

CHAPTER - 1

INTRODUCTION

“There is no end to education. It is not that you read a book, pass an examination and finish with education. The whole of life, from the moment you are born to the moment you die, is a process of learning.”

- **Jiddu Krishnamurti**

Education is a process which has impact on all aspects of life from infancy to old age. Education is an essential human virtue. Without Education, man is splendid slave, reasoning savage and it is education which helps to humanize him. Man becomes “man” through education. Education implies experience, insight and adjustment on the part of man as he is stimulated towards growth and development.

Education is enlightenment and empowerment of behaviour. It develops Cognitive, Affective and Conative aspects of an individual. Education sharpens the Cognitive abilities of human beings. Cognition is the scientific term for the process of thought. Usage of the term varies in different disciplines, for example in psychology and cognitive science, it usually refers to an information processing view of an individual's psychological functions. Other interpretations of the meaning of cognition link are to the development of concepts, individual minds, groups, and organizations. The term cognition (Latin: Cognoscere, "to know", "to conceptualize" or "to recognize") refers to a faculty for the processing of information, applying knowledge, and changing preferences. Cognition, or cognitive processes, can be natural or artificial, conscious or unconscious. These processes are analyzed from different perspectives within different contexts, notably in the fields of linguistics, anesthesia, neurology, psychology, philosophy, anthropology, systemic and computer science. In general Cognition refers to the mental functions and mental processes.

1.1 Cognitive Strategies

Cognitive strategies are strategies that are used to create a structure for learning when a task cannot be completed through a series of steps. When a person uses the cognitive strategies it enhances his/her ability to do things cleverly and complete a task

effectively. These tasks can include, but are not limited to, remembering and applying information from course content, constructing sentences and paragraphs, editing written work, paraphrasing, and classifying information to be learned.

Cognitive strategies are learning strategies that help learners to learn more successfully. It involves different aspects like simple repetition, understanding and summarizing meaning, guessing meaning from context, organizing new language, using imagery for memorization and the like, and all of these strategies involve discussion and manipulation of language to improve learning. Classification of learning strategies distinguish between cognitive strategies and two other types, meta-cognitive strategies (organising learning), and social strategies (which enable interaction).

1.2 Metacognition and its Components

Metacognition means thinking about thinking. The term has been part of the vocabulary of educational psychologists for the last couple of decades and the concept for as long as humans have been able to reflect on their cognitive experience.

According to Flavell (1987), metacognition consists of both metacognitive knowledge and metacognitive experiences. Metacognitive knowledge refers to acquiring knowledge about cognitive processes. Metacognitive experiences are those experiences that have something to do with the on-going cognitive endeavor.

Metacognition is essential to successful learning because it enables individuals to better manage their cognitive skills and to determine weaknesses that can be corrected by constructing new cognitive skills.

Metacognition has two constituent parts: knowledge about cognition and monitoring of cognition. Several frameworks have been developed for categorizing the types of knowledge about cognition. The three types are “person” knowledge, which includes anything one believes about the nature of human beings as cognitive processors; “task” knowledge, which includes knowledge about the demands of different tasks; and “strategy” knowledge, which is knowledge about the types of strategies likely to be most useful.

1.3 Learning Style

We know that each human being is unique and learning style is also unique for each individual. Learning style means the preferential way in which a student absorbs, processes, comprehends and retains information. Many theories on learning propose that all people can be classified according to their 'style' of learning. Many Psychologists recommends that it is the duty of the teacher to assess the learning styles of their students and adapt their classroom methods to best fit each student's learning style. Although there is ample evidence that individuals express preferences for how they prefer to receive information, few studies have found any validity in using learning styles in education (Pashler et al., 2008). Critics say there is no evidence that identifying an individual student's learning style preference produces better outcomes. There is evidence of empirical and pedagogical problems related to the use of learning tasks to "correspond to differences in a one-to-one fashion (Klein, P. 2003). Well-designed studies contradict the widespread "meshing hypothesis", that a student will learn best if taught in a method deemed appropriate for the student's learning style preference (Pashler et al., 2008).

1.3.1 Learning Style Preference (LSP)

Each student possesses different learning styles and hence we could say that their preferences vary. Learning Style Preference varies according to the individual and this diversity is fundamental in terms of teaching as curricula must respond adaptively to the various learning style preference of pupils. There is a vast variety of learners in the world; each person has his or her own learning preference, aims and objectives. The researcher believes that the dynamic course adaptation to the student learning style improves the process of learning. The aim of this study is to examine the relationship between the learning style preference and academic achievement. For this purpose the four learning dimensions which comprises of the eight distinct styles namely, active, reflective, visual, verbal, sensing, intuitive, sequential and global were considered. An individual who is an active learner absorbs most of the information by interacting actively with the course material, usually by applying knowledge in a practical sense. Conversely, a reflective learner is more successful when they explore the material internally and reflect on the knowledge they have acquired. Reflective learners typically like to study alone or perhaps

with a trusted friend. Visual learners absorb the most knowledge using visual aids and verbal learners recall information easily when they encounter it in a text-based format. Individuals who are sensory learners prefer to absorb information using primarily their sensory perception. As such, they generally work through problems using conventional methods and are very careful and precise. Conversely, intuitive learners are drawn towards more theoretical or conceptual material and rely primarily on hypothetical theories over definitive facts. In addition, they creatively interpret the material and establish new connections in the content, an approach not usually favored by sensory learners. The fourth dimension features sequential learners who focus best when approaching tasks on a step-by-step basis, thus they typically follow a strategic logical pattern when working through problems. Conversely, global learners perceive the issue as a whole and approach knowledge in a more general, or universal manner. (Aljojo and Alkhouli, 2015)

1.4 Importance of Academic Achievement (AA)

Academic achievement refers to observable, measurable behavior, from which learning is inferred (Vasta and Miller, 1995). The importance of educational achievement among the intellectually superior has been emphasized by great many individuals. Siegler (1991) stated that researchers have felt that the highly superior intellectuals can make considerable and significant contribution to the culture, for which they must be educated to a relatively high degree in order to maximize their productivity and possibly to ensure their own personal happiness and welfare.

Achievement tests as the name suggest are employed for measuring the employment of success or achievement of individual in a specific field or arena of accomplishment. In the school situations an achievement test is used as a tool for measuring the nature and extent the student has been able to learn and acquire or has been benefited from the learning experiences of what has been learned or acquired by an individual by testing his present ability.

1.5 Need and Significance of the Study

The aim of education globally is to enhance student's cognitive skills. There has been a surge for understanding ways to improve student's cognitive abilities. To be a

successful learner, one should be able to acquire knowledge, transfer and make use of the acquired knowledge. To achieve these goals, learners need to be able to think and be able to understand their own thinking. In other words, cognitive skills focus on improving students thinking abilities.

In the past few years however, educational psychologists have shifted gears one step ahead towards helping students not only think but also regulate their thinking. Metacognition is a higher order thinking process responsible for active control over cognitive processes. It is an important component for learning as empirical studies have shown that metacognitively aware students perform better than less aware ones. Hence the importance of developing student's metacognition has been coming to the forefront. Teaching students how to learn efficiently involve regular efforts by the teacher for making students responsible and conscious about themselves, about their forces and their limits, about their cognitive, affective, action resources and their own learning styles. In this way, the teachers have to use various educational practice and different methodologies; which has to include many metacognitive strategies. Because it includes "the knowledge that the subject has about the function of his own cognitive system and could optimize its function" (Miclea, 1999), the metacognition, as a part of self cognition, could represent the way of an efficient learning.

The review of literature highlights that metacognition of a student could have a bearing on various other cognitive abilities. It is therefore necessary to identify the relationship that may exist between student's metacognition and their learning styles. These two factors are vital for academic success. A higher level of cognition and the knowledge of learning style preference are necessary. Since not many studies have been done on the combination of these two variables, this study will make some contribution to the literature on the two factors essential for better academic achievement. In this study, it is aimed to discover the learning style preference of higher secondary school students. Being aware of the learning style preferences of the students may help the educators to be much more effective in the classroom because then, the school curriculum may even be reshaped in accordance with the findings. Knowing the students, their likes, dislikes, easy ways of learning, may facilitate both teaching and learning and make this teaching-learning cycle much more effective. Jaouen (1990) claimed that helping students

understand learning styles lets them see new perspectives and increases their tolerance for each other's differences. As Hand claims (1990) students may begin to see how they learn most effectively and efficiently; therefore, they will be able to take responsibility for their own learning. And, most important, students learn that their ways are not better or worse than those of their peers-they are simply different.

The significance of this study is paramount as it contributes valuable insight and theory into the role that learning styles and metacognition play in the relationship between cognitive strategies and academic performance. This study will be useful not only for the educators but also for the students who will be able to come across their learning style preference and their ability to monitor their own thinking process.

1.6 Statement of the Problem

After contemplating the need for the study related to the aspects of cognitive strategies, the researcher identified and selected the research problem as **Cognitive Strategies Influencing Academic Achievement of Higher Secondary School Students** for the study.

1.7 Definition of the Key Terms

1.7.1 Cognitive Strategies:

Cognitive Strategies are the specific methods that people use to solve problems, including all sorts of reasoning, planning and arithmetic. Metacognitive awareness and learning style preference were the cognitive strategies used by the investigator.

1.7.2 Academic Achievement:

It refers to the extent to which a student has achieved his/her educational goals. The marks scored in S.S.L.C. (Secondary School Leaving Certificate) examination is taken by the investigator for academic achievement scores.

1.7.3 Higher Secondary:

It refers to two year course involving diversified and vocational education after the completion of ten years of school education. The investigator selected the first year higher secondary students. Clearing Higher Secondary is mandatory for pursuing higher education or under graduate courses in India.

1.8 Major Objectives of the Study

1. To find out the relationship among metacognitive awareness, learning style preference and the academic achievement scores of higher secondary students.
2. To construct and validate a tool on learning style preference.
3. To find out if there is any statistically significant difference in academic achievement of students based on their levels of metacognitive awareness.
4. To find out if there is any statistically significant difference in the metacognitive awareness of active and reflective learners.
5. To find out if there is any statistically significant difference in the metacognitive awareness of visual and verbal learners.
6. To find out if there is any statistically significant difference in the metacognitive awareness of sensing and intuitive learners.
7. To find out if there is any statistically significant difference in the metacognitive awareness of sequential and global learners.
8. To find out if there is any statistically significant association between learning style preference of learners and the personal variables like gender, locality, type of family and monthly income of the family.
9. To examine if there is any statistically significant association between learning style preference of learners and the academic variables medium of instruction, types of school and groups of study.
10. To find out if there is any statistically significant association between learning style preference of learners and the facilities available at home like separate study room, news paper, computer and internet access.

11. To examine if there is any statistically significant difference in the total metacognitive awareness of higher secondary students based on the Personal Variables like gender, locality, type of family and monthly income of the family.
12. To examine if there is any statistically significant difference in the total metacognitive awareness, its two components and eight sub components of students based on the academic variables namely medium of instruction, types of school and groups of study.
13. To examine if there is any statistically significant difference in the total metacognitive awareness its two components and eight sub components of students based on the facilities available at home like separate study room, news paper, computer and internet access.

1.9 Hypotheses of the Study

The following hypotheses are formulated on the basis of the objectives framed above.

1. There is no statistically significant relationship among metacognitive awareness, learning style preference and academic achievement of higher secondary school students.
2. There is no statistically significant difference in academic achievement of students based on their levels of metacognitive awareness.
3. There is no statistically significant difference in Metacognitive Awareness of Active and Reflective, Visual and Verbal, Sensing and Intuitive and Sequential and Global learners.
4. There is no statistically significant association between learning style preference of higher secondary school students and the personal variables like gender, locality, type of family and monthly income of the family.

5. There is no statistically significant association between learning style preference of higher secondary school students and the academic variables namely medium of instruction, types of school and groups of study.
6. There is no statistically significant association between learning style preference of higher secondary school students and the facilities available at home like separate study room, news paper, computer and internet access.
7. There is no statistically significant difference in metacognitive awareness, its components and sub components of higher secondary school students based on their personal variables like gender, locality, type of family and monthly income of the family.
8. There is no statistically significant difference in metacognitive awareness, its components and sub components of higher secondary school students based on their academic variables namely medium of instruction, types of school and groups of study.
9. There is no statistically significant difference in metacognitive awareness, its components and sub components of higher secondary school students based on their facilities available at home like separate study room, news paper, computer and internet access.

1.10 Limitations of the Study

The present study is confined to Coimbatore city of Tamil Nadu only. The sample is selected from XI standard students from 14 schools constituting Government, Corporation and Private schools. Metacognitive Awareness and Learning Style Preference are considered for the investigation.

1.11 Chapterisation

This thesis is organised into five chapters as outlined below.

Chapter 1: *Introduction.* This chapter introduces the research area to be investigated, statement of the problem, need and scope of the study, objectives and hypotheses of the study and limitations of the study.

- Chapter 2:** *Review of related literature.* This chapter provides an in-depth review of the research relating to the central research areas of this thesis. It examines the theoretical aspects related to cognitive strategies, Metacognition, Learning Style and Academic Achievement. It also looks at the different research findings by reviewing the related studies.
- Chapter 3:** *Methodology.* This chapter deals with the method used in the study, sample, tool construction, reliability and validity of the tool, sampling techniques and the administration of the tool and data collection procedure.
- Chapter 4:** *Results and Discussion.* This chapter discusses and analyses the findings of the study.
- Chapter 5:** *Summary and Conclusion:* This chapter summarises the main findings of this study. It also discusses recommendations for future research and practice.