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Does The Way We Sit Influence Our Cognitive Thinking?

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Abstract — *Posture is mostly understood as an attribute of physical health; however, recent studies have revealed that it also impacts cognitive functions, thereby reinforcing the mind-body connection. This study investigates the relationship between sitting postures like conventional sitting on chairs and Indian cross-legged posture on ground, and their effects on creativity and attention. Creativity was assessed using Divergent Association Test and Remote Association Test. Meanwhile, attention was assessed using the Stroop Color and Word Test and the Trail Making Test. 16 students, consisting of 12 males and 4 females, took part in the study. Results presented that the two postures had a marginal difference in the two tests related to creativity. However, the group collectively exhibited a decrease in the average time taken to complete the trail test, demonstrating improved attention in the ICL posture on the ground. Meanwhile, the Stroop effect score indicated more cognitive interference in the ICL posture. The study findings augment to the foundational knowledge of the traditional sitting postures like ICL, as well as add significant value for future investigations.*

Keywords: *Attention; Creativity; Design students; Indian Cross-Legged; Sitting Posture*

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I. Introduction

Posture refers to the body's position in space (F, et al. 2017), and are inherent ways by which an individual stands, walks, sits, etc. It is viewed as an involuntary and unconscious position (Oravitan 2009), reflecting how the body reacts to the force of gravity. Posture is affected by a range of factors, including neurophysiological, biomechanical, and psych-emotive factors that have evolved over time (F, et al. 2017). Meanwhile, Mauss's work concludes that bodily actions, such as posture, are learned behaviors transmitted culturally (Mauss 1973). In addition, Hewes' study (1955) on postural habits across cultures observed that the sitting postures are quite different in Western and non-Western societies. Chair-based sitting is quite prevalent in Western societies, while ground-sitting postures like squatting, cross-legged, are quite common among non-Western cultures, particularly in Asian societies. This way of ground-sitting practice is thus observed in a varied set of activities and household chores. It is a common sight in these cultures to find individuals engaging in routine as well as cognitive tasks like reading, writing, and even sketching, in such postures. Furthermore, it has been observed that students of design courses in India adopt such postures in their teaching-learning environment, though it is challenged by constraints like chair design, formal class setup, etc. (Srivastava, Paul and Atreya 2024, Srivastava, Kumar and Atreya 2025).

As evidence on mind-body connections is established, it seems intriguing to explore how sitting postures affect cognitive functions such as creativity and attention. Hence, the objective of this study is to investigate the relationship between two sitting postures —conventional sitting on a chair and Indian cross-legged sitting on the ground —and their effects on creativity and attention.

II. Literature review

The research on mind-body relationships is evolving with stronger associations being evident as we progress. This connection finds its roots back to ancient Indian scriptures on yoga, where specific sitting yoga postures aided in the benefit of mental health. Indian cross-legged sitting postures mimicking yoga postures, such as Siddhāsana, impart a soothing effect by alleviating mental fatigue and stress (S. S. Saraswati 1996). Similarly, Padmāsana helps bring about a state of tranquillity (S. N. Saraswati 1992) and reinforces emotional stability (Naragatti and S 2023). Even modern healthcare has found evidence and significantly benefited from this mind-body connection. The study by Marie et al. (2018) on the practice of Mindfulness and Pain Control has found neurological evidence in treating chronic pain, thus reinforcing this connection. Likewise, effects of mind-body programs and therapies have found optimistic results, such as positively affecting the pregnancy rate among infertile women (Ha and Ban 2021); alleviating non-specific lower back pain (Yang, et al. 2023); and addressing sleep disturbances in cancer survivors (Nakamura, et al. 2013), etc.

Meanwhile, very few studies have explored the impact of posture on creativity (Michinov and Michinov 2022). Andolfi et al. (2017) concluded that expansive posture enhances the creativity level. Similarly, a study by Michinov et al. (2022) found that body postures positively affect creativity.

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Their study demonstrated that expansive postures positively influence creative tasks necessitating divergent thinking, while contractive postures similarly affect tasks requiring convergent integrative processes. However, findings by Song et al. (2024), partially aligned with the latter conclusions, indicate positive influences of expansive posture on divergent tasks, and no such influences of contractive posture on convergent thinking tasks.

In addition, prior investigations have explored the effects of posture on attention, but these were oriented towards postural variations like standing and sitting. For instance, a study by Smith et al. (2019) concluded that standing posture enhanced cognitive function; however, contrasting results were reported in multiple studies (Caron, et al. 2020, Caron, et al. 2022, Straub, et al. 2022). In conclusion, previous studies have examined various aspects of postures, including expansive and contractive postures, as well as standing and sitting positions. However, the two distinct types of sitting, i.e., chair-based and ground-based, have not been explored much yet. This research attempts to fill this gap in the current literature.

III. Methods

16 students from the Department of Design, Indian Institute of Technology Roorkee, India, participated in the study through convenience sampling. These students were given specific tasks to assess their creativity and attention in two distinct postures through multiple tools. It included the Divergent Association Task (DAT) to assess divergent thinking and the Remote Association Test (RAT) for convergent thinking. Attention was evaluated utilizing two tests- the Stroop Color and Word Test (SCWT) and the Trail Making Test (TMT). These are further elaborated as below-

A. Creativity

Divergent thinking and verbal creativity are assessed using the Divergent Association Task (DAT). It entails writing ten words (nouns) that are as dissimilar from one another as possible, and a computational algorithm estimates the average semantic distance between those words (Olson, et al. 2021). So, those producing words with higher semantic distances demonstrate higher creativity in tasks involving divergent thinking. The test was conducted using paper and pen, and the scores were generated post-test by manually entering the words on the test website (https://www.datcreativity.com/task) by one of the researchers.

The Remote Association Test (RAT) measures creative convergent thinking. Each question in the RAT presents a group of words and requires the respondent to provide a single additional word that connects all the others together. The test, which comprised a set of 10 questions, was administered on paper and pen and included easy, medium, and hard questions. The test set was created utilizing the repository from the website (https://www.remote-associates-test.com/). The scoring was done by giving a +1 mark for a correct answer and 0 for a wrong or an unattempted question.

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B. Attention

The Stroop Color and Word Test (SCWT) assesses an individual's ability to inhibit cognitive interference by presenting two conditions of congruent and incongruent trails. The score is calculated by taking the average correct response time for incongruent trials and subtracting it with congruent trials. Incongruent trials indicate that the color of the word and its meaning differ, while congruent trials feature words whose color and meaning match. Typically, incongruent words require more time as they draw attention and are less intuitive for individuals. Hence, a lower Stroop score indicates higher levels of attention, and a higher Stroop score indicates lower levels of attention. The test can be accessed on the website (https://www.psytoolkit.org/experiment-library/experiment_stroop.html).

The Trail Making Test (TMT) is a neuropsychological evaluation method intended to assess cognitive abilities such as processing speed, attention, and likewise (Reimers 2019). There are two parts to it: A and B. The goal of Part A is to connect the randomly numbered circles in a sequential order (e.g., 1-2-3…25) as rapidly as possible. Meanwhile, Part B contains both numbered circles and letters within circles. The participant's task is to connect alternating numbers and letters in the following order: 1-A-2-B…12-L. It is a timed test, and the results for both parts are reported in seconds. A higher score (time) reflects greater cognitive impairment, also conveying that a shorter time represents higher attention. Various samples of TMT are available and accessible online.

After preparing the test sets for the two posture instances, an experiment plan was formulated that required various devices, as shown in Figure 1. In the experiment, screen-based tasks were performed on an HP Pavilion laptop. A laptop stand, Dyazo Laptop Cooling Pad, was used to keep the laptop screen at the eye level of the participants. For timing the test, a default clock timer was used on the new 11th Gen iPad Air. The same equipment was employed for both the conventional and the Indian cross-legged sitting posture (Figure 2). For the conventional sitting setup, we used a tabletop desk already installed at the department, along with a Geeken office chair that featured lumbar support and five-pronged legs with castor wheels. For the Indian Cross-legged sitting posture, we used a short-height desk and provided a cotton mat for the participants to sit. The whole experiment was captured through imagery and video documentation. Images were captured using a Samsung A52s 5G (2022 model) mobile phone, while videos were recorded with a Panasonic HC-V758 handycam mounted on a Fotopro X-Go HR tripod.

Consent for participation and publication was obtained from all the participants (Figure 1, Figure 02).

The experiment plan was designed as follows:

- The potential candidates for the experiment were notified a day in advance to ensure their availability and to help them plan their schedules accordingly. Participants were informed to dress comfortably so they could sit on the ground in the Indian Cross-legged (ICL) posture while performing both paper-based (Figures 2B and 2D) and screen-based tasks (Figures 2A and 2C). Details about the test were not disclosed until the experiment took place.

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- On the day of the experiment, the participants were provided detailed information about the experiment and were required to complete an online consent form before beginning. The consent form also documented the participant's demographic profile and a few additional questions, such as the number of hours spent in the two different postures, etc. The experiment was initiated once the briefing and submission of form was concluded.
- First, Stroop Color and Word Test (SCWT) was accomplished digitally on the Psytoolkit website (Figure 3). The task was explained, and the participants were encouraged to ask any questions if they had any doubts.

Figure 1

The experiment was set up for both sitting postures.

Figure 2

The screen-based and paper-based tests are being attempted by the participant in chair and ground sitting postures.

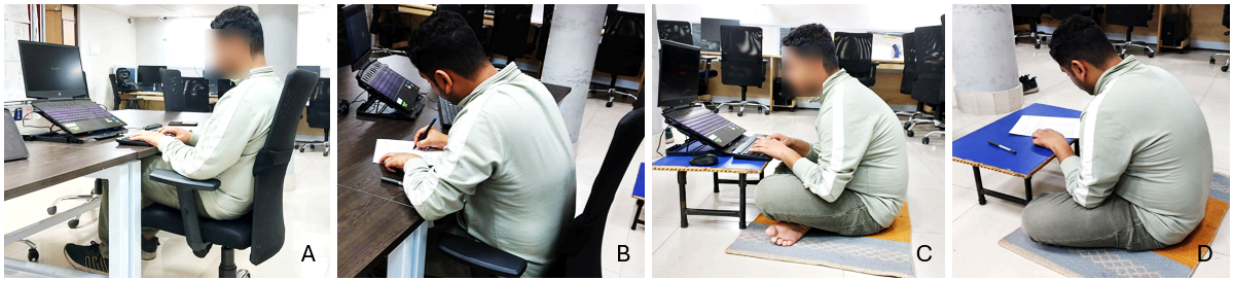

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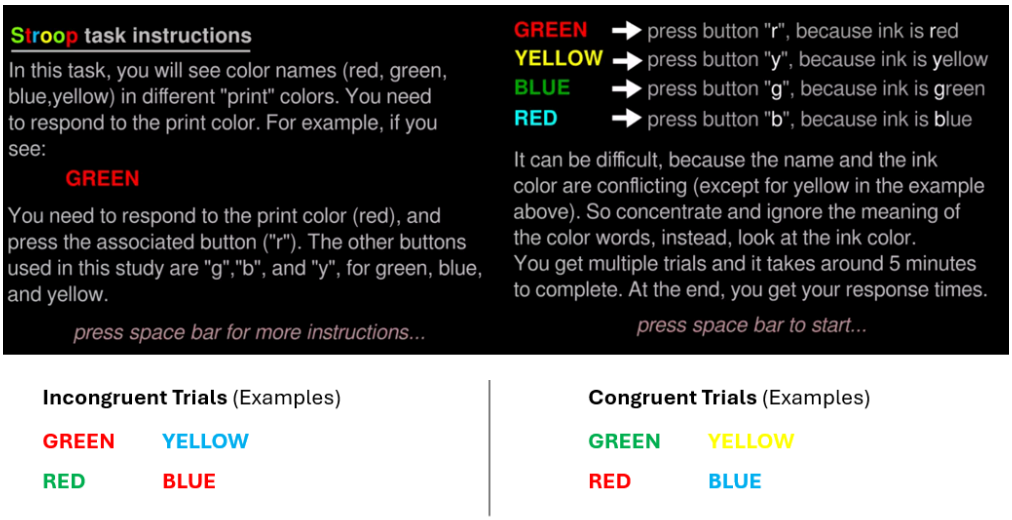
Figure 3

Stroop Color and Word test, along with examples of incongruent and congruent trials.

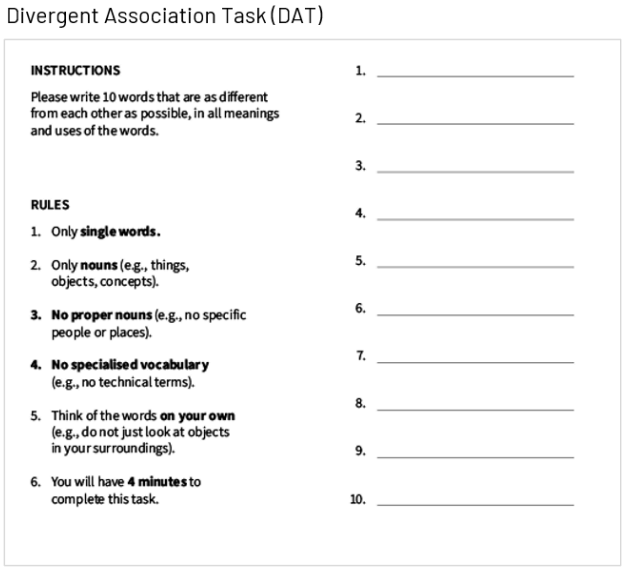


Note. This is a screenshot image (arranged in a black background) from the Stroop Color and Word Test (Psytoolkit.org), accessible through the link: https://www.psytoolkit.org/experiment-library/experiment_stroop.html.

- The second test was the Divergent Association Task (DAT), which was paper-based (Figure 4). The instructions and rules were included on the paper and also verbally briefed to the participants. They were instructed to finish the test in under 4 minutes.

Figure 4

DAT Questions.



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- The third test was the Remote Association Test (RAT) as shown in Figure 5. To ensure a better understanding of the test, an example was provided below the instructions, and the instructions were also verbally briefed before they began writing their answers. Participants were expected to finish the test in under 5 minutes.

Figure 5
RAT Questions.

- Figure 6 shows the Trail Making Test (TMT- A and B). Part A had to be completed in under 90 seconds (1.5 minutes), while Part B in under 5 minutes. If the participant made a mistake while connecting the circles, the moderator immediately brought it to their attention to prevent adding any extra time to their test completion time.

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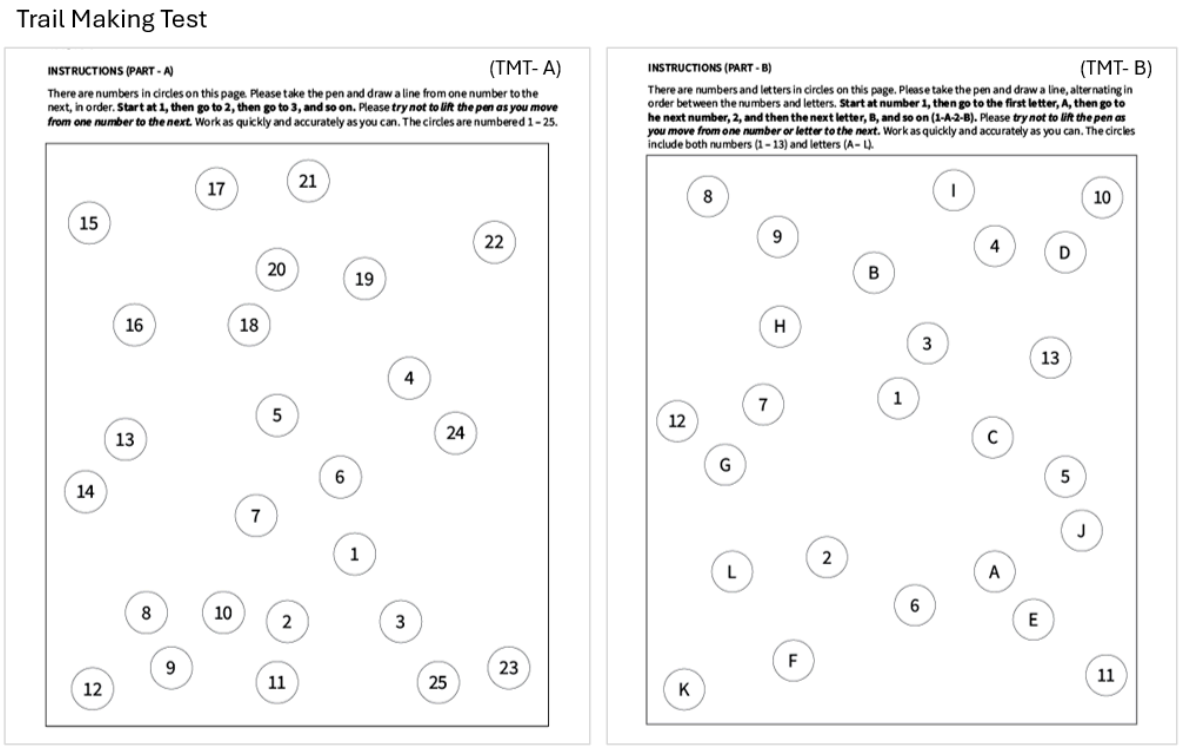
Figure 6

Trail Making Test (TMT- A and B).



- Upon completion of all the above tests in a conventional sitting posture on a chair, which would take about 15-20 minutes, participants were given a 10-minute unmonitored break. Refreshments, including a variety of biscuits and cookies, were provided just before they took a break.
- After the break, the same experiments were conducted again with participants seated in the ICL posture on the ground. They were given the option to remove their footwear as per their comfort.

IV. Results

The experiment involved a total of 16 participants, comprising 12 males and 4 females. The demographic details are presented in Table 1 along with the time spent on activities for maintaining their physical and mental health. It was found that an average of half an hour was spent engaging in some form of activities like yoga, sports, gym, meditation, painting, etc. These participants were sitting in a conventional posture for approximately 8.34±2.31 hours, and 1.25±1.40 hours in the Indian cross-legged posture, on a typical day.

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Table 1
Participant overview

Participant Count	**Age** (in years)	**Weight** (in kg)	**Height** (in cm)	**Time spent on maintaining physical health** (in hours)	**Time spent on maintaining mental health** (in hours)
n=16	26.13 ± 3.56	68.25 ± 12.73	168.69 ± 7.69	0.56 ± 0.48	0.58 ± 2.33

Below are the test results for all participants in a total of four tasks, performed both in conventional and Indian Cross-Legged sitting postures. The findings of the experiment can be inferred in two perspectives: i) a collective insight and ii) individual patterns.

Table 2
Participant Scores from the tests for Creativity

	Divergent Association Task (DAT) Score		**Remote Association Test (RAT) Score**	
Participant	Conventional sitting	Indian cross-legged sitting	Conventional sitting	Indian cross-legged sitting
P1	78.24	75.27↓	0	0
P2	83.49	81.07↓	7	7
P3	68.72	78.66↑	3	5↑
P4	79.07	68.88↓	5	5
P5	78.69	83.50↑	3	3
P6	78.43	72.77↓	2	1↓
P7	74.00	69.58↓	2	1↓
P8	78.35	78.20↓	2	0↓
P9	71.60	82.63↑	3	1↓
P10	82.19	75.76↓	5	3↓
P11	76.53	75.06↓	3	5↑
P12	79.05	74.21↓	2	2
P13	73.25	74.05↑	3	4↑
P14	79.78	72.58↓	4	6↑
P15	80.03	81.88↑	3	2↓
P16	81.99	83.20↑	2	2
Total	**1243.41**	**1227.30**	**49**	**47**
Average	**77.71±4**	**76.71±4.75**	**3.06±1.61**	**2.94±2.17**

Considering the entire group, we can infer the overall trend for the two postures, i.e., chair-based sitting and ground-based ICL sitting. According to Table 2, the DAT average score assessing divergent thinking was 77.71±4 for conventional sitting and 76.71±4.75 for the ICL sitting. Meanwhile,

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the RAT average score assessing convergent thinking was 3.06±1.61 and 2.94±2.17, respectively. The overall scores from both tests suggest only a marginal difference between the two postures and no strong group-wise trend. Observing individual patterns in DAT scores, 6 participants thrived in the Indian cross-legged sitting posture, as evidenced by the increase in their scores, while others (10 participants) saw declines. This pattern indicates that the performance in divergent thinking tasks may be posture-sensitive at an individual level, possibly influenced by comfort, habit, flexibility, lifestyle, etc. In the RAT test, 4 participants improved their scores in the Indian cross-legged postures, with 6 participants having no change, and the remaining 6 performed better in the conventional posture. These results align with the indications of DAT scores, suggesting that the impact of posture change on convergent thinking tasks varies from each individual case.

Table 3

Participant Scores from the tests for Attention

Participant	Trail Making Test (TMT) Score				Stroop Effect Score	
	Conventional sitting (in seconds)		Indian cross-legged sitting (in seconds)		Conventional sitting (in milliseconds)	Indian cross-legged sitting (in milliseconds)
	Part A	Part B	Part A	Part B		
P1	36	65	34	50	118	114
P2	32	56	21	45	1	57
P3	21	57	17	38	68	-82
P4	27	57	25	55	56	137
P5	44	59	26	67	-143	192
P6	31	42	33	39	236	237
P7	37	83	26	74	297	293
P8	26	62	32	66	-212	42
P9	17	65	22	59	161	143
P10	29	57	36	48	78	62
P11	16	57	21	45	324	222
P12	41	92	32	73	106	24
P13	41	80	36	67	24	76
P14	23	70	25	66	54	26
P15	46	73	40	54	-158	207
P16	24	85	24	68	-18	191
Total	**491**	**1060**	**450**	**914**	**992**	**1941**
Average	**30.69±9.43**	**66.25±13.30**	**28.13±6.64**	**57.13±11.97**	**62±151.98**	**121.31±98.94**

Table 3 illustrates the duration taken by participants in attempting the Trail-Making Test (TMT) and the Stroop Color and Word Test (SCWT).

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In TMT, the average time taken to complete Part A was 30.69±9.43 seconds in conventional sitting and 28.13±6.64 seconds in grounded sitting. Similarly, the average time taken to complete Part B was 66.25±13.30 seconds and 57.13±11.97 seconds, for conventional and ICL sitting, respectively. 9 and 14 participants improved their scores in Part A and B in the ICL sitting, respectively. This indicates improved attentiveness among the participants, considering the reduction in the average time to attempt Part A and specifically Part B, in the ICL sitting posture on the ground.

The Stroop Color and Word test is typically interpreted in a specific manner. The Stroop effect score is calculated by subtracting the Congruent time from the Incongruent time. Higher positive scores indicate greater cognitive interference, and lower scores suggest better inhibitory control and faster cognitive processing. Meanwhile, negative values indicate unusual responses, i.e., participants were faster in incongruent conditions than in congruent conditions. In this study, 11 participants showed improvement (decrease in score or shift from negative/unusual to positive/normal range) in their Stroop effect scores in the ICL sitting postures. Three participants (P2, P4, P13) performed poorly in this posture, one participant exhibited negligible change (P6), and another displayed an unusual pattern (P3). While the average Stroop score amplified from 62±151.98 in conventional chair-based sitting to 121.31±98.94 in the ICL sitting, the standard deviation reduced significantly. This suggests increased cognitive interference in the ICL posture, while exhibiting a steadier performance in this posture.

V. Discussion and Conclusion

This study investigates the impact of conventional chair-based and Indian cross-legged sitting on creativity and attention. Regarding creativity, the two postures had a marginal difference in the divergent and remote association test; however, patterns were visible while analyzing the individual scores, indicating the significance of factors like habits, lifestyle, flexibility, etc., in the performance of creative tests. Regarding attention, the group collectively exhibited a decrease in the average time taken to complete Parts A and B of the trial test, demonstrating improved attention in the ICL posture on the ground. This finding aligns with the benefits of adopting yoga postures like sukhāsana, padmāsana, on mind, as well as various studies that suggest bodily systems can influence cognitive modes and task performance (Barsalou 2008, Wilson 2002). On the other hand, the increase in the average Stroop effect score indicated more cognitive interference in the ICL posture, whereas a reduced standard deviation suggested less variability and more consistent performance in this posture. The increase in cognitive interference may be attributed to the physical discomfort among those who are not accustomed to the ICL posture.

Prior research and studies have investigated the impact of conventional sitting on creativity, and the effect of standing and sitting postures on attention; however, the studies on floor sitting postures (like ICL) are limited (Gurr, Straker and Moore 1998, Mulholland and Wyss 2001). This study thus adds to the limited body of research by examining the impact of traditional sitting postures like the Indian cross-legged, on cognitive aspects like creativity and attention. These findings can help improve the teaching learning environment by allowing Indian cross-legged sitting postures for tasks requiring attention and focus. Allowing such postures in the pedagogy has been found to

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be more advantageous than chair-based sitting in physical, mental and additional dimensions like academic performance (Srivastava and Atreya 2024). Professor Debkumar Chakrabarti, renowned ergonomic expert and author of the book- 'Indian Anthropometric Dimensions', has suggested that such postures allow free movement and are beneficial for group work and idea generation activities (Chakrabarti 2013). This encourages design educators to recognize studios as environments where adapting to ICL posture can enhance the overall learning experience. Additionally, allowing such postural freedom in design education can foster a more inclusive and user centered learning space.

The limitations of the study must also be noted. First is convenient sampling for participant selection and the limited sample size. Second, creativity assessment tests like DAT and RAT, evaluate verbal creativity, meaning proficiency in the English language could affect the test performance. Third, although the question sets for the two sitting postures differed with a break in between, there is a chance that the familiarity of question format may have influenced the results. Fourth, many participants were not accustomed to the ground sitting, and thus adopting the ICL may have caused physical discomfort which could have affected their test scores and overall performance.

Therefore, further studies are needed to address these limitations. Future investigations should involve a wider and more diverse sample; creativity can be assessed with tests that include both verbal and visual dimensions like the Torrence Test, Guilford's Test, etc.; attention can be objectively assessed using EEG; substantial gap for better inferences on comparative studies; and establishing an appropriate selection criterion for study participants to negotiate the issue of posture unfamiliarity.

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References

Andolfi, Valentina Rita, Chiara Di Nuzzo, and Alessandro Antonietti. 2017. "Opening the mind through the body: The effects of posture on creative processes." *Thinking Skills and Creativity* 20-28. doi:https://doi.org/10.1016/j.tsc.2017.02.012.

Barsalou, Lawrence W. 2008. "Grounded Cognition." *Annual Review of Psychology* 617-645.

Caron, E. E., M. G. Reynolds, B. C. W. Ralph, J. S. A. Carriere, D. Besner, and D. Smilek. 2020. "Does Posture Influence the Stroop Effect?" *Psychological Science* 1452-1460. doi:https://doi.org/10.1177/0956797620953842 .

Caron, Emilie E., Laura R. Marusich, Jonathan Z. Bakdash, Reynolds J. Ballotti, Andrew M. Tague, Jonathan S. A. Carriere, Daniel Smilek, Derek Harter, Shulan Lu, and Michael G. Reynolds. 2022. "The Influence of Posture on Attention." *Experimental Psychology* 295-307. 2013. *Anthropometry : squatting and cross-legged postures.* Directed by NPTEL. Performed by Prof. Debkumar Chakrabarti. Accessed Apr 20, 2024. https://www.youtube.com/watch?v=8XNoGthIYLI&list=PLbMVogVj5nJREntIYvXAED0aobgAqruJ2&index=17.

F, Carini, Mazzola M, Fici C, Palmeri S, Messina M, Damiani P, and Tomasello G. 2017. "Posture and posturology, anatomical and physiological profiles: overview and current state of art." *Acta Biomedica* 11-16. doi:10.23750/abm.v88i1.5309.

Gurr, Kim, Leon Straker, and Phillip Moore. 1998. "Cultural hazards in the transfer of ergonomics technology." *International Journal of Industrial Ergonomics* 22: 397-404.

Ha, Ju-Young, and Seon-Hwa Ban. 2021. "Effects of Mind-Body Programs on Infertile Women: A Systematic Review and Meta-analysis of Randomized Controlled Trials." *sian Nurs Res (Korean Soc Nurs Sci)* 77-88. doi:10.1016/j.anr.2021.02.003.

**Contact: Phone +91-9891343710*

DOI: https://doi.org/10.31705/IDR.v2(2).2025.1

Hewes, Gordon W. 1955. "World Distribution of Certain Postural Habits." *American Anthropologist* 57 (2): 231-244.
Mauss, Marcel. 1973. "Techniques of the body." *Economy and Society* 2 (1): 70-88. doi:https://doi.org/10.1080/03085147300000003.
Michinov, Nicolas, and Estelle Michinov. 2022. "Can Sitting Postures Influence the Creative Mind? Positive Effect of Contractive Posture on Convergent-Integrative Thinking." *Creativity Research Journal* 36 (1): 58-69.
Mulholland, Susan J., and Urs P. Wyss. 2001. "Activities of daily living in non-western cultures: range of motion requirements for hip and knee joint implants." *International Journal of Rehabilitation Research* 24 (3): 191-198.
Nakamura, Yoshio, David L. Lipschitz, Renee Kuhn, Anita Y. Kinney, and Gary W. Donaldson. 2013. "Investigating efficacy of two brief mind–body intervention programs for managing sleep disturbance in cancer survivors: a pilot randomized controlled trial." *Journal of Cancer Survivorship* 165-182.
Naragatti, Siddappa, and Vadiraja H S. 2023. "The Profound influence of Padmasana (Lotus pose) on an individual's life." *International Journal of Novel Research and Development* 8 (9): 115-123.
Olson, J.A., J. Nahas, D. Chmoulevitch, S.J. Cropper, and M.E. Webb. 2021. "Naming unrelated words predicts creativity." *Proceedings of the National Academy of Sciences* 1-6. doi:https://doi.org/10.1073/pnas.2022340118.
Oravitan, M. 2009. "Posturology-fundamental concepts and practical applications." *Analele UVT-Seria EFS 11* 61-69.
Raymond St. Marie, M.D., and M.S. Kellie S. Talebkhah. 2018. "Neurological Evidence of a Mind-Body Connection: Mindfulness and Pain Control." *American Journal of Psychiatry Residents' Journal* 2-5. doi:https://doi.org/10.1176/appi.ajp-rj.2018.130401.
Reimers, Karen. 2019. *Evaluation of cognitive impairment.* Academic Press.
Saraswati, Swami Niranjanananda. 1992. *Gheranda Samhita.* Munger,Bihar: Yoga Publication Trust.
Saraswati, Swami Satyananda. 1996. *Asana Pranayama Mudra Bandha.* Munger: Yoga Publications Trust. http://www.stfrancisschool.edu.in/uploads/studymaterial/2020-11-09-XI-Physical%20Education-1.pdf.
Smith, K. C., C. C. Davoli, W. H. Knapp, and R. A. Abrams. 2019. "Standing enhances cognitive control and alters visual search." *Attention, Perception, & Psychophysics* 2320-2329. doi:https://doi.org/10.3758/s13414-019-01723-6.
Song, Lu, Qihan Zhang, Bingjie Zhao, and Xuejun Bai. 2024. "The more open, the more creative? The metaphorical effects of postural openness on divergent thinking and convergent thinking." *Thinking Skills and Creativity* 1-10.
Srivastava, Abhishek, Ankush Kumar, and Sonal Atreya. 2025. "Crossed Sitting, Straight Insights: Pālathī (cross-legged) posture in Design Education." *10th International Conference on Research into Design (ICoRD 2025).* Hyderabad: Springer. 99-110. doi:https://doi.org/10.1007/978-981-96-5507-6_9.
Srivastava, Abhishek, Nanadadeep Paul, and Sonal Atreya. 2024. "Musculoskeletal health of (Industrial) Design students and their perspectives on Seating: A pilot study." Edited by A. Sharma and R. Poovaiah. *Futuring Design Education 2024.* Delhi: Springer Nature. 19-28. doi:https://doi.org/10.1007/978-981-97-9210-8_2.
Straub, E. R., H. Dames, A. Kiesel, and D. Dignath. 2022. "Does body posture reduce the Stroop effect? Evidence from two conceptual replications and a meta-analysis." *Acta Psychologica* 1-10. doi:https://doi.org/10.1016/j.actpsy.2022.103497.
Wilson, Margaret. 2002. "Six views of embodied cognition." *Psychonomic Bulletin & Review* 625-636.
Yang, Huanying, Xiangfu Wang, Xuetao Wa, Jianxia Ya, Yanfang Ding, Tingrui Sang, Weiguo Chen, and Wanhong Wang. 2023. "Effect of mindfulness-based mind-body therapies in patients with non-specific low back pain—A network meta-analysis of randomized controlled trials." *Frontiers iin Aging Neuroscience* 1-19.

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