Effort to Improve Cognitive Process by Understanding Cognitive Style of Teachers Working in Selected Schools of Indore

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Abstract—**Background: Cognitive style, often termed thinking style represents a key construct in cognitive psychology that characterizes how individuals perceive, process, and retain information. This concept holds substantial relevance in education and management domains. Teacher awareness of their cognitive style proves essential for refining student-centered teaching-learning dynamics. The main aim of the study is to evaluate prevailing cognitive styles among teachers in selected Indore schools and to examine associations between teachers' cognitive styles and selected demographic variables. Materials and Methods: This quantitative study adopted a descriptive design, gathering data from 80 teachers across selected Indore schools. A validated Cognitive Style Inventory assessed hemispheric dominance patterns. Chi-square tests analyzed links to demographics (age, gender, experience); informed consent preceded data collection. Results: Among 80 teachers, 42 (52.5%) exhibited middle brain dominance, 34 (42.5%) moderate left brain, with 2 (2.5%) each showing strong left brain and moderate right brain styles. No significant associations emerged between cognitive styles and demographic variables (χ^2 > 0.05). Conclusion: Predominant middle brain reliance among Indore teachers underscores the need for style awareness to pinpoint strengths and limitations, elevating teaching efficacy. As education's foundation, informed educators can optimize cognitive processes for superior instructional outcomes.**

Index Terms—**Cognitive process, Cognitive style, teachers.**

I. INTRODUCTION

Cognitive style refers to the characteristic ways in which individuals think, perceive, and remember information. It continues to be an important concept in both education and management. When students and teachers share similar cognitive styles, the likelihood of achieving a positive learning experience increase. Since teaching is a highly specialized profession, teachers require suitable training and preparation. According to Thomas (1992), great teachers help us understand who we are and who we can become; they reveal our strengths, intellect, and imagination. Effective teachers are shaped through dedicated effort and a constructive attitude toward teaching and learners. Teacher effectiveness is influenced by various behavioral factors such as cognitive style, emotional competence, attitude, teacher student interaction, classroom environment, and overall mental health and adjustment[1].In this study, the investigator aimed to measure teachers' cognitive styles using a standardized Alert Cognitive Style Scale and attempted to influence their cognitive processes, with the expectation of improving their teaching learning methods. Vidyanand Sambhaji Khanndagale (March 2016) conducted research on the cognitive styles of teacher educators. The study involved 25 teacher educators who took part in a refresher course in education at the, University of Kerala, Kariavattom Campus, Thiruvananthapuram. The tool used was the Alert Cognitive Style Scale developed by Carol Philips. The findings revealed that most teacher educators predominantly used a Moderate Left-Brain style. A moderate number showed Mid Brain usage, while only a few exhibited a Moderate Right Brain style. These results hold several implications.2 Masoomeh Moslemi Mehni and Bahman Saeidipour (2016) carried out a study to examine the relationship between cognitive styles and entrepreneurial traits among bachelor's degree students. The total population consisted of 2,496 students, and a sample of 352 participants was selected through stratified random sampling. The findings indicated significant, direct, and positive correlations between all three cognitive styles and entrepreneurial characteristics. Among these, the concrete-sequential style (45%) showed the

strongest relationship, followed by the abstract-sequential style (29%), with the abstract-random style showing the lowest positive relationship. [3] Bhalendu S. Vaishnav and Smruti B. Vaishnav (2018) conducted a cross-sectional study to assess the cognitive styles of Indian medical faculty using the standardized Alert Scale of Cognitive Style. Out of a total of 130 faculty members approached, only 88 participated voluntarily. The results showed no significant association between cognitive style and demographic variables. The study also highlighted an improvement in cognitive-style awareness, which had been low prior to the intervention. [4]

II. METHODS

The present study employed a quantitative research approach, utilizing a non-experimental descriptive research design to systematically explore the cognitive styles of school teachers. The study sample comprised 80 teachers currently employed in selected schools within the areas of Indore. Participants were recruited through a non-probability purposive sampling technique, based on predefined inclusion criteria to ensure the relevance and suitability of the sample for the study objectives. Data were collected using the standardized Alert Cognitive Style Scale, originally developed by Dr. Loren D. Crane at Western Michigan University (1989). This instrument contains 21 pairs of statements designed to identify the dominant hemisphere of the brain, thereby categorizing an individual's cognitive style. The same validated tool was administered to the selected teachers to assess their hemispheric dominance and cognitive processing patterns. Following data collection, the responses were systematically coded and subjected to both descriptive and inferential statistical analyses. Descriptive statistics were used to summarize demographic and cognitive style distribution, while inferential statistics were employed to examine relationships and draw scientific conclusions based on the study variables. This methodological framework allowed the investigator to obtain a comprehensive understanding of the cognitive styles prevalent among teachers in the selected educational settings.

III. RESULTS

Table 1: Frequency and Percentage Distribution of Samples According to Their Demographic Characteristics (N = 80)

Variable	Frequency	Percentage
Age in Years		
21-30	4	5%
31-40	28	35%
41-50	24	30%
>50	24	30%
Gender		
Male	60	75%
Female	20	25%
Personality type		
Introvert	34	42.5
Extrovert	46	57.5%
Dominant hand		
Right	68	85%
Left	12	15%
Residential area		
Rural	40	50%
Urban	40	50%
Academic stream		
Commerce	30	50%
Arts	40	12.5%
Science	10	10%
Knowledge on internet		
Excellent	8	10%
Good	32	40%
Average	28	35%
Poor	12	15%

Table 1 shows the demographic characteristics of the 80 participants, indicating that the majority were within the 31–40 years age group (35%), followed by those aged 41–50 years and above 50 years (30% each), while only 5% were between 21–30 years. Most respondents were male (75%), and more than half were extroverts (57.5%), with 42.5% identifying as introverts. A large proportion of the sample were right-hand dominant (85%), whereas 15% used the left hand. Participants were equally distributed between rural and urban areas (50% each). Regarding academic stream, half of the respondents belonged to commerce, while 37.5% were from arts and 12.5% from science. In terms of internet knowledge, 40% reported good knowledge, 35% average, 15% poor, and only 10% rated their knowledge as excellent.

Table 2: Distribution of the Respondents
According to Cognitive Style

(N = 80)

Cognitive Style of Teachers	Frequency (n)	Percentage (%)
Strong left brain (0–4)	2	2.5%
Moderate left brain (5–8)	34	42.5%
Middle brain (9–13)	42	52.5%
Moderate right brain (14–17)	2	2.5%
Strong right brain (18–21)	0	0%

Table 2 presents the cognitive style distribution of 80 teachers, showing that more than half of the respondents (52.5%) demonstrated a middle-brain cognitive style, indicating a balanced use of both left- and right-brain characteristics. A substantial proportion (42.5%) exhibited a moderate left-brain orientation, suggesting a preference for logical, analytical, and structured thinking. Only a small percentage of teachers fell into the strong left-brain and moderate right-brain categories (2.5% each), while none of the respondents showed a strong right-brain cognitive style. Overall, the findings suggest that the majority of teachers tend to rely on either balanced or moderately left-brained cognitive processing.

The assessment tool classifies cognitive style based on the assumption that the human brain consists of two hemispheres left and right each associated with specific functions. Participants who scored between 0–4 and 5–8 fall into the strong left-brain and moderate left-brain categories, indicating dominance of the left hemisphere. Individuals with left-hemisphere dominance typically show strengths in analytical, logical, and sequential thinking. They tend to examine information in detail, process it systematically, and arrive at rational conclusions. The left hemisphere plays a major role in language processing and is generally associated with strong performance in analytical subjects such as mathematics and science. People with left-brain dominance often use structured, planned approaches to tasks, prefer organized assignments, and remain attentive during extended verbal explanations. They usually perform well when information can be studied scientifically, and they prefer quiet environments for reading and learning.

Individuals who scored between 14–17 and 18–21 fall into the moderate right-brain and strong right-brain categories, indicating dominance of the right hemisphere. People with right-brain dominance are often more intuitive, creative, and responsive to new or unfamiliar situations. They tend to rely on feelings rather than strict logic and often create vivid mental images while reading or communicating. Right-brain–oriented individuals are known for their imaginative thinking, which can contribute to innovative ideas and discoveries when combined with perseverance. They may also have a strong sense of anticipation, enabling them to predict outcomes with notable accuracy. In workplace settings, right-brained individuals generally prefer autonomy and may become uncomfortable or disengaged under strict supervision or excessive rules. They usually adopt a flexible, spontaneous approach to tasks and appreciate open-minded environments rather than highly controlled or rigid structures.

Individuals who scored between 9–13 fall into the middle-brain category, indicating that they use both the left and right hemispheres more evenly. Middle-brain–dominant individuals tend to be more adaptable than those who strongly favor one side. However, because they can approach tasks using either left-brain (analytical) or right-brain (intuitive) strategies, they may sometimes switch between these modes when making decisions, which can lead to occasional confusion. Further, it's found there is no statistically significant relationship between the cognitive style of teachers and their socio-demographic characteristics.

IV. DISCUSSION

The study highlights the cognitive style distribution, where a majority of participants exhibited middle

brain (52.5%) or moderate left brain (42.5%) dominance, while very few showed extremes in left or right brain preferences. This suggests a tendency towards balanced or slightly analytical cognitive processing within this sample. Several studies provide a comparative and deeper understanding of these findings. Moslemi Mehni and Saeidipour (2016)[5] confirmed significant positive relationships between different cognitive styles and entrepreneurial traits, emphasizing the relevance of concrete-sequential and abstract-sequential cognitive orientations. Although their study involved bachelor's students in a business context, it aligns with the moderate left brain and middle brain dominance found here, supporting the idea that balanced cognitive styles relate to practical and entrepreneurial competencies. Simuth and Schuller (2015)[6] observed significant differences in cognitive style preferences across academic disciplines, such as psychology, engineering, and management students. This complements the current study's observation of cognitive style variability and suggests that academic background may influence cognitive preferences, although such relationships need targeted investigation, as Jena (2013) found no significant link between academic streams and cognitive style within rural students. The correlation of cognitive style with academic achievement and attitude, observed by Venkata (2014)[7,8] and Antony Raj and Amalrai (2011)[9], underscores the functional implications of cognitive styles in educational settings. These results echo the prominence of moderate cognitive styles in the current sample and suggest that balanced cognitive traits may support better academic outcomes. Shi (2011)[10] reported significant relationships between cognitive styles and learning strategies, indicating that cognitive preferences impact how individuals process and retain information. This connects with the middle brain dominance noted here and could explain variations in learning and information handling among participants differing in internet knowledge. Furthermore, studies by Rangaiah et al. (2009)[11] and Fisher (2009)[12] expand on demographic influences and behavioral correlates of cognitive styles. The faster response of tribal children and behavioral issues linked to certain cognitive styles reflect how environment and cognitive processing jointly affect outcomes, which may parallel the equal rural and urban distribution in this sample. Lastly, Peterson, Deary, and Austin (2005)[13] highlighted the complex and sometimes inconsistent relationship between

intelligence and cognitive style, suggesting that cognitive styles are distinct constructs that may not directly correspond to intelligence measures but are nonetheless important for understanding individual differences. Overall, the present findings of predominantly moderate left and middle brain cognitive styles align well with past research indicating the importance of balanced cognitive processing in various psychosocial and academic domains. The demographic diversity and cognitive style variability observed underscore the need for tailored educational and developmental strategies that consider cognitive preferences alongside background characteristics.

Conflict of Interest: The author declares that there is no conflict of interest.

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