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EFFECT OF MINDFUL MEDITATION ON CREATIVE THINKING AMONG ARCHITECTURE STUDENTS: A FIVE-DIMENSIONAL MODEL APPROACH

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Abstract : Creativity is a central requirement in architectural education, as students are expected to integrate functional, aesthetic, environmental, and conceptual elements into innovative design solutions. Recent educational research increasingly recognizes creativity as a capacity that can be cultivated through cognitive awareness and mental discipline. This study investigates the influence of mindful meditation on the creative thinking of architecture students using a quantitative pre-test and post-test research design grounded in the Five-Dimensional Model of Creativity. A structured meditation programme was administered to a group of undergraduate architecture students, and their creativity levels were measured before and after the intervention. Statistical analysis revealed a significant increase in overall creativity as well as improvements across multiple creative dimensions. The findings suggest that mindful meditation strengthens attention, reflective awareness, and openness to new ideas, thereby supporting the development of creative habits of mind. The study offers empirical support for incorporating mindfulness-based practices into architectural education to enhance creative potential.

IndexTerms - Mindful Meditation, Creativity, Architecture Students, Creative Habits of Mind, Architectural Education

1) INTRODUCTION

Creativity forms the foundation of architectural education and professional practice. Architects are required to continuously generate original design solutions while balancing functionality, aesthetics, environmental responsibility, and social context. This complex creative process demands not only technical competence but also imagination, curiosity, and sustained cognitive engagement.

In academic settings, however, architecture students are frequently exposed to intense workloads, studio pressure, and constant evaluation. These conditions often lead to mental fatigue, anxiety, and reduced cognitive flexibility, which can negatively affect creative performance. As a result, educators and researchers have begun to explore internal cognitive and emotional factors that influence creative thinking rather than focusing solely on external instructional methods.

Mindful meditation has emerged as a promising approach for enhancing mental clarity, emotional regulation, and attentional control. By training individuals to observe their thoughts and experiences without judgment, mindfulness encourages greater awareness of internal cognitive processes. This awareness can reduce habitual thinking patterns and create space for new ideas to emerge.

Within this context, the present study examines whether mindful meditation can contribute to the development of creativity among architecture students. Instead of viewing creativity as an inborn trait, this research treats it as a set of mental habits that can be cultivated through appropriate cognitive practices.

2) CONCEPTUAL FRAMEWORK: FIVE-DIMENSIONAL MODEL OF CREATIVITY

This study is grounded in the Five-Dimensional Model of Creativity, which conceptualizes creativity as a combination of five interrelated habits of mind: inquisitive, imaginative, persistent, collaborative, and disciplined. According to this model, creativity is not a mysterious or fixed ability but a dynamic process that develops through intentional thinking and reflective practice.

Inquisitive creativity refers to the tendency to ask questions, explore alternatives, and challenge existing assumptions. In architectural design, this habit allows students to investigate problems from multiple perspectives.

Imaginative creativity involves the ability to generate new ideas, visualize possibilities, and make unexpected connections. This dimension supports originality and conceptual innovation in design thinking.

Persistent creativity reflects the capacity to remain engaged with complex problems despite uncertainty or difficulty. It includes resilience, risk-taking, and willingness to revise ideas.

Collaborative creativity recognizes that creative work is often shaped through interaction, discussion, and shared meaning-making. Architecture students frequently develop ideas through teamwork and critique.

Disciplined creativity refers to the ability to refine ideas through evaluation, structure, and careful execution. It ensures that creative concepts are transformed into coherent and workable designs.

Together, these five dimensions provide a comprehensive framework for understanding creativity as a cognitive and behavioral process. This model is particularly suited to architectural education, where creative development occurs through exploration, feedback, revision, and disciplined design practice.

3) MINDFUL MEDITATION AND CREATIVITY

Mindful meditation enhances regulation, reduces cognitive distraction, and promotes awareness of internal thought processes. Research in cognitive psychology suggests that mindfulness facilitates divergent thinking, insight formation, and cognitive flexibility—key components of creative cognition.

By cultivating awareness without judgment, mindful meditation allows individuals to disengage from habitual thought patterns and access novel ideas. These cognitive benefits align closely with the creative habits outlined in the Five-Dimensional Model, particularly inquisitive, imaginative, and disciplined creativity.

Despite increasing interest in mindfulness in education, empirical studies examining its impact on creativity within architectural education remain limited, particularly in the Indian context. This study addresses this research gap.

4) OBJECTIVES OF THE STUDY

1. To assess the level of creativity among students of architecture.
2. To implement a structured mindful meditation intervention.
3. To examine the effect of mindful meditation on overall creativity.
4. To analyze changes in different dimensions of creativity following the intervention.

5) HYPOTHESES

- **H_0:** Mindful meditation has no significant effect on creativity among students of architecture.
- **H_1:** Mindful meditation has a significant effect on creativity among students of architecture.

6) RESEARCH METHODOLOGY

6.1 Research Design

The study adopted a quantitative quasi-experimental design using a single-group pre-test and post-test framework. This design was chosen to determine whether mindful meditation produces measurable changes in creativity among architecture students by comparing scores obtained before and after the intervention within the same group of participants.

Phase	Measurement	Purpose
Pre-test	Creativity Scale	Baseline creativity assessment
Intervention	Mindful Meditation Programme	Exposure to independent variable
Post-test	Creativity Scale	Measurement of change

6.2 Population and Sample

The population consisted of undergraduate students enrolled in architecture programs. A **purposive sampling method** was used to select participants who were actively pursuing architectural studies and who had not previously undergone formal meditation training. Participation was voluntary.

A total of **60 students** were included in the final sample. The participants were between **18 and 24 years of age** and represented different academic years within the architecture program. A purposive sampling technique was adopted to select participants who were:

- Actively enrolled in architecture programs
- Willing to participate in meditation sessions
- Free from prior formal meditation training

A total of N = 60 architecture students participated in the study.

Variable	Description
Population	Architecture students
Sampling method	Purposive sampling
Sample size	60 students
Age group	18–24 years
Study type	Pre-test–post-test

6.3 Research Variables

Type	Variable
Independent Variable	Mindful meditation
Dependent Variable	Creativity
Dimensions of Creativity	Inquisitive, Imaginative, Persistent, Collaborative, Disciplined

6.4 Research Instrument

Creativity was measured using a **Five-Dimensional Creativity Assessment Scale**, developed based on Lucas' (2016) Five-Dimensional Model of Creativity.

The tool consisted of **40 items** rated on a **5-point Likert scale** ranging from *Strongly Disagree (1)* to *Strongly Agree (5)*.

Dimension	No. of Items	Maximum Score
Inquisitive	8	40
Imaginative	8	40
Persistent	8	40
Collaborative	8	40
Disciplined	8	40
Total	**40**	**200**

Higher scores indicate higher levels of creativity.

6.5 Data Collection

Creativity scores were collected at two stages:

- **Pre-test** – before meditation programme
- **Post-test** – after completion of meditation programme

6.6 Statistical Techniques Used

The collected data were analysed using:

- **Mean and Standard Deviation** to describe creativity levels.
- **Paired-sample t-test** to determine whether differences between pre-test and post-test scores were statistically significant
- A **significance level of 0.05** was used for hypothesis testing.

The collected data were analysed using:

Purpose	Statistical Tool
Mean and variability	Mean, Standard Deviation
Difference between pre-test and post-test	Paired Sample t-test
Significance testing	p-value at 0.05 level

6.7 Hypothesis Testing Model

Hypothesis	Statistical Test	Decision Rule
H_0	Paired t-test	Reject if $p < 0.05$
H_1	Paired t-test	Accept if $p < 0.05$

6.8 Ethical Considerations

- Participation was voluntary
- Informed consent was obtained
- Data were kept confidential
- Participants could withdraw at any time.

7) RESULTS AND DATA ANALYSIS

The data obtained from the pre-test and post-test creativity scores were analyzed using **descriptive statistics** and **paired sample t-tests** to determine the effect of mindful meditation on creativity among architecture students.

7.1 Descriptive Statistics of Overall Creativity

Test	N	Mean	Standard Deviation
Pre-test	60	112.46	14.82
Post-test	60	138.73	15.64

7.2 Paired Sample t-Test for Overall Creativity

Variable	Mean Difference	t-value	p-value	Result
Creativity (Pre vs Post)	26.27	9.84	0.000	Significant

Since **$p < 0.05$**, the null hypothesis is rejected. This confirms that **mindful meditation produced a statistically significant improvement in creativity** among architecture students.

7.3 Dimension-Wise Descriptive Statistics

Creativity Dimension	Pre-test Mean	Post-test Mean	Mean Gain
Inquisitive	22.14	28.63	6.49
Imaginative	23.02	29.41	6.39
Persistent	21.48	26.32	4.84
Collaborative	22.67	26.91	4.24
Disciplined	23.15	27.46	4.31

7.4 Paired t-Test for Creativity Dimensions

Dimension	t-value	p-value	Significance
Inquisitive	8.21	0	Significant
Imaginative	8.43	0	Significant
Persistent	6.12	0	Significant
Collaborative	5.48	0	Significant
Disciplined	6.05	0	Significant

All p-values are less than 0.05, indicating that **mindful meditation significantly improved every dimension of creativity**.

7.5 Hypothesis Testing

Hypothesis	Result
H_0: Mindful meditation has no significant effect on creativity	Rejected

Hypothesis	Result
H_1: Mindful meditation has a significant effect on creativity	Accepted

7.6 Interpretation of Findings

Statistical analysis revealed a substantial increase in creativity scores following the mindful meditation programme. The post-test mean was significantly higher than the pre-test mean, indicating that participants demonstrated stronger creative thinking after the intervention.

Paired-sample t-test results showed that the difference between pre-test and post-test scores was statistically significant ($p < 0.05$). This confirms that mindful meditation had a meaningful effect on creativity.

When analysed by dimensions, improvements were observed in all five creative habits. The greatest gains occurred in **inquisitive** and **imaginative creativity**, suggesting that students became more open to questioning, idea generation, and conceptual exploration. Moderate but significant gains were also found in **persistent, collaborative, and disciplined creativity**.

8) DISCUSSION

The findings of the study provide strong evidence that mindful meditation enhances creative thinking among architecture students. The increase in creativity scores suggests that meditation supports key cognitive and emotional processes involved in creative work.

Improvements in inquisitive and imaginative creativity indicate that mindfulness helps students become more curious and open-minded. By learning to observe their thoughts without judgment, students are better able to break away from rigid thinking patterns and explore new ideas. This is particularly valuable in architectural design, where innovation depends on the ability to generate and test multiple possibilities.

The growth observed in disciplined and persistent creativity suggests that meditation also improves concentration and emotional regulation. These qualities enable students to remain engaged with challenging design tasks, revise their work thoughtfully, and tolerate uncertainty during the creative process.

Overall, the results support the view that creativity is not merely an innate ability but a **set of cognitive habits that can be developed through mental training** such as mindfulness.

9) CONCLUSION

The present study demonstrates that **mindful meditation has a significant positive influence on the creativity of architecture students**. Participants showed notable improvements in overall creativity as well as in all five dimensions of the Five-Dimensional Model of Creativity.

By enhancing attentional focus, emotional balance, and reflective awareness, mindful meditation helps students think more flexibly and engage more deeply with design challenges. These findings suggest that mindfulness-based practices can serve as valuable tools in architectural education by supporting both creative development and psychological well-being.

10) LIMITATIONS OF THE STUDY

Although the study offers meaningful insights, several limitations should be acknowledged:

- The absence of a control group limits the ability to attribute changes solely to the meditation programme.
- The sample was restricted to architecture students from a single setting, which limits broader generalization.
- Creativity was measured through self-report, which may be influenced by subjective bias.
- The intervention was of short duration, so long-term effects were not examined.

11) FUTURE SCOPE OF THE STUDY

Future research can expand this work in several directions:

- Including control groups to strengthen causal conclusions.
- Expanding the sample across different institutions and disciplines.
- Conducting longitudinal studies to assess lasting effects.
- Using neurocognitive or behavioral measures alongside self-reports.
- Applying similar interventions in engineering, fine arts, and management education.

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