imaginative skills were now stronger.

**RESULTS**

A thorough examination of the study's findings is provided in this section. It concentrates on the experimental group's pre-test and post-test findings. Furthermore, the control group's corresponding scores are additionally looked at. Performance variations over time are identified through comparisons. The results demonstrate how the treatment affected imaginative skills.

IMAGINATION	GROUPS	N	MEAN	SD	t-VALUE
-------------	--------	---	------	----	---------

Vividness	Experimental	25	22.48	3.52	0.41
	Control	25	22.12	3.44	
Originality	Experimental	25	18.96	3.21	.52
	Control	25	18.48	3.10	
Trans-formativeness	Experimental	25	20.40	3.08	0.36
	Control	25	20.12	3.15	

**TABLE 1. PAIRED SAMPLES T-TEST RESULTS OF CHILDREN IN THE EXPERIMENTAL GROUP AND CONTROL GROUPS OF PRE-TESTS**

**Interpretation-**In the above table, for vividness, the experimental group’s M22.48 and SD 3.52 in the contrary control group’s M22.12 and SD3.44 had very close identical scores. Same as in originality, Experimental group’s M18.96, SD3.21 and control group’s M18.48,SD3.10 and in Transformativeness, experimental group’s M20.40, SD3.08 and control group’s M20.12, SD3.15. This pre-test comparison revealed no significant differences between experimental control group across three dimensions of imagination test. The not-significant t-values ( $p > .05$ ) indicate that both groups were equivalent at baseline, ensuring a fair evaluation of the intervention’s impact.

**TABLE 2. PAIRED SAMPLES T-TEST RESULTS OF CHILDREN IN THE EXPERIMENTAL GROUP AND CONTROL GROUPS OF POST-TESTS**

**Paired Samples T-Test results for post-test mean scores of the children in experimental and the control groups.**

IMAGINATION	GROUPS	N	MEAN	SD	t-VALUE
Vividness	Experimental	25	29.84	3.21	6.48
	Control	25	23.16	3.40	
Originality	Experimental	25	27.12	3.08	7.25
	Control	25	19.20	3.36	
Trans-formativeness	Experimental	25	28.44	2.92	6.98
	Control	25	20.48	3.18	

**Interpretation-**The post-test results disclosed significant improvement in the experimental group associated with the control group across all three dimensions of imagination. For vividness, the experimental group (M 29.84, SD 3.21) outperformed the control group (M 23.16, SD 3.40). Similarly, originality scores were increased in the experimental group (M 27.12, SD 3.08) than in the control group (M 19.20, SD 3.36), and transformativeness also showed a marked difference in experimental group (M 28.44, SD 2.92) and in control group (M 20.48, SD3.18). These differences, supported by highly significant t-values ( $p < .001$ ), indicate that the intervention produced a substantial enhancement in imaginative abilities.

**TABLE 3. WITHIN-GROUP IN EXPERIMENTAL AND CONTROL GROUPS.**

DIMENSIONS (EXPERIMENTAL)	PRE	POST	t-VALUE	RESULTS
	MEAN (SD)	MEAN (SD)		
Vividness	22.48 (3.52)	29.84 (3.21)	12.32	Significant
Originality	18.96 (3.21)	27.12 (3.08)	11.86	Significant
Transformativeness	20.40 (3.08)	28.44 (2.92)	13.04	Significant

DIMENSIONS (CONTROL)	PRE	POST	t-VALUE	RESULTS
	MEAN (SD)	MEAN (SD)		
Vividness	22.12 (3.44)	23.16 (3.40)	1.12	Not significant
Originality	18.48 (3.10)	19.20 (3.36)	1.04	Not significant
Transformativeness	20.12 (3.15)	20.48 (3.18)	0.96	Not significant

**Interpretation-** In the experimental group, substantial improvements were observed in post-test from pre-test across all three dimensions of imagination. Vividness means increased from 22.48 to 29.84 and SD from 3.52 to 3.21, originality’s mean increased from 18.96 to 27.12 and SD from 3.21 to 3.08, and transformativeness from Mean 20.40, SD3.08 to M 28.44, SD 2.92. The significant t-values indicate a strong positive effect of the intervention. The group performing the control, on the other hand, only displayed moderate and insignificant variations. Vividness rose slightly from M 22.12, SD 3.44 to M 23.16, SD 3.40, originality from M18.48, SD 3.10 to M 19.20, SD 3.36, and transformativeness from M 20.12, SD 3.15 to M 20.48, SD 3.18. These negligible differences confirm that any improvements in imagination were primarily due to the experimental intervention.

### DISCUSSION

The findings clearly demonstrate, Imagination enhancement Programme had a strong and positive impact on the three dimensions of imagination vividness, originality, and transformativeness. When compared to their pre-test performance, the experimental group's post-test scores substantially improved, whereas control group exhibited

only negligible changes. These results provide compelling evidence that imagination is not only an inherent attribute nevertheless a cognitive skill that can be nurtured and strengthened by targeted interventions. The significant gains observed in vividness suggest that guided imagery activities, sensory-rich visualization tasks, and structured imagination prompts effectively enhanced the clarity and detail of participants' mental imagery. This finding aligns with earlier work by Kosslyn (1995), who highlighted that repeated engagement in mental imagery activates neural pathways responsible for visual representation, leading to greater vividness and sharper mental pictures.

Improvements in originality indicate that the intervention successfully stimulated divergent thinking. Activities such as open-ended story creation, creative reinterpretation of images, and idea transformation exercises helped participants break habitual thinking patterns and generate unique, uncommon responses. This supports Guilford's (1967) view that originality can be heightened through deliberate cognitive stimulation and exposure to tasks that challenge conventional thought processes. Similarly, the strong enhancement in transformativeness reflects increased cognitive flexibility—the ability to manipulate, reorganize, and reshape mental images. Transformational tasks encourage individuals to modify existing ideas to create new forms, consistent with Torrance's (1974) belief that creative transformation emerges from the willingness to reconfigure familiar concepts. The significant improvement in this dimension confirms that training can strengthen mental adaptability and imaginative restructuring skills.

The absence of meaningful changes in the control group further strengthens the conclusion that the improvements were a direct result of the intervention. The baseline equivalence of both groups, established through non-significant pre-test differences, ensures that the observed gains cannot be attributed to external factors or natural maturation. Overall, the results demonstrate that imagination can be systematically developed through structured and cognitively engaging activities. These findings have important implications for education, creativity training, innovation programmes, and psychological development. Integrating imagination-enhancing tasks into instructional settings can foster creative potential, improve problem-solving abilities, and encourage flexible thinking among learners.

## CONCLUSION

The study concluded that imagination comprising vividness, originality, and transformativeness can be significantly improved through structured intervention. The Imagination Enhancement Programme proved effective in bringing measurable improvements among young adults. So, this research demonstrates The SCAMPER technique has a positive effect on improving creative imagination. It encourages individuals to think flexibly and generate original ideas. Early exposure helps nurture creativity and imaginative abilities. Providing rich and stimulating environmental conditions supports imaginative development. Such environments allow creativity to flourish naturally. Imagination has no limits and should not be restricted by certainty. Suppressing imagination can hinder creative growth and innovation. The future of mankind depends on new discoveries and innovative ideas. Human progress will advance through imaginative thinking and creative exploration.

## REFERENCES

1. Boonpracha, J., Roong-in, J., Lookraks, S., Wongtanaporn, P., Kooptiwoot, S., & Seangkong, S. (2023). Creativity of students' cultural product design using the SCAMPER technique. *Journal of Mekong Societies*, 19(2), 179–196.
2. Celume, A., et al. (2019). Developing children's creativity and social-emotional competencies through play: Summary of twenty years of findings of the evidence-based interventions "Game Program". *Journal of Creativity and Education*, 10(4), 77.
3. Eberle, B. (2008). SCAMPER: Creative games and activities for imagination development. Waco, TX: Prufrock Press.
4. Egan, K. (1992). *Imagination in teaching and learning: Ages 8 to 15*. Routledge.
5. Elisondo, R. C. (2022). Creative processes and emotions in COVID-19 pandemic. *Creativity Studies*, 15(2), 389-405
6. Fleer, M. (2025). Conceptual PlayWorlds: A transformational model for children's learning and development in an early childhood education setting in Indonesia. *Journal of Early Childhood Research*, 23(1), 46–60.
7. Gelman, S. A., & Gottfried, G. M. (2010). *Creativity in young children's thought*. In J. C. Kaufman & J. Baer (Eds.), *Creativity and reason in cognitive development*, Cambridge University Press.
8. Gundogan, A., Ari, M., & Gönen, M. (2013). The effect of drama on the creative imagination of children in different age groups. *Hacettepe University Journal of Education*, 28(2), 206-220.
9. Hussain, M., & Carignan, A. (2016). Fourth graders make inventions using SCAMPER and animal adaptation ideas. *Journal of STEM Arts, Crafts, and Constructions*, 1(2), 48-66.
10. Karwowski, M., & Soszynski, M. (2008). How to develop creative imagination? Assumptions, aims and effectiveness of role play training in creativity. *Thinking Skills and Creativity*, 3(2), 163-171. <https://doi.org/10.1016/j.tsc.2008.07.001>

11. Khawaldeh, H. M., & Ali, Md. R. (2016). The different impact of SCAMPER and CoRT programs on creative thinking among gifted and talented students. *Asian Journal of Multidisciplinary Studies*, 4(12), 7-14.
12. Kim, K. H., Kaufman, J. C., & Sriraman, B. (Eds.). (2013). *Creatively gifted students are not like other gifted students: Research, theory, and practice*. Sense Publishers.
13. Lindqvist, G. (2003). Vygotsky's theory of creativity. *Creativity Research Journal*, 15(2-3), 245-251. [https://doi.org/10.1207/S15326934CRJ152&3\\_14](https://doi.org/10.1207/S15326934CRJ152&3_14)
14. Majid, D. A., Tan, A.-G., & Soh, K.-C. (2003). Enhancing children's creativity: An exploratory study on using the internet and SCAMPER as creative writing tools. *The Korean Journal of Thinking and Problem Solving*, 13(2), 67-81.
15. Mijares-Colmenares, B. E., Masten, W. G., & Underwood, J. R. (1993). Effects of trait anxiety and the scamper technique on creative thinking of intellectually gifted students. *Psychological Reports*, 72(3), 907-912. <https://doi.org/10.2466/pr0.1993.72.3.907>
16. Moreno, D. P., Yang, M. C., Hernández, A. A., & Wood, K. L. (2014, 19–22 May). Creativity in transactional design problems: Non-intuitive findings of an expert study using SCAMPER. *Proceedings of the International Design Conference "Design 2014"* (pp. 569-578). International Design Conference "Design 2014". Dubrovnik, Croatia.
17. Mundy, E., & Gilmore, C. K. (2009). Children's mapping between symbolic and nonsymbolic representations of number. *Journal of Experimental Child Psychology*, 103(4), 490-502. <https://doi.org/10.1016/j.jecp.2009.02.003>
18. Niland, A. (2023). *Picture books, imagination and play: Pathways to positive reading identities for young children*. *Education Sciences*, 13(5), 511. <https://doi.org/10.3390/educsci13050511MDPI>
19. Ourda, D., Polyzoudi, E., Gregoriadis, A., & Barkoukis, V. (2025). Relationship between playful behaviour, social profile and motor creativity in preschool children. *Children*, 8, 969. <https://doi.org/10.3390/children12080969> OUCI
20. Poon, J. C. Y., Au, A. C. Y., Tong, T. M. Y., & Lau, S. (2014). The feasibility of enhancement of knowledge and self-confidence in creativity: A pilot study of a three-hour SCAMPER workshop on secondary students. *Thinking Skills and Creativity*, 14, 32-40. <https://doi.org/10.1016/j.tsc.2014.06.006>
21. Rule, A. C., Baldwin, S., & Schell, R. (2009). Trick-or-treat candy-getters and hornet scare devices: Second graders make creative inventions related to animal adaptations. *Journal of Creative Behavior*, 43(3), 149-168. <https://doi.org/10.1002/j.2162-6057.2009.tb01312.x>
22. Sak, U., & Öz, Ö. (2010). The effectiveness of the creative reversal act (CREACT) on students' creative thinking. *Thinking Skills and Creativity*, 5, 33-39. <https://doi.org/10.1016/j.tsc.2009.09.004>
23. Toraman, S. (2013). Application of the six thinking hats and SCAMPER techniques on the 7th grade course unit, "Human and Environment:" An exemplary case study. *Mevlana International Journal of Education*, 3(4), 166-18.
24. Veresov, N. N., Veraksa, A. N., & Plotnikova, V. A. (2025). Using PlayWorld to promote narrative development: Evidence from a double-blind control experiment. *Journal Name, Volume(Issue)*, pages.
25. Vernon, D., & Hocking, I. (2014). Thinking hats and good men: Structured techniques in a problem construction task. *Thinking Skills and Creativity*, 14, 41-46. <https://doi.org/10.1016/j.tsc.2014.07.001>
26. Vijayaratnam, Ph. (2009). Cooperative learning as a means to developing students' critical and creative thinking skills. *INTI Journal*. Retrieved from [http://eprints.intimal.edu.my/412/1/2009\\_14.pdf](http://eprints.intimal.edu.my/412/1/2009_14.pdf)
27. Vygotsky, L. S. (2004). Imagination and creativity in childhood. *Journal of Russian and East European Psychology*, 42(1), 7-97.
28. Wang, W.-Ch., Lee, Ch.-Ch., & Chu, Y.-Ch. (2010). A brief review on developing creative thinking in young children by mind mapping. *International Business Research*, 3(3), 233-238. <https://doi.org/10.5539/ibr.v3n3p233>
29. Yonzon, K. C., Fleer, M., & Fragkiadaki, G. (2023). The role of props in promoting imagination during toddlerhood. *International Journal of Early Childhood*, 55, 223-240. <https://doi.org/10.1007/s13158-022-00336-9>
30. Yuen, M. C., Tarique Azam, N. S., & Ang, K. Y. (2015). SCAMPER for character design unique zoo creature. In O. Hasdinor Hassan, Sh. Zainal Abidin, R. Legino, R. Anwar, M. R. Fairus Kamaruzaman (Eds.), *International Colloquium of Art and Design Education Research (i-CADER 2014)*. Singapore: Springer Science+Business Media. [https://doi.org/10.1007/978-981-287-332-3\\_36](https://doi.org/10.1007/978-981-287-332-3_36)