

## **Abstract**

The current study aims at finding out the Brain hemispheric dominance of the students, their Metacognitive awareness levels, Perceptual learning style preferences and Academic achievement levels. Next, this study aims at investigating if the Brain hemispheric dominance, Metacognitive awareness levels, Perceptual learning style preferences and Academic achievement levels of the students are influenced by demographic variables like gender and type of school. Further, it seeks to find out if there are significant differences among the various levels of Academic achievement with respect to Brain hemispheric dominance, Metacognitive awareness levels and Perceptual learning style preferences. Lastly, it aims to investigate if Brain hemispheric dominance, Metacognitive awareness levels, Perceptual learning style preferences are significantly correlated with academic achievement or not, and if the former three factors can be significant predictors of the latter.

In order to fulfil the objectives of the study, a descriptive survey of correlational design was used. The area of study was the state of Sikkim located in North East India and the sample consisted of 635 Biology students of Class 12 selected via cluster sampling. The research instruments used for the study were the Brain Dominance Inventory (BDI) by Davis et al. (1994), the Metacognitive Awareness Inventory by Schraw and Dennison (1994), Perceptual Learning Style Scale and an Achievement test in Biology both developed by the investigator for the study. The data were analyzed using relevant statistical techniques and the results were interpreted to draw conclusions.

The findings of the study revealed that the sample consisted of left brainers and right brainers. Majority of the students showed average level of metacognitive awareness. The highest percentage of students learnt Biology using a combination of all the three perceptual learning styles (VAK) and maximum number of students were average achievers. There were a few low achievers but none in the very low category. Brain hemispheric dominance and perceptual learning styles did not have significant association with gender and type of school. However, metacognitive awareness and academic achievement were significantly influenced by gender, with the females showing higher metacognitive awareness and academic achievement than males. On the contrary, metacognitive regulation component of metacognitive awareness and

academic achievement were both influenced by the type of school, wherein the private school students scored significantly higher than government school students. Also, there were significant differences among very high, high, average and low achievers with respect to metacognitive knowledge, metacognitive regulation, visual learning and auditory learning but not with respect to kinesthetic learning. The scores on kinesthetic learning among all levels of achievers were comparable. The correlational and regression analyses were conducted on two categories of students, i.e., left brainers and right brainers in order to compare and ascertain if any differences are revealed. In case of both left brainers and right brainers it was found that metacognitive knowledge and metacognitive regulation were significantly and positively correlated with academic achievement, visual learning and kinesthetic learning were moderately and positively correlated while auditory learning was weakly correlated but visual, auditory and kinesthetic learning together, were highly correlated with academic achievement. Also, in case of both left brainers and right brainers, metacognitive awareness and perceptual learning styles significantly predicted academic achievement, thereby highlighting that both left brainers and right brainers are at par with each other. This study, thus, has the potential to orient teachers, policy makers, curriculum makers and various academic stakeholders on how they can help students by planning appropriate curriculum, instructional methods and educational policies and promote optimum learning at the higher secondary level of education. Additionally, it is imperative that an educator recognize the varied requirements of the pupils and establish a dynamic learning environment that accommodates all categories of learners while offering ample opportunities to enhance their cognitive capacities.