CHAPTER - I
INTRODUCTION

Educational system in and around the world are continuously in the journey to apply and enable newer technologies for enhancing the student achievement and progress. The teaching learning system have always embraced the cultural principles and traditions and tried to infuse them in the curricular approaches. Specifically in the situations wherein the teachers have to deal with a linguistic minority or any disadvantaged sections of the society, they should have a sound knowledge about the culture and traditions of the pedagogues sitting in front of them. The method of approach in teaching and learning in such pedagogues are more complicated than in the general population of students. Here we have to understand what is general population and what is disadvantaged. General population implies to a section of society where most of the practices and traditions are globally accepted and is practiced by a larger and more wider population in a region whereas the disadvantaged implies to a section of the society wherein the population of the sample is small and there exists a difference in the traditions and customs when compared with the majority population of that region.

Kolb (1984) has rightly identified Experiential learning as a specific approach to enhance and arouse creativity and interest of students in the method of learning. The students are learning from the experience that they acquire by themselves in the process of learning. The teacher acts as a scaffold who gives certain experiences to the children so that each child is able to relate that experience with the content to be transacted. Thus the teaching learning process becomes more conducive and easy and the students are more productive in terms of their achievement and activities. Selection of experiences by the teacher plays a very important part in this Experiential Learning. The teacher on dealing with a normal sample can select globally accepted experiences and situations to relate it with the content to be transacted, whereas a teacher who is dealing with a disadvantaged section of the society, needs to be more diligent in choosing apt and relevant experiences that suits the content to be transacted.

1.1 Experiential learning and culture

Experiential learning as propounded by many eminent educationists and popularized mainly by David A Kolb, is the method or practice of learning through hands on experience, which can be made more clearly defined as "learning through

reflection on doing". The difference between the experiential learning and the didactic learning is that the passive role of the learner as in the didactic learning process is eliminated when coming to experiential learning. The rote learning or the didactic learning sketches the learner as passive listeners and not at all interested or involved in the teaching, training or learning sessions.

Experiential learning is a form of pedagogical method where the learners are regarded as the pivot points or thrust points in the process of teaching and learning. On providing an appropriate and apt experience, the learners themselves try to find out the plausible solutions or answers to the situational experience given to them. The selection of experiences is thus so much important that it is the medium by which the learners make the difference. More interesting and thrilling results can be found in the learner behaviours and if it's apt, appropriate and interesting experiences shall be provided to them. The teacher or the mentor should find apt experience that can be related with the previous knowledge or the previous learning schema of the students and thus can act as a scaffold to comprehend the new knowledge that is to be acquired by the learners themselves through the provided experience.

1.2 Culture and locally relevant experiences

Culture is a collective term that is interchangeably used along with socially transmitted actions and behaviours. The actual definition of culture cannot be easily defined as it is, since it gets transferred and carried from one generation to other. They are the practices and actions that are transmitted very naturally from one to another. Every society has their own culture and traditions which is different from another society in some other region or locality.

In the words of Tylor (1874) culture is referred to that "complex whole which includes knowledge, belief, art, morals, and law, custom and any other capabilities and habits, acquired by man as a member of society." Ellwood (1910) is of the opinion that "culture includes man's entire material civilization, tools, weapons, clothing, shelter, machines and even system of industry."

Baumgartner and Johnson-Bailey (2008) conceived and practiced the idea of such a curriculum for effective teaching learning. They had studied about the effective implementation of the same and have put forward many discussions on culturally relevant teaching within a higher education environment setting.

1.3 Importance of experiential learning in Science

The locally relevant experiences chosen from those situations that are already familiar to the learners can definitely enhance the student interest in the subject of study and they will definitely find it easy and interesting to find out the new knowledge in the provided experience and thus can easily comprehend the same. So proper care should be taken in choosing the relevant experiences from the locally available situations, traditions, customs, and practices of the locality from where most of the students come. Coming to Science education, Science is a subject full of experiments and facts among which most of them are testable and universally accepted. Science education needs the skill of experimenting and observation in order to arouse and instil creativity and interest among the students who learn the subject. Culture as described, includes material and non material elements which hold as a sum total of practices, traditions, customs, practices that is followed by the people of the area or locality. By clubbing the activities in science and culture, the teacher can suitably select the relevant experiences associated with the topics to learn and thus make a permanent impression among the learners about the concept.

Thus the children can master the subject very easily thus in turn contributing to a greater achievement score and moreover a greater knowledge and comprehension about what they are learning and how can the new learning help to serve their society and preserve their culture for a sustainable future.

Learning can produce good and significant impact when the participants in the learning process have in them the ardent emotion inside them to receive the information that is being transferred in the process. Hence, experiential learning can be used to enhance the motivation of the learners and can be used to show different directions for learners.

1.4 The different elements in experiential learning

The main advantage of the experiential learning is that it can exist even without a mentor or teacher and it can directly relate to the meaning-construction method with respect to the individual's direct experience. According to Kolb (1984), for an individual to get true knowledge associated with an experience that particular leaner should possess certain abilities as:

- Will for actively involving in any experience;
- Ability to reflect upon any experience;

- Usage of analytical skills and the problem solving skills to comprehend and understand the experience experienced by the learner ; and
- Generation of new ideas acquired from prior experiences through correct, accurate decisions and skills in problem solving

The four cycle stages of experiential pedagogy are the basis of the concept used in the study. "The four cycle stages are mentioned as follows:

- Concrete Experience: here a novel experience or a new situation is encountered for a remodification of the currently existing experience
- Reflective Observation: reflection of the new novel experience that is of particular imortance and checking on any incongruences or mismatches between experience and understanding.
- Abstract Conceptualistion: reflection give rise to a new idea or a modification of an existing abstract concept present
- Active Experimentation: the learner applies them to the world around them to see what the results are. (Kolb, 1984)"

"Moon (2004) has explained on this cycle to argue that experiential learning is most effective when it involves a reflective learning phase, a phase of learning resulting from the actions involved in the experiential learning, and a further phase of learning from feedback. This method or practice of learning can result in changes in judgment, feeling or skills for the individual and can definitely provide a clear direction for the making of judgments as a guide to choice and action".

It can be seen that most of the educators understand the importance of different kinds of experiences used in teaching-learning processes. The significance of affective domain in the individuals like the role of different kinds of feelings and varied emotions has been understood and comprehended as a most important aspect of experiential learning. These experiences can be directly linked with the experiential learning but the same can also happen without these vivid and varied experiences. Rather, the most important element is that the learner who is involved in the process of experiential learning should have the inner urge in him to get directly involved in the learning experiences.

1.5 Learning Style

The term learning style is clearly explained by many theoretical models and constructs. Some of these theories do contradict each other in their opinions and views. However, the common feature among all these theories is that they all refer learning style closely related with individual differences and cognitive perception used in them. All the theories are of the view that there exists variation in the cognitive perception of the learners and this creates a unique learning style in each of them involved in the learning process.

Fox (1984), Armstrong and McDaniel (1986) assessed learning styles among adult participants in secondary learning environments. Eiszler (2002) has studied the preference given by the learners in their sense modality.

Experiential learning theory too advocates that the experiential learning cycle will vary according to the preferred learning style of the learner and also the learning environment provided to the learner.

Kolb (1984) has shown that "learning styles are influenced by personality type, educational specialisation, career choice and current job role tasks." The idea of learning styles explains the individual differences in learning depending upon the preference of the learner in entering the varied phases of learning cycle. Learning styles may be different for different people as it is influenced by heredity, life experiences, learning environment and learning modes.

Kolb's learning style inventory identified "four learning styles which are associated with different approaches to learning- Diverging, Assimilating, Converging and Accomodating (Kolb, 1975, 1984, 1999)"

1.6 Science Process Skills

The concept of Science Process Skills can be understood in such a way that these are different skills that are used by the scientifically literate individuals in their daily lives. These skills when used by the individual can increase the quality and standards of their lives since the nature of science is the basis of the experiences received by the individual. Therefore, it can be concluded that these skills very much influence the individual lives,

social living and total global living of the persons involved. "American Association for the Advancement of Science (AAAS) has developed a classification scheme for the development of Science Process Skills and it is numbered into fifteen (Bybee et al., 1989). These are: observing, measuring, classifying, communicating, predicting, inferring, using numbers, using space/time relationships, questioning, controlling variables, hypothesizing, defining operationally, formulating models, designing experiments and interpreting data."

According to Kalam (2009), the great scientist and former president of India, "Educationists should build the capacities of the spirit of inquiry, creativity, entrepreneurial and moral leadership among students and become their role model ". To develop the spirit of inquiry as stressed by Kalam, proper nurture of Science Process Skills is essential. "Science educators play the central role in educating, inspiring and guiding students to become responsible and scientifically literate citizens. Scientific literacy is the key goal of science education in many countries (Murica, 2009)."

It was according to the opinion of Banchi and Bell (2008), that the lower level instruction by the teachers is necessary for a successful inquiry instruction. Thus "the teachers should work their way towards an open inquiry in order to effectively develop students' inquiry skills." Science Process Skills are very much significant and important for the individuals to become scientifically literate and knowledgeable about scientific inquiry. In fact the process skills and the inquiry instruction are the different tools that are very much necessary to develop and apply the scientific information to varied variety of scientific research in order to solve problems related to science. "This varied variety of skills can be achieved by students through distinct and unique science education activities (Harlen, 1999; Huppert, Lomask & Lazarorcitz, 2002)."

National Curriculum Framework of India (2005), emphasizes an environment in the science classroom which is conducive for constructivist learning. The inquiry based activities make way for development of Science Process Skills in the learners. Constructivist Approach fosters scientific inquiry. The modern teaching practice is such that more emphasis is given for the learners and hence the curriculum, teaching and training has become more learner centred and learner driven. Constructivism is such a theory of how people learn. Constructivism is a very influential theory of education. The most conspicuous psychological influence on curriculum in science since 1980 has been the constructivist thinking of learning. It is the regard of the constructivists that knowledge should be constructed by each of the individuals through their active and self reliant

engagement methods while interacting with the physical and social environment. Hence, it cannot be regarded as the mere transfer from one individual to another.

1.7 Science Achievement and Scientific Attitude

The definition of academic achievement as put forth by oxford bibliographies represents the overall performance outcomes of the students that marks the maximum level to which a person has achieved distinct, unique and specific goals that were the major highlight of the given activities in the different set up of instructional environments, like in school, college and university. Coming to the school systems, they define the academic achievement as the cognitive understanding or the cognitive level goals which do apply across different subjects taught in the school for the comprehension and attainment of knowledge and understanding in a specific instructional domain specifically the cognitive domain. Therefore academic achievement must be considered as a multidimensional construct which includes different domains of learning of the students.

Science achievement indicates the achievement in the science subject that has been achieved by students in a test to study the level of accuracy that they had gained from their course of instruction. The science achievement test is used basically to test the cognitive domain of the student and to evaluate and analyze the learner cognition on some specific topic that has been transacted to the student. The achievement test which is used to understand the cognitive domain of the students can be constructed using the principles put forward by the famous educationist Benjamin S Bloom and his associates in the year 1956. There are several methods of testing the cognitive domain of the students but the widely accepted and most preferred one is by Bloom (1956) in which he details the cognitive processes of a person through several sub domains.

An attitude can be referred to as a psycholgical element that can be undestood and evaluated from observable and measurable responses to a specific set of stimuli. Attitude varies from person to person. The individuals may have different and unrelated attiudes that are unique to them and through which they react and respond to any stimuli or a situation they recieve. There are different types of attitudes that an be developed through learning of various subjects in the school curriculum. Scientific atitude is the most important among these and it can be developed effectively through learning of the subject science. It is difficult to define what is a scientific attitude but it can be easily observed in the students.

It can be stated that the most important result or outcome in the science teaching and science learning is the development of scientific attitudes. As already it is known that the attitudes are personal and unique. So is the scientific attitude. It can differ from individual to individual. Hence it can be referred to as the mind-set of the individual about science and scientific advancements. The development of scientific attitudes in children can be fostered more with the help of teachers who teach the children. There is no as such any hard and fast method to develop scientific attitudes. Many teaching methods like play way method, co-curricular involvement, heuristic learning, experiential learning gives effective exposure to the hidden curriculum which in turn play an important role in developing these scientific attitudes among the children.

Scientific attitude thus can be referred to as the, "open mindedness, a desire for the accurate knowledge, confidence in procedures for seeking knowledge and the expectation that the solution of the problem will come through the use of verified knowledge." (Nelson, 1960)

1.8 Tribes of Kerala

The tribal communities in Kerala can be divided into 36 notified tribal communities, that is numbering to 484,839. All the communities are entirely different in terms of culture, beliefs, livelihood strategies, social organisation, economy and total developmental perspectives. "The notable communities in Kerala include Paniya, Kurichchya, Kuruma, Kattunayakans, Uralies etc of Wayanad, Irulas of Attapadi, Muthuvans, Malayarayan and Uralies of Idukki and Kottayam and Kanikkar of Thiruvanathapuram. There are 5 major tribal communities that are identified as primitive considering the stage of transition into modern society. They are referred to as Particularly Vulnerable Tribal Groups (PVTG). They are named as Kattunayakans of Wayanad, Koragas of Kasaragod, Cholanaickans of Nilambur Valley and Malappuram district, Kurumbars of Attapadi and Palakkad districts and Kadars of Cochin. (KIRTADS)"

1.9 Educational attainment of the Scheduled Tribes

The literacy rate of scheduled tribes (ST) in the State is reported to be 74.44 percent, which is much lower when compared with the state average literacy of 93.91 percent (2011). The literacy rate of them in the Palakkad district of Kerala was reported to be the lowest (57.63 %) on comparison with other districts of the state. (STDD, Kerala)

"Only 39.63 percent of the Cholanaickan tribe, a community in PVTG, is considered to be literate, which is the lowest rate among the Scheduled tribe communities. The literacy rate of the other communities in PVTG, except the Koraga is very far below the state average. It is 56.36 per cent for Kurumbar, 58.74 per cent for Kadar and 59.37 per cent for Kattunayakan. (STDD, Kerala)"

The community wise literacy rate of the PVTG community is given below in Table 1.1

Table 1.1

Community wise data on literacy rate of PVTG

Sl. No:	PVTG	Population	Literacy rate	Drop out	Drop out percentage
1.	'Kadar'	1704	58.74	145	8.5%
2.	'Kattunayakan'	17436	59.37	2038	11.7%
3.	'Koraga'	1483	78.35	137	9.2%
4.	'Kurumbar'	1888	56.36	88	4.7%
5.	'Cholanaickan'	323	39.63	26	8.1%
	TOTAL (PVTG)	22834	60.02	2434	10.7%
	State average on all Scheduled Tribes	384978	67.04	30486	7.9%

It can be seen that the drop out numbers among the PVTG is a barrier in the educational attainment among them. The two notable causes for such an alarming situation can be numbered and pointed out as:

a. Low enrolment ratio and
b. Higher dropout ratios among ST students in schools and colleges in comparison to general students and SC students.

The study thus is essential to develop and enhance the teaching learning strategy of the 21st century. The teachers should develop in them inter cultural understanding to effectively teach culturally diverse group of students. In order to infuse in the culture specific tools, proper plug points inside the curriculum must be identified. The present research study emphasises on the education of tribes in Kerala, particularly Attapadi and Nilambur block and this tries to throw light on the extremely low literacy level, low

enrolment ratios and higher dropout rates of the tribal students. Hence it is the need of the hour to investigate why such ostracism is happening in the tribal community and the reasons should be addressed by the respective government authorities to increase the educational opportunities of the tribal children.

"Particularly vulnerable tribal group (PVTG) (previously: Primitive tribal group: PTG) is a unique and distinct classification made by the honourable Government of India that was made with the sole reason of enhancing the progress and suggesting modifications in the prevailing conditions of certain specific tribal communities with particularly very low development indices so that their conditions can be improved further in terms of development and social status." (Patel, 1998)

As stated by the Dhebar Commission (1960-1961), a big drop in the rate of development was observed within Scheduled Tribes when compared with the other population outside their community. Therefore as its recommendation, in the implementation phase of the fourth Five Year Plan a completely new sub-category was identified within the community of Scheduled Tribes in order to distinguish certain particular communities inside the Scheduled Tribes that were believed to be at a considerably very lower state of development. This was developed as per the recommendations put forward by the Dhebar commission and related studies. "The name of this sub category was fixed as **Primitive Tribal Group**. The characteristic features of this group included a native-agricultural and very primitive system of survival and existence which solely relied on the practice of hunting and food-gathering, zero or negative population growth and extremely lower levels of literacy and education when compared to other groups belonged in the tribal community."(Dhebar Commission Report, 1973)

The honourable Government of India renamed the else existing "Primitive tribal group" as Particularly vulnerable tribal group" or as PVTG from 2006 onwards. Thus PTG name of this sub section was changed to *Particularly vulnerable tribal group* (PVTG) by the honourable Government of India.

In Kerala, the developmental indices of the PVTG also do follow the same pattern as in other states. As it is reported that the PVTG faces drop out issues and are lagging behind the mainstream education, the study tries to develop a pedagogy in a subject and in turn check the effectiveness of the pedagogy and the student interest towards involving in

the adopted pedagogical practices for enhancing their educational achievement in the subject chosen. Thus the present study focuses on four different and particular primitive tribes of Kerala residing in Palakkad and Malappuram districts namely, "*Kadar", "Kurumbar", "Kattunayakan"* and *"Cholanaickan".*

1.10 Need of the Study

Education has become a far seen dream for the tribal population. It is very much evident from the data that the tribal literates are only about 67%. This 67% of the population are just literates and that they are having no formal degrees like SSLC or at least primary level pass, with regard to the educational attainment of tribes in their community. The literacy rate of the Scheduled Tribes in Kerala is 67 percent as against to 90 percent in the general population. This variance in literacy and level of education between the tribes and the general population is continuing despite the increase in many numbers of educational support programmes that are made available to them.

Culture, the term as such encompasses the whole pattern and sub patterns of man's personal and social relationships as well as the entire make up of the individual's life and his surroundings. The teachers being the second parents of the children must surely understand the close knits and knots of the children thus ensuring a responsive teaching. The teaching must be culturally responsive so as to foster among the children inter cultural competence and thus helping them achieve a harmonious living in their future. The students can understand the subject core if they are provided with apt and accurate instruction during their course of study. The teachers must select the local cultural contexts and adequately club it in the curriculum so that the students are able to excel well in their academics. This in turn increases the academic achievement and enhances the interest of the students in the subject concerned. The present research study emphasises on the education of tribes in Kerala, particularly Attapadi and Nilambur block of Kerala state by following instructional strategies using different materials used by the tribal population which in turn creates enthusiasm in science learning.

The study thus is essential to develop and enhance the teaching learning strategy of the 21st century. The teachers should develop in them inter cultural understanding to effectively teach culturally diverse group of students. In order to infuse in the culture specific tools, proper plug points inside the curriculum must be identified. The present research study emphasises on the education of tribes in Kerala, particularly Attapadi and

Nilambur block and this tries to throw light on the extremely low literacy level, low enrolment ratios and higher dropout rates of the tribal students. Hence it is the need of the hour to investigate why such ostracism is happening in the tribal community and the reasons should be addressed by the respective government authorities to increase the educational opportunities of the tribal children.

1.11 Statement of the Problem

The present study is entitled as "EFFECTIVENESS OF EXPERIENTIAL PEDAGOGY ON SCIENCE PROCESS SKILLS, SCIENTIFIC ATTITUDE AND ACHIEVEMENT IN SCIENCE OF SECONDARY SCHOOL TRIBAL STUDENTS IN KERALA"

1.12 Operational Definition of Key Terms

Effectiveness

Effectiveness is operationally defined as a usage or adoption of a plan or a strategy for teaching and instruction to bring in a desirable change in the behaviour of the learners or participants involved in the learning process.

Experiential Pedagogy

Experiential pedagogy is operationally defined as a responsive teaching where in the each student is helped by competent teachers to relate the course content to his or her local environmental context. Such an instruction is a form of pedagogy effectively suited to all children from different racial and ethnic backgrounds. By making education locally relevant, it is thought to enhance the academic achievement and hence the self sustenance and social awareness of the students.

Experiential Pedagogical module used in this research study is based on the high school science textbook of Kerala State. The term is operationally defined as pedagogy of experience and creativity where in the subject science is taught through locally and culturally relevant practices and methods that generates interest and makes the learning permanent.

Science Process skills

As said by Padilla (1990), "the Science Process Skills are a specific set of wide and broadly transferrable abilities that can be transferred, that are apt and appropriate to all science disciplines and reflective of the behaviour of scientists."

"Science process skills are intellectual skills used in collecting and analysing the data to solve problems." (Tobin & Capie, 1982)

From the above two statements it is clear that the science process skills are those skills that are to be masterd for the effectve learning of the subject science. It is needed in the process of learning science. In the present study, the researcher has selected the science process skills according to the Longfield's Classification (2002). "The selected science process skills for the study include, observing, comparing, classifying, measuring and making models." These are the skills that are to be developed in the students for understaning the basic concepts of science and for appreciating all scientific advancements.

Scientific Attitude

Scientific attitude can be explained by the characteristic features such as "open mindedness, a desire for accurate knowledge, confidence in the procedures for seeking knowledge and the expectation that the solution of the problem will come through the use of a verified knowledge."(Nelson, 1960)

The acquisition of scientific attitude among learners is one of the most significant outcomes of teaching science. In the present study the researcher has included different attributes of scientific attitude like open mindedness, curiosity, belief in cause effect relationship, freedom from superstitions, intellectual honesty, objectivity, willingness to change beliefs, resspect to others opinions that feels convincing, judgement based on scietific facts, critical mindedness and methodical way of solving problems.

Achievement in Science

Academic achievement is the academic progress made by the individual after learning a prescribed content. It is measured using an achievement test conducted by the researcher.

Achievement in Science is operationally defined as the progress made by the student in the achievement test prepared by the researcher based on the pre determined objectives fixed by the researcher prior to the writing of achievement test conducted in them.

The present study uses the Bloom's revised taxonomy to construct the achievement test in Science for the modules taught during intervention. The test gives weightage to

objectives, content, forms of questions and the difficulty levels and measures how much a student has achieved the concepts that were transacted during the instruction.

The achievement test that was administered in the present study is helpful in understanding and analyzing the cognitive domain of the students.

Secondary School Tribal Students

The secondary school tribal students in the present study are referred to those students belonging to the age group of 12 to 14 and studying in class VIII of two different Asram schools located in Malappuram and Palakkad districts of Kerala state. The tribal students selected for the study belong to the PVTG belonging Kadar, Kurumbar, Kattunayakan and Cholanaickan community.

1.13 Objectives of the Study

1. To find out the level of scientific attitude and achievement in science of the secondary school tribal students of class VIII.
2. To determine the relationship between science process skills, scientific attitude and achievement in science among secondary school tribal students
3. To construct a module in experiential pedagogy in science at secondary school level for the tribal students.
4. To determine the effect of experiential pedagogy on the science process skills, scientific attitude and achievement in science of the secondary school tribal students
5. To find out if there exist any significant difference in the post test and the delayed post test in science process skills, scientific attitude and achievement in science in secondary school tribal students.
6. To classify the different types of learners according to Kolb's Experiential Learning Style and to find out the significant difference in the effectiveness of Experiential Learning module on their science process skills, scientific attitude and achievement in science of the secondary school tribal students based on their learning style.

1.14 Hypotheses Formulated for the Study

1. There exists no distinct different level of scientific attitude and achievement in science among secondary school tribal students.
2. There exists no correlation between the science process skills, scientific attitude and achievement in science of secondary school tribal students.
3. Experiential pedagogy has no significant effect in increasing the science process skills, scientific attitude and achievement in science of the secondary school tribal students.
4. There exists no significant difference in the post test and the delayed post-test in science process skills, scientific attitude and achievement in science in secondary school tribal students.
5. There exists no distinct and different types of learners based on learning styles.
6. There exists no significant difference in science process skills, scientific attitude and achievement in science of secondary school tribal students based on their learning style.

1.15 Scope of the Study

The tribal population discussed in detail has a higher dropout rate when compared to the general population of the state. The tribal literacy rate is just 67 percent and is far below the state average of 94 percent on comparison. Also the dropout problem and the educational ostracism still prevalent among the scheduled tribe needs to be addressed since the development of the state happens only when all the people of the state are intellectually and emotionally stable. Thus the scope of the study is to address the enhancement in the achievement of the tribal students in the subject of science and that they develop an interest in science as a subject of study which in turn help enhance their scientific attitude.

The achievement in science is addressed through a method of experiential learning where in the students are encouraged to learn through play way and practical methods. This method also helps in developing the science process skills of the students that must be developed in them for the better comprehension of science and the scientific concepts.

1.16 Limitations of the Study

In spite of all the necessary precautions taken for the study, some limitations have occurred in the study.

- The study would have been better if more number of students were present in the schools.
- The time shortage of the implementation of experimental design was another limitation.
- The study would have been a bit more effective if the language of the tribal students were known to the researcher. It took more time to transact the module to the students to make them perform better in the activities included in the instructional module.
- The study would have been a little more effective if the study could include the parental opinion as well.

Despite the above said limitations all efforts have been made to make the study valid and reliable as possible. It is hoped that the conclusions of the present research study would be helpful for educational researchers and that it will throw light in finding new methods and platforms in the field of education.

1.17 Delimitations of the Study

- The study is delimited to a particular tribal group called PVTG (Particularly Vulnerable Tribal Group) which is considered as the primitive tribal group taking into consideration their stage of transition in to modern society.
- The findings of the present study are related to tribal Asram high school students of class VIII who live in Palakkad and Malappuram districts of Kerala. These factors might limit the generalization of the findings to a broader group or larger population.

1.18 Organisation of the Thesis

The thesis has been organized under five chapters

Chapter 1

This is the chapter that presents an introduction to the study. This chapter contains all the important sub headings that include the background and rationale of the present study, its need and significance, the problem statement, the explanation of the important key terms that has been used throughout the study, the objectives and the hypotheses, scope, and delimitations of the study.

Chapter 2

This chapter has a collection of the reviews that were studied for the reference of the study. The review of related literature included the studies on the same variables that are used in the present study. It also includes the theoretical background of the variables selected for the study.

Chapter 3

This chapter includes an elaborate presentation of the methodology that was practiced in the study. This have a clear explanation about the study including the research design, the instructional package construction and validation, the selected variables for the study, the included sample in the study, the different tools and techniques used in the study and the explanation about the statistical techniques that is to be used or the study.

Chapter 4

This chapter gives the statistical analysis of each objective that has been stated in the study. It also includes the qualitative analysis of the focus group interviews followed by its discussion. It also includes the tenability of all the hypotheses stated for the study.

Chapter 5

This is the concluding and the final chapter that presents the detailed findings, conclusions, the educational implications and the recommendations for further research.

The research report is followed by References and Appendices.