CHAPTER II
REVIEW OF RELATED LITERATURE

Review of Related Literature

It is important to put a glance on some related studies on the style of learning and thinking to understand the concept in depth and to find the gaps in the previous studies. Hence the researcher has reviewed some studies on the concept and presented in this chapter separately by India and abroad.

2.1. Studies in India

Vengopal, Kalpana and Mridula, K (2007): In their research paper “Styles of Learning and Thinking” indicated that gender plays a role in hemisphere preference for information process. In right hemisphere preference boys dominated while in the left hemisphere preference girls dominated. This has been observed by Jangaiah (1998) on a study of learning and cognitive style for the age group of Class VIII students. In total right hemisphere dominated in hemisphericity preference among children. There is a difference in the styles of learning and thinking among children. Children who preferred right hemisphere for information processing were more “content preferred’ in learning style and “creative” in thinking style. Those children who preferred left
hemisphere for information processing were more “verbal” in their learning style and “convergent and divergent” in their thinking style.

The preference of conceptualization bears close resemblance to the description given by Springer and Deutsch in their book entitled “Left Brain, Right Brain” in 1989. Among the girls who preferred right hemisphere for information processing in learning style, they preferred the concept Content Preference followed by Learning Preference, Interest, Class Preference and Verbal. Among the girls, who preferred the right hemisphere for information processing in learning style of concepts the order of preference is Verbal, Learning Preference, Class Preference, Interest and Content Preference respectively.

Sharma Parveen, Neetu (2012) in a research entitled “A Study of Learning-Thinking of Secondary School Students in relation to their academic achievement” concluded that learning-thinking style and academic achievement of secondary school students are positively and significantly related to each other. Students having high academic achievement are better for teaching. It can be said that academic achievement is a factor which influence the learning-thinking style of secondary school students. It can also be concluded that male and female secondary school students are not different in respect to their
academic achievement whereas they are different in respect to their learning-thinking style.

**Chauhan, R.S.M (2009)** conducted a study titled *“A study of learning Thinking Style in Relation to Intelligence”* and shows that there is no significant relationship between learning style (except interest) and intelligence of girls’ students while relationship between one learning style (Interest) and intelligence is found significant. There is no significant relationship between thinking style and intelligence among girls’ students. There is no significant relationship between learning and thinking style and intelligence among boys’ students. There is no significant relationship between right and left hemispherical oriented boys’ students belonging to high intelligence group. There is no significant relationship between right and low hemispherical oriented boys’ students belonging to low intelligence group.

**Garg, Mamta (2011)** conducted a study on *“Peeping into the Learning World of Secondary Teacher Trainees: Can their Academic Success be predicated?”* It indicates that the academic performance of trainees is not related to neither with the left nor with the right hemispheric learning styles. Where left hemispheric learning styles have negative correlation with their performance in theory paper, which shows that the learners who employ left hemisphere thinking style attain lesser marks
in their theory paper. Whereas, the right hemispheric thinking styles have non-significant relationship with academic performance.

**Kapranos, P (2010)** conducted a study on “Embedding ‘Learning and Thinking Styles’ into Engineering Material Courses”. The study shows that only do we have ideal learning and working style but we also have a desired thinking style. It was shown that concrete sequential thinkers tend to be based in reality. They process information in an ordered, sequential, linear way. Concrete random thinkers are experimenters. Abstract random thinkers organise information through reflection, and thrive in unstructured, people oriented environment. Abstract sequential thinkers love the world of theory and abstract thought. It was also stressed that no thinking style was superior to another; they are simple different. Each style has its own way of being effective. The result shows that students become more aware of which thinking style works best for them. Knowing ones style would enable a student to analyse the styles of others and help them to understand other people better, making them flexible and perhaps more effective.

**Neetu (2013)** conducted a study titled “A Study of Socio-Psychological correlates of Learning-Thinking Styles and Creativity of Secondary School Student”. The objective of the study was to see the relationship between the socio-economic status and learning-thinking style; socio-
economic status and creativity; personality and learning-thinking style and personality and creativity in secondary school students. It also aims to find the significant differences between the scores of the learning-thinking styles and creativity of students belonging to different socio-economic status, gender, area of the school and different personality traits. It was found that there exist significantly positive relations between socio-economic status and learning style; between personality and learning-thinking style; between personality and creativity of secondary school student. It was also found there was no significant relationship between socio-economic status and creativity of secondary school student. It was finally concluded that there exist a significant difference between the learning-thinking style of secondary school students belonging to above and below average socio-economic status. While it was found out that there exist insignificant differences between the creativity of students belonging to above and below average of socio-economic status is not significant. It was finally concluded that there exist a significant difference between the learning thinking style and creativity of boys and girls of rural and urban areas of secondary school students. Personality traits also have their effect on the learning-thinking style and creativity of the secondary school students.
2.2 Studies Abroad

Pask (1986) “Information Processing Style and Strategies” too found that female (similar age group) of the right hemisphere dominance showed greater preference for learning styles of concepts that are more verbal followed by other concepts. In the concept of thinking styles the girls who preferred left hemisphere for information processing showed the order as Convergent and Divergent Thinking, Imagination, Creativity, Problem Solving and Logical/ Fractional respectively. Those who showed right hemisphere preference in thinking style among girls showed preference for Creative Thinking followed by Problem Solving, Convergent/ Divergent Thinking, Logical/ Fractional and Imagination. The right and left hemisphere have their own peculiarities and significance. But for an individual to function better, an integrated function of both the learning and thinking hemispheres is necessary (Kane & Kaane, 1999).

Richard. J. Riding (1991) developed the “Cognitive Style Analysis” and proposed that a person’s cognitive style is determined by where that individual thinking process is located along with two dimensions: wholist-analytical and verbal-imagery. Styles probably have a physiological basis and are fairly fixed by the individual. By contrast strategies are ways that may be learned and developed to cope with
situations and task and particularly methods of using styles to make the best of situation for which they are not ideally suited.

**Elena L. Grigorenko, Robert J. Sternberg (1997)** conducted a study on “Style of Thinking, Abilities and Academic Performance” and said that styles are like abilities which are not stoned from birth. They are not fixed but in a state of fluid because styles depends on the individual’s interaction with the environment, they develop with socialisation. An individual may prefer one style at a particular situation and another style in a different situation. Also an individual may prefer one style in one stage and adopt another style in a different stage in life. Styles enable the understanding of the performance which cannot be accounted by the individual’s differences in abilities. Style can tell about the environment and the individuals’ interaction with the environment.

**F Cano Garcia, E H Hughes (2000)** conducted a study on “Learning and Thinking Style: An analysis of their interrelationship and influence on academic achievement”. The result indicates that students’ achievement in academics and their learning and thinking styles are not independent. Students with better results prefer to learn and think in a certain way. Students’ with thinking styles prefers to work independently with no planning of strategies, ideas or task. The same happen with those students’ showing a style in learning directly related
to experience. The result of this study confirms that thinking and learning style were interrelated and also that the students’ academic achievement was influenced by their style. It must be taken into account that the thinking and learning style is complex since both styles are influenced by many variables, variables which should be researched in depth. The tendency of recent theories in styles is to integrate cognitive style into learning style (Rayner and Riding, 1997), and learning style into thinking style (Sternberg, 1997). There is no doubt that educators and educational psychologists must encourage thinking as a part of the learning process. Only in this way can they guarantee that schooling brings about one of their major objectives: the creation of learners who know how to learn.

Robert J. Sternberg, Li-Fang Zang (2001) in their study “Perspective of Thinking Learning and Cognitive Style”, the role of thinking, learning and cognitive style has been conceptualized in different ways for the past few decades, although it was viewed as overlapping with each other previously. Ability therefore, is what a person can do and a style is how a person prefers to do it.

Halstead, A and Martin, L.M (2001) conducted a study on “Learning and Thinking Styles: A Tool for engaging engineering students with their studies” and found that, the engineering students have almost
identical style of learning. Most students were least likely to have an activist style and demonstrated a strong reflective style. The significant in reflective learning style is due to a strong vocational subject such as engineering in which the students are initially very dependent on their lecturer.

**Li-Fang Zang (2002)** conducted a study on “Thinking styles their relationship with modes of thinking and academic performance”. The study investigated the style of thinking on two-hundred-and-twelve US university students who responded to the Style of Learning and Thinking and the Thinking Styles Inventory. Results indicated that the thinking styles and modes of thinking share definite common variance. It shows that the more creativity-generating and more multifarious thinking styles are considerably related to a holistic mode of thinking, and that the more norm-conforming and more naive thinking styles are extensively related to an analytic mode of thinking.

**Bielefeldt, Steven. D (2006)** conducted a study on “An Analysis of Right- and Left- Brain Thinkers and Certain Styles of Thinking”. It was found that some students have one brain dominant and uses the other brain only as supplements. While some students use different styles according to different circumstances. There seems to be no right mix. People learn in different way and no two people learn in the same way.
Mark Mason (2007) in a study entitled “Critical Thinking and Learning” involved some debates in the field of critical thinking by weighing importance of difference among thinkers such as Siegel, Ennis, Paul, McPeck, and Martin. Various questions were put forward from these debates. Questions like what is the relationship between critical thinking and learning? Does rationality transcend particular cultures, or are there different kinds of thinking, different styles or reasoning? In what ways does the moral domain overlap with these largely epistemic and pedagogical issues?

Springer Netherland (2009) conducted a study on “Process-Oriented instructions in Learning and Thinking Strategies” The study support the importance of the process-oriented instructional model. The linking of a thorough analysis of personal learning styles to individually adapt instructional measures; prove to be a powerful way to activate students to reflect on their learning and to develop their mental models of learning.

Kim, Mihyeon (2011) conducted a study on “Thinking Styles and Career Choice”. The study explores how thinking styles are related to career decision-making and different programs among high-achieving students. The study shows that thinking-styles are a factor in students’ career decision-making. Also, they are different among students
enrolled in different programs. Therefore, teachers, parents and counsellors should recognise these different thinking styles in students as a factor in their career choices.

Researches done by Reynolds and Torrance (1978), Bracken and Torrance (1979); Venkataraman (1989) indicates that it is possible to modify a person’s preferred style of learning and thinking over relatively brief period (six to ten weeks). It is also possible to control the general direction of the changes in the style of learning and thinking with the knowledge of styles of learning and thinking mechanism. It may also be possible to train individuals to modify their information processing procedures to best fit their demands of the cognitive tasks.

2.3 Conclusion

So many studies have been conducted to fulfil the gap of understanding the perplexity about the styles of learning and thinking process, what effect these styles have on children’s performance in schools, and why attention should be given to children’s performance to assess their levels of ability in relation to many variables like academics, intelligence, personality, socio-economic status and so on. From the above studies, it is understand that the style of learning and thinking and preferences of information vary among individuals and it is essential to
recognize to deal with pupil. It is also observed that, a few number of studies have been conducted in this area but no research have been done on style of learning and thinking among Secondary School Students in Shillong. Hence, the researcher has taken up the present study.