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Correlation between thinking styles and academic achievement

Venkatesha K and Chethana Kumara K M *

Department of Studies in Education, Davangere University, Shivagangothri – 577007, Davangere, Karnataka, India.

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Abstract

The styles depend on the cerebral dominance of an individual in retaining and processing different modes of information in his/her thinking styles. Each student has his/her specific thinking style. Thinking styles may differ from one student to another. Parents and teachers must be aware of the thinking styles of their children and students. They must provide the thinking experiences by considering the learners' thinking styles. Thinking styles are one of the factors that decide the learners' academic achievement. Hence, this study attempted to study the correlation between thinking styles and academic achievement among student-teachers of B.Ed. Programme. A descriptive study has been applied for the conduction of the study. The study has been conducted on a representative sample of 100 student-teachers. Styles of learning and thinking developed by Venkataraman D and academic achievement test developed and validated by the researcher have been used to collect the data. The researcher used the statistical techniques mean, standard deviation and the product-moment correlation coefficient to analyze the data. The study revealed a weak negative correlation between left hemisphere dominance of thinking styles and academic achievement.

Keywords: Academic Achievement; Thinking Styles; Student-teachers

1. Introduction

Researchers in education put a lot of effort to determine the different elements that could either directly or indirectly influence the academic achievement of students. Academic achievement is impacted by a variety of individual as well as environmental variables, including cognitive and non-cognitive elements.

One of the most significant advances in education has come from considerable research on thinking style, which recognizes that the students in classrooms have different thinking styles. To teach and make the learners learn more effectively, instructors, parents and learners need to understand better and appreciate these individual differences and how they affect the learning process. Understanding individual thinking styles has significant implications for learners. It helps them be aware of themselves, their abilities, their thinking, and why they differ from their peers. It also assists them in planning their learning and developing strategies that cope with different learning situations to make learning more meaningful and effective. This awareness has positive psychological effects on learners.

Changeable styles exist. Some people enjoy different styles at different times. Students and we must recognize our favoured styles. To understand and employ thinking styles flexibly, one must first select their favourite style. Therefore, teachers and parents must know students' preferred styles to maximize learning chances. Styles and abilities are not innate. Environmental factors contribute to their development. Teachers must figure out students' preferred thinking styles in academic subjects.

* Corresponding author: Chethana Kumara K M *

Academic achievement is based on the results of adopting appropriate thinking styles. A student's academic achievement measures his/her success in gaining and implementing knowledge to achieve career goals to a certain degree. Thus, academic achievement is significant in a student's life. Understanding the different parameters that affect a child's academic achievement is essential. One of the important factors that impacts a student's academic achievement is his/her thinking style. The way a student thinks and understands the concept plays a vital role in his/her academic achievement.

Objectives of the study

The objectives of the study are

- To assess the thinking styles of student-teachers of B.Ed. Programme.
- To assess the academic achievement of student-teachers of B.Ed. Programme.
- To study the correlation between the thinking styles and the academic achievement of student-teachers of B.Ed. Programme.

1.1. Hypothesis of the study

There is no significant correlation between the thinking styles and the academic achievement of student-teachers of B.Ed. Programme.

1.2. Sample of the study

The study has been conducted on a representative sample of 100 student-teachers of B.Ed. Programme studying in the second year. The sample has been selected by using simple random sampling.

1.3. Tools used for data collection

The researcher used the Styles of Learning and Thinking developed by Venkataraman D (2011). To assess the academic achievement of student-teachers, the researcher developed and validated an academic achievement test based on the core papers of second-year B.Ed. Programme.

2. Results and discussion

2.1. Objective 1 To assess the thinking styles of student-teachers of B.Ed. Programme.

The below table 1 reveals that out of 100 student-teachers, 10 (10%) student-teachers' thinking styles were dominated by the left hemisphere, the right hemisphere dominated 86 (86%) student-teachers' thinking styles, and 4 (4%) student-teachers' thinking styles were dominated by the whole brain/integrated hemisphere.

Among 100 student-teachers, 10 (10%) have been discovered to have thinking styles dominated by the left hemisphere. Left hemisphere dominance is often associated with logical thinking, analytical reasoning, and a preference for structured and systematic approaches to processing information.

Most student-teachers, 86 (86%), displayed thinking styles dominated by the right hemisphere. When processing information, right hemisphere dominance is typically linked to creativity, intuition, and a preference for holistic and visual thinking.

Table 1 The frequency and the percentage of student-teachers of B.Ed. programme having brain dominance for thinking styles

Thinking Styles				
Brain Dominance	**Frequency**	**Percentage**	**Valid Percentage**	**Cumulative Percentage**
Left	10	10	10	10
Right	86	86	86	96
Whole	4	4	4	100.0
Total	100	100.0	100.0	

Only 4 (4%) of the student-teachers exhibited thinking styles dominated by the whole brain/integrated hemisphere. Whole brain/integrated hemisphere dominance suggests a balanced combination of left and right hemisphere traits, allowing for analytical and creative thinking and more versatile problem-solving abilities.

Table 1 suggests that most student-teachers have thinking styles dominated by the right hemisphere, emphasizing creativity and visual processing. Left hemisphere dominance is less common but still there among a notable portion of student-teachers, highlighting the significance of incorporating logical and analytical approaches in their thinking process. The existence of some whole brain/integrated hemisphere dominant individuals indicates that a small percentage of student-teachers possess a balanced mix of thinking styles, which could potentially enhance their ability to adapt and excel in various cognitive tasks.

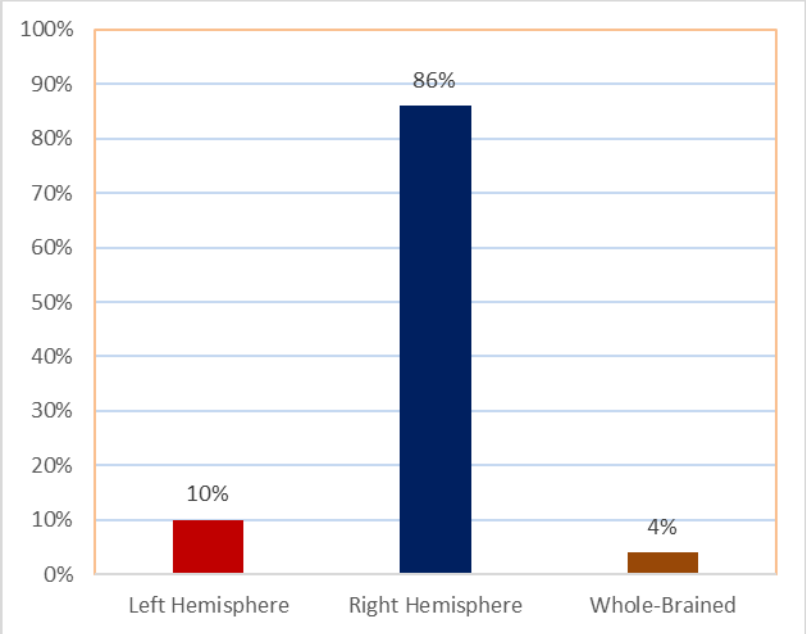

Figure 1 Brain dominance for thinking styles of student-teachers of B.Ed. Programme.

Graph 1 reveals that out of 100 student-teachers, 10% of student-teachers' thinking styles were dominated by the left hemisphere, the right hemisphere dominated 86% of student-teachers' thinking styles, and 4% of student-teachers' thinking styles were dominated by the whole brain/integrated hemisphere.

2.2. Objective 2: To assess the academic achievement of student-teachers of B.Ed. Programme.

Table 2 The frequency and the percentage of student-teachers of B.Ed. Programme having high, average and low academic achievement.

Academic Achievement				
Levels	**Frequency**	**Percentage**	**Valid Percentage**	**Cumulative Percentage**
High (72 and above)	21	21	21	21
Average (Between 72 and 65)	56	56	56	77
Low (65 and below)	23	23	23	100
Total	100	100.0	100.0	

The above table 2 reveals that out of the 100 student-teachers, 21 (21%) were classified as having high academic achievement. These student-teachers have demonstrated exceptional academic achievement and have likely achieved consistently high scores. They may possess strong study habits, time management skills, and a deep understanding of the subjects they are studying.

Most student-teachers, 56 (56%), were categorized as having average academic achievement. These individuals have achieved moderate and acceptable performance in their studies. They may grasp the course materials well and perform adequately in exams and assignments.

Among the 100 student-teachers, 23 (23%) were identified as having low academic achievement. This group has struggled to perform at the same level as their peers and might have difficulty with certain subjects or aspects of their coursework. They may need additional support and intervention to improve their academic achievement.

Table 2 suggests that most student-teachers fall within the average academic achievement category, with a significant portion having either high or low academic achievement. Teacher-educators and educational institutions must recognize these variations in academic achievement among student-teachers.

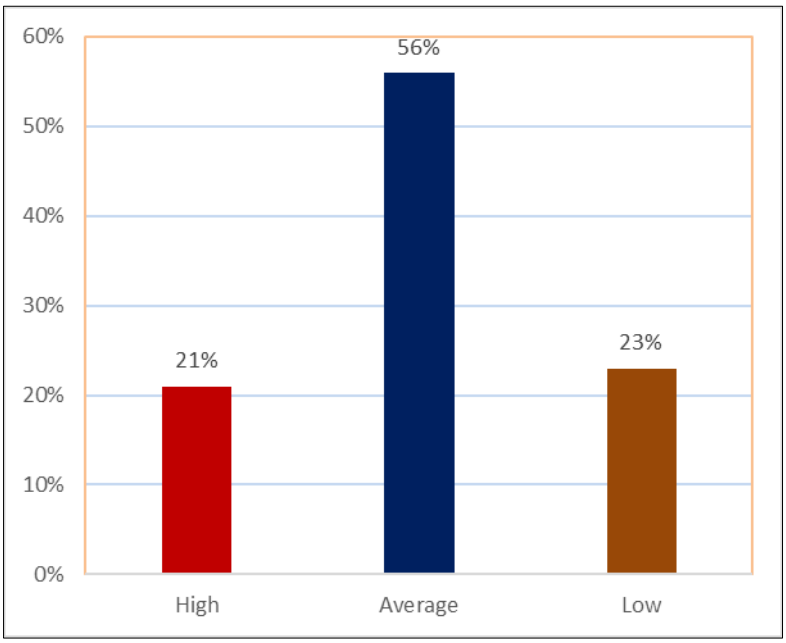

Figure 2 The academic achievement of student-teachers of B.Ed. Programme.

Graph 2 reveals that out of the 100 student-teachers, 21% had a high level of academic achievement, 56% had an average level of academic achievement, and 23% had a low level of academic achievement.

2.3. Objective 3: To study the relationship between thinking styles and academic achievement among student-teachers of B.Ed. Programme.

2.3.1. Hypothesis There is no significant relationship between thinking styles and academic achievement among student-teachers of B.Ed. Programme.

Table 3 The correlation values between thinking styles and academic achievement of student-teachers of B.Ed. Programme

Thinking Styles and Academic Achievement					
		Right	**Left**	**Whole**	**Academic Achievement**
Right	Pearson Correlation	1	-0.412**	-0.649**	0.014
	Sig. (2-tailed)		0.000	0.000	0.757
	N	100	100	100	100
Left	Pearson Correlation	-0.412**	1	-0.425**	-0.132**
	Sig. (2-tailed)	0.000		0.000	0.003
	N	100	100	100	100

Whole	Pearson Correlation	-0.649**	-0.425**	1	0.096*
	Sig. (2-tailed)	0.000	0.000		0.031
	N	100	100	100	100
Academic Achievement	Pearson Correlation	0.014	-0.132**	0.096*	1
	Sig. (2-tailed)	0.757	0.003	0.031	
	N	100	100	100	100

**. Correlation is significant at the 0.01 level (2-tailed); *. Correlation is significant at the 0.05 level (2-tailed).

Table 3 reveals the correlation value between right hemisphere dominance of thinking styles and academic achievement is 0.014. The correlation value of 0.014 indicates an extremely weak positive correlation between the right hemisphere thinking styles and academic achievement. This means there is almost no discernible relationship between having a dominant right hemisphere in the brain and academic achievement. The correlation is so close to zero that it suggests no practical significance or influence of right hemisphere dominance of thinking styles on academic achievement in this context.

Table 3 also depicts that the correlation value between left hemisphere dominance of thinking styles and academic achievement is -0.13. The correlation value of -0.13 indicates a weak negative correlation between left hemisphere dominance of thinking styles and academic achievement. This means there is a slight tendency for individuals with left hemisphere dominance to have slightly lower academic achievement. However, like the previous correlation, the strength of this relationship is weak, suggesting that it may not be a significant factor in determining academic success.

Table 3 also shows that the whole brain/integrated hemisphere dominance of thinking styles and academic achievement is 0.096. The correlation value of 0.096 indicates a weak positive correlation between whole brain/integrated hemisphere dominance of thinking styles and academic achievement. This means there is a slight tendency for individuals with a balanced, whole brain/integrated hemisphere dominant thinking style to have slightly higher academic achievement. However, similar to the other correlations, the strength of this relationship is weak, and it may not have a substantial impact on academic outcomes by itself.

The relationship between brain dominance of thinking styles (right hemisphere, left hemisphere, or whole brain/integrated hemisphere) and academic achievement is fragile. None of the correlations are close to 1 (perfect positive correlation) or -1 (perfect negative correlation).

2.4. Educational implications

- The knowledge of thinking styles helps to design instructional approaches that accommodate individual differences.
- It helps to integrate educational technology to improve the student-teachers' thinking styles.
- Teaching the individuals through their thinking styles makes the learners confident, self-esteemed and have a positive attitude towards learning.
- Based on the knowledge of thinking styles and academic achievement, teacher-educators and student-teachers can identify and overcome academic weaknesses and improve academic strengths.
- It is more important for teacher-educators to understand the theories of thinking style and to get to know the student-teachers' thinking style.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

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