CHAPTER II - REVIEW OF LITERATURE

The primary objective of the present study is to explore into the differences in learning between the ancient and modern schooling systems. In explaining and understanding the history of indigenous education; scholars delve into the salient features of the ancient Indian education system across aspects such as cognitive skills, metacognition, pedagogical techniques and so on. These works are both empirical and conceptual in nature. This chapter draws upon and reviews the available literature on the above aspects.

At the outset, it is to be taken into account that across the different studies, the respective authors have interchangeably used the terms “Sanskrit schools”, “Gurukulas”, “Vedic schools”, “yogic education system”. The changes in terminology are to be noted and to be treated synonymously in this section.

In the following section empirical studies on various dimensions related to learning between the ancient and modern schooling systems are reviewed in order of relevance to the present study, followed by conceptual studies and literature about the various aspects of the ancient schooling system.

**Metacognitive knowledge**

One of the dimensions of the knowledge process of learning as per the revised Blooms taxonomy is Metacognitive knowledge. Meta-cognition is found to be an important predictor of school achievement than intelligence alone (Gomes, Golino, & Menezes, 2014). There is also some research to show that development of metacognitive knowledge is related to schooling, however other factors outside the school
such as parental guidance can also influence its development. (Carr, Kurtz, Schneider, Turner and Borkowski, 1989; Sanagavarapu, 2008 as ct in (Mishra, 2014).

Broyon (2009) examined the meta-cognitive processes of Sanskrit and Western-type school students. Two samples of children, consisting of boys and girls, drawn from Sanskrit schools (n = 36) and Western-type schools (n = 36) in Varanasi were tested by using a Road Task and a Map Task, both comprising some spatial notions. On the Road Task, children had first to recall 15 objects, all placed along a road, and then they had to place the same objects at their respective locations along the road, but before that, they had to predict the number of objects they would be able to place correctly. On the Map Task, children had to draw a map of their school and its surrounding area, first alone, and then in a group with mutual discussions. A Meta-cognitive Awareness Inventory (MAI; Schraw and Dennison, 1994) was also administered. The findings revealed that the boys and girls from the Sanskrit school performed better cognitively on the road task, and better meta-cognitively, than the other groups. Analysis of the MAI scores indicated that the students from Sanskrit schools (both girls and boys) showed greater awareness of their meta-cognitive knowledge, and a better knowledge of their meta-cognitive abilities than those from the Western-type schools. Differences on the Map Task, however, were not so striking in quantitative terms. On the other hand, the qualitative analysis revealed that the boys generally used more planning, and the girls generally used more debugging and that the boys from Sanskrit schools were overall more efficient than other students.
Cognitive functions

Rangan R, Nagendra HR and Ramachandra Bhat G (2008) conducted a study comparing a Modern Education System (MES) with the ancient Yoga-based system of education, the Gurukula Education System (GES), in developing cognitive abilities. They selected a sample of two residential schools one from a modern education systems, and another from the gurukula education system; which were similar in their environmental structure. 49 boys within an age range of 11 to 13 years, who were matched for age and socio-economic status, were selected out of a total strength of 500 from both the education systems. The sample was assessed on Intelligence, spatial and verbal memory, sustained attention, planning ability before and after one academic year (10 months).

Their study revealed that the Gurukula education system’s curriculum includes various practices, which calms the mental state of the pupils and develops their cognitive skills. It also indicated how the consciousness-based approach followed in the gurukula education system develops the overall personality more effectively than the matter-based approach of the modern education system. The most prominent result according to the authors was that in their experimental studies both systems of education improved IQ, memory, sustained attention, and planning ability. However, the Gurukula education system students improved significantly more on all the tests of intelligence, spatial and verbal memory, sustained attention, planning ability.

Spatial language and spatial encoding

Vajpayee, Dasen and Mishra (2008) conducted a comparative study of 376 Western-type (Hindi medium) school and Sanskrit school children on several measures of
spatial language and spatial encoding. Ethnographic account indicated that several daily practices of Sanskrit school children required accurate knowledge of cardinal directions. In view of this fact, the authors hypothesised that Sanskrit school children would more often use a geocentric frame in describing and encoding spatial display in comparison to children of Western-type schools, where the knowledge of cardinal directions is not so important. Knowledge of cardinal directions as well as their use of language, and encoding on spatial cognitive tasks were assessed. The findings revealed that, on the three language elicitation tasks, Sanskrit school children performed better on spatial encoding and spatial language tasks compared to Western-type school students.

Mishra and Jha (2013) extended this line of research by including a sample of children from traditional Madarasa in addition to Sanskrit school and Western-type school children. They tested 180 children in the age range of 10–15 years to examine the spatial frames of reference the children used in language while describing a route on a ‘route task’ and objects on a ‘perspective task’. Children’s knowledge of cardinal directions (east, west, north and south) and relative directions (front, back, left and right) was assessed inside as well as outside a room. Children were also given the the Story Pictorial Embedded Figures Test (SPEFT, (Sinha, 1984), which served as a measure of their level of psychological differentiation.

The findings revealed that geocentric language and encoding were used more by Sanskrit school and Madarasa children, while egocentric language and encoding were used more by the Western-type school children. The difference between Sanskrit school and Madarasa children was not significant. Western-type school children, on the other hand, significantly differed from Sanskrit school and Madarasa children in
the use of spatial frames of reference. Children, who used geocentric frame of reference in describing the route and the objects on the perspective task, also showed more accurate knowledge of cardinal directions and scored higher on the SPEFT.

**Creativity and Emotional intelligence**

Creating as a cognitive process is implied as the highest level in the hierarchy of cognitive processes of learning as per the revised blooms taxonomy. Furthermore, Emotional intelligence is now being considered more important than academic indicators for overall efficacy. Schools serve as the prime location for the promotion of emotional intelligence (Tiwari and Srivastava 2004). Goleman (1998) considered school as one place which can turn to compensate children’s deficiencies in emotional and social competence. As such schools face the challenge to teaching as well as nurturing the emotional skills of children.(Sharma, R 2009)

Sharma R (2009) conducted a comparative study on creativity and also on emotional intelligence of school students; comparing three types of school environment – the sample consisted of 300 girls (100 each from three types of schools – Public, Govt. and Gurukuls). In their study, it was found that In case of four measures of creativity, Gurukul students scored significantly high only on Elaboration than their counterpart Govt. school students. On remaining three measures of creativity i.e., fluency, flexibility, and originality the two groups did not differ significantly. Hence, it was found in this study that Gurukul students tend to have more elaborative thoughts than heir counterpart Govt. school students. However, on emotional intelligence; it was found that Public school students tend to be high on emotional competencies as compared to the students of Gurukuls, and Govt. Schools. Nevertheless, Gurukul
students scored significantly high on two measures of emotional intelligence i.e. Self-awareness and Managing Emotions than their counterparts

Researches in the area of ancient Indian education have also been conceptual in nature other than few empirical studies; owing to the availability of the gamut of literature on ancient Indian philosophies. Some of the conceptual articles related to the same are reviewed in this section.

**Conceptual studies about learning in the ancient Indian education system**

The ancient Indian view of learning does not limit itself in learning of facts and figures, but emphasizes in developing wisdom by forming a connection between mind, body and spirit (Thaker 2007). This is different from dominant Western view of learning which seeks cause-and-effect relationships with the worldly phenomena and believes in learning components as part of a whole (as ct in Sharma 2013). Further, he describes that memorization constituted one of the major techniques of learning and had parallels with behaviourist principles of repetition, practice, memorization and habit formation (Sheshagiri 2011) and that this practice has to be interpreted within the socio-historical context of the region. Given the oral tradition of literacy and knowledge making, memorization and rote learning could enhance the archiving of knowledge in the form of songs, chants or poems which would be available for the future generations. However, he cites that Hough et al. (2009) add that together with rhymes and rhythms, other tricks like repetition, body movements and gestures, helped contextualize the information in the form of a narrative, it is to be noted that learning by heart without understanding the meaning of Vedic hymns, and without reflection was condemned (Ghosh 2007). As an example, Narain (1993)
cites from the Nirukta ‘he is only the bearer of burden, the blockhead who is having studied the Veda does not understand its meaning’. The education was considered to be a process of inwardly meditation and thinking (Mishra 1998), focusing on the opening up the mind and enhancing the understanding of the universe and the self. This kind of learning is not based on rote learning, but much deeper comprehension involving reflection, questioning and exercising judgments (Sheshagiri 2011). There were a lot of opportunities for learners to gain knowledge by observing, inferring, performing, and practicing. The traditions of ancient learning systems displayed much diversity, blurring the boundaries between processes versus product (Canagarajah 1999). Narain (1993) laments that under the modern system, the three processes of teaching, learning and evaluation seem to be treated as working almost independently in the context of South Asia, and hardly any integration or synchronization exists among them. In ancient times, all three processes were integrated well.

Education in the Vedic and Upanishad times was not confined to the development of the self only, but would encourage the students to work for social change upon graduation from the schools or Gurukuls. Narain (1993) provides evidence from the Yajurveda that every student owed three debts which must be repaid, one being Rishi (guru) debt, owing to learning and acquiring knowledge. Spreading and distributing that knowledge to the people, to the society (Ashok & Thimmappa, 2006) was the only way to pay this back. When students obtained learning and knowledge, they would wander from place to place fearlessly and preach to the masses with honour and respect. They were responsible for society, not for themselves (Mishra, 1998).
Such debt has also been regarded as a dharma of a human being, meaning the privileges, duties and obligations of a person toward their society (Bai, 1996).

In sum, Sharma (ibid) state that the Hindu view of learning encompassed diverse ways of gaining knowledge, including the study of scriptures, experience by interacting with the external environment, and introspection or self-revelation. In addition to memorization, reflection, questioning and exercising of judgment are useful learning techniques. Learning went beyond individual growth, including the goal to bring about social change.

Pruthi (2005) has elaborated on the history of education in ancient India. The work deems the study of educational philosophy, its principles its method and the history of ancient India as important to facilitate a better understanding of the present educational system and also understand the dynamics of educational systems for future growth and advancements in India.

Divakar (1960) critically examined the Educational philosophy of Upanishads across the aspects such as the knowledge, aim, objectives of life and education in general. The researcher analyzed the psychological basis of education, method of teaching, teacher-pupil relationship and curriculum. the findings was that the Ashram or the gurukula system of education was based on interest, needs and capacities of the pupils.

Similarly, the study on educational ideas of Upanishads by Surendran (1998) reveals that in the upanisadic society, universal integration was the ultimate aim of education and it was comprehensive in all respects. The education was objective based in its approach and had an appropriate teacher student relationship.
There has been one study by Patel N (1994) that derives a comparative exposition of Vedic and modern theories of educational philosophies and ascertains that the Vedic theory of education has many parallels with the modern educational philosophy. These parallels are described in areas such as the importance of the intelligence of the educator, creation of a safe learning environment, teaching of organised and relevant knowledge, progressing research, aspects of control and management over the teaching and learning situations and so on. Additionally, the study also addresses some aspects such as the importance of the personal standards & morality of the educator, educator’s perceptions of the students’ abilities which are unique to the Vedic system. Further it concludes that the Vedic system of education was resulting in learners of higher standards and offers a good avenue for research in this area.

Sharma (2013) has given a historical and philosophical survey of learning, teaching and student teacher relationships as espoused in Hindu philosophy and its ancient educational practices. In the study, it was remarked that the standard practices and innovations practiced especially in the language pedagogy in the modern education systems across the countries today were a part of the traditional Indian educational philosophy since the Vedic and Upanishadic periods.

**Conceptual studies about pedagogy in the ancient Indian education system**

Sharma (2013) has also elaborated on the methods of teaching prevalent in the ancient Hindu suggests that the ancient pedagogy followed is comparable with the current popular pedagogical models. The system of teaching was cooperative in nature and teachers often offered explanations to the pupils individualistically (Mishra 1998). In addition to teacher-fronted, product oriented system; teaching was
also to a large extent based on practice-based apprenticeship system (Sheshagiri 2011). Students engaged in a process of collective learning in a shared domain. As the pupils interacted regularly, the more experienced senior pupils would help the new members through mutual engagement in learning activities and help acquire the informal norms of the educational philosophy. The learning system was predominantly non-formal, blurring the distinctions between philosophical and technical knowledge, facts and skills, and knowledge and life. This process was more inductive and process-oriented, and teaching methods were diverse depending on learner, context and subject matter (Canagarajah 1999). Such practices according to Sharam (2013) are in synchrony with the principles of such models of teaching and learning as Lave and Wenger’s communities of practice. Ancient Hindu educational practices had a diversity that encompassed a view of learning consistent with this theoretical position.

Furthermore, in framing the curriculum and organization in Gurukuls, Teachers exercised total autonomy; however, students also enjoyed some degree of independence in choosing institutions or teachers; they, for example, could move from one Gurukula to another for better knowledge (Sheshagiri, 2011). Sometimes even the teacher advised the students to go to another teacher to satisfy their queries (Ghosh, 2007; Mishra, 1998).

The Gurukul system also endorsed the use of self-study for learning. (Ghosh, 2007) . Additionally, the salient features of the education system in the ancient Gurukulas system included the methods of debate, discussion (Ghosh, 2007; Paradkar, 1996), speculation and argument (Mishra,1998). Discussions and debates would take the
form of intellectual challenges between the guru and the students or among the students themselves (Dharampal, 1983). Similar to the present day symposiums, many learned persons from far off places used to assemble and participate in the debates and discussions that regularly took place at the Vedic education centres. Such use of discussion as a method of teaching later led to the development of logic called Vakovskyam or Tarkashastra or the science of disputation (Ghosh, 2007). The rationale behind promoting democratic ideals and fostering student centered learning through the use of discussion-based pedagogy is a major pedagogical technique today apparently originated from the Western philosophical traditions. Henning (2008), puts forth the idea that discussion-based teaching model helps the students to gain not just general subject mastery, but also in reading comprehension, conceptual understanding, problem-solving ability, moral development, and attitude change and development, and communication skills. (as ct in Sharma). Thus, in addition to the oral transmission model, the ancient Indian system of education exhibited diversity in teaching methods including learner centred-techniques like debate and discussion, whose focus was both on product as well as process of learning.

Conceptual studies also review the nature of teacher – student relationships in the ancient Indian education system. Teachers play an integral role in the life path of students throughout the formal schooling experience (Baker, Grant, & Morlock, 2008). In ancient Hindu system of education, education was highly individualized. There would be only few selected students enrolled, and teachers knew individual students very closely. Students were under close monitoring by the teachers (Thaker 2007). Teachers were also expected to mutually participate with students in the classroom, on the playgrounds, and in activities related to the management of the
school (Bai, 1996). This however does not imply that the teacher and the students enjoyed an equal relationship. However, it should be noted that the teaching and relationship was not solely controlled by the teacher and the students could initiate questions and topics for discussion and debate (Canagarajah, 1999).

The review of literature done in the above section offer myriad explanations and views about the various dynamics operative in the education system in ancient India contrasting it with the prevalent modern system of education. The studies reviewed include both conceptual articles as well as few empirical studies. It is imperative from the above studies that the philosophy and the rationale behind the educational practices of the gurukula or the ancient Indian education systems are indicative of better cognitive skills including Metacognitive knowledge, cognitive functions such as planning, spatial encoding and so on. Further, the studies also credit these benefits to the individualised learner-centric pedagogy followed. However, an examination and a comparison of the learning process and whether the education systems fulfilled the ideal objectives of learning, advocated in the field of education is not evident in literatures across.

In the present scenario, the growing gap between learning and knowledge including limiting learning through rote methods are some of the issues of concern in the education system in India. This has called for the attention of scholars across the globe in facilitation of standard learning and meeting the ideal objectives of education. The gap between the past and the present education system could be a solution in this regard. Additionally, bringing reforms in any particular society devoid of consideration to its unique, indigenous culture and ethos would do less
good than implementing it forthwith. In light of the above discussion, the present study has been designed with the primary objective being to compare learning (based on an accepted model) - between the ancient and modern schooling systems and puts forth an attempt to offer insights backed with empirical support for a pragmatic solution in the long run.