Chapter I
Introduction

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In the contemporary world of science and technology, it is education that determines the level of prosperity, welfare and security of the people. The quality and number of persons coming out of our school and college determine our success in the great enterprises of national reconstruction, the principle of which is to raise the standard of living of our people.

In the modern time, the predominant aim of education is to enable a citizen to develop scientific attitude to think objectively and base one’s conclusions on tested data. Development of scientific attitude empowers an individual with the understanding and intellectual integrity to sift truth from falsehood, facts from propaganda and to reject the menacing appeal of fanaticism and prejudices.

The 21st century is witnessing rapid growth in the area of information and human development. One of the great challenges faced by the new century is adapting educational needs of the society. As explosion of knowledge is very fast today, it is very urgent to teach immediate steps to make education more useful. (Bear, 1993).

True education is that which draws out and stimulates the spiritual, intellectual and physical faculties of the children. Implicit in this aim is the belief that education has the potential to transform individuals and societies. Education is very important for an individual’s success in life as it promotes individual’s skills that prepare the students physically, mentally and socially for the world of work in later life. Educated individuals enjoy respect among their colleagues and they can
effectively contribute to the development of their country and society by inventing new devices and discovering things. Educational development prepares youngsters for adulthood so that they may form the next generation of leaders. It can yield strong families and tenacious communities. Another essential task of education is to enable people to understand themselves. Students must be equipped with knowledge and skills which are needed to participate effectively as member of society and contribute towards the development of shared values and common identity and to understand their cultural identity.

Science education plays a crucial and pivotal role in the alchemy of scientific research and technological innovations, which overlap with every aspects of human life, in family, society and world as a whole. In a progressive forward looking society, science has the potential to liberate people from poverty, ignorance, and superstition.

Importance of science lies in creating an enlightened citizenship and in training our citizens to understand the scientific world in which we live as well as in preparing them to be able to pass the frontiers of knowledge necessary for adding new. In science education, we find a common call for the need for deeper, more conceptually rooted knowledge that students can relate and apply to real world problems. (Braud and Reiss, 2006; Blute, Westbroek, de Jong and Pilot, 2006; cited in NRC, 2012). Secondary science education often results in the development of what (Whitehead, 1967) called ‘inert knowledge ‘information that is de-contextualised from the real world. Contextualised information helps the students to find the
interconnection between knowledge and its application in real life situations outside school.

To cope with the fast-changing world, the most important skills are open mind in accepting the knowledge without bias, flexibility in adapting to new demands and creativity in taking advantage of new opportunities, self awareness to accept the changes, problem solving skills for smooth functioning of society, ability to make decisions for the well being. These imperatives have to be kept in mind in shaping science education.

The instructional materials developed by the NCERT under UNICEF aided project, during 1967-70 was based on activity-based approach in to the teaching of science. The package of instructional materials comprising syllabus, textbooks (titled Science is Doing ), handbook of activities, teachers’ guides, science kit and audio-visual materials were developed through a process of trial in a limited number of schools. The instructional package developed for the middle schools, Classes VI to VIII, too comprised similar components and was also developed through field trials. (NCF,2007). The gap perceived between recommendations of various commissions and committees and actual practice motivated several individuals and voluntary organisations to take up innovative programmes in teaching of Science at schools.

Zaragoza the then, Director General of (UNESCO,2000) stated that “Never before until now, has the tension between science and the human conscience, between technology and ethics, reached a point where it has become a threat to the world as a whole. We are so dazzled that we do not perceive the threats hanging
over our heads, warning us of the pressing need for a radically new and universally ethical outlook on the future of present day science”.

Science education should enable the learners for the application of their knowledge to real life situation. Science learning helps the enhancement of cognitive, affective and psycho motor development of an individual. To summarize, science education should enable the learner to contribute to the development of the society as a social enterprise. It is the duty of science teachers to empower the learners to scientifically approach the local and global issues at the interface of science and society and inculcate values of honesty, integrity, natural curiosity along with freedom from fear and prejudice.

Teaching strategies play a significant role in enhancing the learning abilities of students. In the words of (Gillepsie,2002), many of the goals of Science Education will be realized once teachers orient their teaching towards understanding of concepts. The New Educational Policy (NEP, 1986: Ministry of HRD,1993) stressed the need for relating science in everyday life. It is therefore important that teachers should be encouraged to adopt methods that contribute to the meaningful attainment of concepts.

It is the duty of educational planners to accept the change in knowledge and develop content that inculcates the spirit of science in every student, in the background of knowledge explosion. Since each individual is unique, it is the duty of teachers to cater and the individual differences within the classroom to keep the students in pace with the expanding knowledge. Science learning helps the students
to apply scientific concepts, principles and attitudes not only in laboratory, but also in their wider life such as family, their community and their nation as a social being.

Science teaching and learning has a long history. We are concerned about the problems like global warming, carbon footprint, scarcity of environmental resources, etc. from the initial stage itself. These problems had been here decades ago, but still they remain unsolved. Biology is related with every aspect of life, and the biology teaching of Biology deals with health and hygiene, treating disease, proper nutrition, exercise science, understanding environment, conservation of environment, using natural resources, harvesting food and its storage etc. All these problems increase every day. This is because of the gap between the classroom learning and its practice in the real world. Scientific concepts selected in the curriculum should make sense of everyday experiences. It is important to ensure that a majority of activities and experiments which teachers initiate can be done using readily available inexpensive materials that can be practical in all schools, including those with inadequate infrastructure.

The developmental progress of a country depends on the extent to which it can utilize such knowledge and make new discoveries and inventions based on science learning. Similarly the success of any science classroom also depends what strategy teacher adopts and how much scientific enriched and resourceful the teacher is.
1.1 Curriculum and Contextual Teaching Learning- The Present Scenario

Everyday contexts are the situations children encounter through their interactions and activities everyday in their home and community. So as children play and interact with others, they develop concepts. These might be related to cooking, eating, going to clinic, sickness, starting school, or going on holidays, and so on. In other words, through their interaction children learn the concept relating to their lives. Here, in the context of real life experience, we see children exploring complex everyday concepts through their interaction with peers and with adults.

Apart from simple experiments and hands on experiences, an important pedagogic practice at this stage is to engage the students (in groups) in meaningful investigations -particularly of the problems they perceive to be significant and important. This may be done through discussions in the class with the teacher, peer interactions, gathering information from newspapers, talking to knowledgeable persons in the neighbourhood, collecting data from easily available sources and carrying out simple investigations in the design of which the students have a major role to play. Organizing information and displaying it in the class room, in the school or in the neighbourhood, or through skits and plays are important parts of the pedagogy to ensure larger participation and sharing of learning outcomes. Biographical narration of Scientists and inventors are a useful practice to inspire students at this stage. The emphasis should be given to the learners to carry out learning even beyond the school.
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There are three factors involved in learner are, the learner (child), the environment - physical, biological and social (life) in which the learner is embedded, and the object of learning (science). Since science education is dependent on context, it is important that research to be carried out in our own environment. (NCERT, 2006).

1.2. Instructional strategies

Multi-dimensional responsibilities of modern teacher demands the changing role of a teacher as co learner and initiate to design learning outcomes in pace with student’s needs and aspirations. In these days of rapid scientific and technological advancements, of teaching learning transactions and have become more sensitive and sophisticated. Consequently teachers are facing many problems to undertake the complex classroom activities effectively and successfully. At this juncture, the teacher ought to be motivated to strengthen and retain her zeal and enthusiasm towards teaching profession.

A significant influence on teachers’ instructional approaches in teaching is the theoretical perspective on learning. Social constructivist theory suggests that learning takes place through active participation and interaction between the teacher and the student. (Rogoff, 1990, Mathew, & White, 1996; Schunk, 2001; Schunk & Zimmerman, 2007). Scaffolding or providing supports guarantee successful learning; learning and arranging collaborative experience to facilitate the construction of knowledge are the new role ascribed to the teacher by paradigm shift from Behaviourism to Constructivism.
For this teachers have different roles of being an encouraging, supportive and humane facilitator in teaching learning situations to enable the learner to discover their talents, realize their physical and intellectual potentialities to the fullest and to the keep character and desirable social and human values to function as responsible citizens. (NCF, 2005).

Learning is a relatively permanent change in behaviour or in behaviour potentiality that results from experience and cannot be attributed to temporary body states (Kalisch & Korenfield, 2006). The school environment provides much information and stimulation which the pupil attentively absorbs and process. Their behaviour is not a mechanistic reaction to the stimulation, but often a calculated and considered response which may also include initiative learning

Teaching therefore is a conscious effort to bridge the gap between the state of mind of the learner and the subject matter which is to be learnt, as such the teacher’s expertise lies in understanding both (Wilson, 2001). It is possible for a teacher to use a wide range of instructional strategies for making teaching and learning effective.

Many learning theories are evolved to explain how students learn. Students learn more and retain the material longer, when it is taught in a manner that is comfortable to them. This is mentioned as learning style. Differences in learning styles are often due to difference in our cognitive styles- that is difference in how we respond to the environment and difference in the way information is processed and organized and how information reorganised in our brain related to the context. (Barnier & Pritchard, 2009)
Children construct themselves in collaboration with peers and friends as well as parents. In the process they come to realize the necessity of taking account of others ideas and of reaching consensus with them. (Tobin & Tippin, 1993).

The role of others in learning cannot be ignored, that is all learning is social. The importance of previous experience in learning is meaningful when the children give the chance to use socially and culturally constructed tools. (Vygotsky, 1919) Opportunities should be given for firsthand experience for the development of the everyday concept and all children should have frequent chances to create and use symbols, which should enable or enhance their ability to think abstractly. The learning is always to find something which will motivate children, offer them cognitive challenges, and allow them to get deeply involved in what way they are doing and to build on what they already know.

The teacher encourages students to use active techniques (experiments and real world problem solving) to create more knowledge and then reflect on and talk about what they are doing and how their understanding are changing. To be effective and successful, teacher must be knowledgeable about pedagogy, which includes general effective teaching concepts, theories, and research.

The heart of school improvement is student’s achievement. Everything we do in schools should be focused on increasing student’s knowledge and skills. Teachers who are not valued and respected often do not feel comfortable or empowered enough to make the changes necessary to improve student learning. Those teachers who feel that they are incapable or lack skills to differentiate instruction need continual support, encouragement, and reinforcement of their
efforts so that they have the will and skills to succeed in differentiating instruction. People who enjoy their work and find their workplace pleasant, nonthreatening, yet challenging usually feel more confident than those who don’t. Science teachers in the modern classroom are no longer lecturers or demonstrators. They are expected to be mentors whose main task is to set goal and organise the learning process accordingly. The instructional preferences adopted by the science teachers in their classrooms determine their role as facilitator of learning, rather than the educator.

As a teacher in the context of multi-dimensional classroom, are well equipped with different learning theories and strategies and have the capacity to accept the challenges from the classroom. The experts of education were seriously thinking of a variety approach of teaching methods. It is proven that there is no particular single way to achieve all instructional objectives. It requires the collaboration of a number of different strategies and techniques to create the right environment for learning. So we have to design suitable instructional strategies to help students to grow intellectually, physically socially and environmentally.

The existing system of education in our country is not related to the real life situation of the students. For the creation of constructivist approach in the classroom certain deliberate change is implemented in the present system of education

The biggest problems faced by the learners now are they are not been able to connect between what they learn and how that knowledge will be used. This is because the way they obtain information and self motivation has not been touched by a method that can really help them. The students feel difficulty in understanding academic concepts (such as the concepts of mathematics, physics, or biology)
because the teaching methods which have been used by teachers are not suitable to the differential ability of the students. Students here certainly know what they are learning now will be very useful for their future lives, that is when they are societal or while at work one day. Therefore we need a method that can really give an answer to this problem.

The students are no better equipped and disciplined to face the hard realities of life. Recently they have taken even to violence, burning the buses, stoning the public servants, manhandling the teachers, indulging in mass-copying during examinations and forcing the authorities to close down the institutions.

Key role of science in every sphere of human life is inevitable and hence the education system throughout the world has to focus to provide the man making aspect of education to meet the challenges beyond schools. In this context the children of today have to identify scientific principles and their applications around them in their daily life. So in the school level itself the people should be taught how to know rather than what to know. Hence the context of teaching and learning

The achievement in science is not merely attained through the transaction in the classroom. Every piece of learning is dependent upon the background of context such as, personal, family community etc. Hence the study tries to establish the role of contextual teaching learning in enhancing achievement and Life Skills.

The World Health Organisation (WHO, 1996) has defined Life Skill as the abilities for adaptive and positive behaviour that enable individual to deal effectively with the demands and challenges of everyday life. (UNICEF) defines Life Skills as a
behaviour change or behaviour development approaches designed to address a balance of three areas: knowledge, attitude and skills. Life Skills are essentially those abilities that help to promote mental well being and competencies in young people as they face the realities of life. Life Skills include the skills the students need to be successful in society. Most development professionals agree that Life Skills are generally applied in the context of health and social events. Teaching Life Skills is an important part of education especially at the secondary level where the learners are in their adolescent stage. Life Skills empower young people to take proactive action to protect them and promote healthy and desirable social relationship. With proper orientation in Life Skills, the pupil will be able to explore alternatives weigh pros and cons and make rational decision in solving each problem or issues as it arises. Without Life Skills, students will not be able to apply what they have learned at school to their everyday life. Developing Life Skills helps adolescents to translate their knowledge into proper action, attitude and values into healthy personal and social behaviour, enthusiasm and emotional integrity to prioritising of their needs and wants. The science teacher is always to be ready to extent a helping hand to students to learn how to take better one of them by incorporating awareness on Life Skills applications through their lessons. This training in Life Skills must from an indispensable part of teacher activities in schools.

Thus a generation of teachers who aim to develop learners instead of teaching, who help their pupil to become independent learners, who provide students with motivation and interest for lifelong learning and urge them to become autonomous learners is essential to meet the new demands in education.
During the upper primary stage, children enter adolescence and are likely to try to be free of the confines of home and parental care and assert their independence, sometimes by experimenting with smoking, drugs and sex. We need to be sensitive to their explorations of their self and body, as well as the outside world. While science textbooks provide factual information on the human body, reproduction, safe sex, drugs, smoking, etc., this is not enough. The classroom does not provide enough scope for wider and participative discussions on sex and related matters. The school should set aside some time every week for interactions in which students can share and seek information, discuss and clarify their doubts, with teachers and, if possible, counsellors. Such a time slot should be available to students throughout the later stages of schooling also.

The ideal of all education should be man making. Education is not the amount of information that is put into your brain and runs riot there, undigested, all your life. Life building, man making, and character making assimilation of ideas are the social expectation from our educational system.

To find a good context for context-based learning and teaching in science is by no means easy. It need teacher competency, teacher empowerment to connect learning materials to introduce the content to teach through a real situation. A problem in one’s life is related to so many contexts.

How to choose appropriate and useful contextual examples is quite a complicated problem. Selecting contextual example should carefully by the concerned teachers to attain the objectives. Since biology is a subject more related to life situations or problems. Contextual example can be taken from biology.
In Context for Teaching and Learning, participating teachers learn about their teaching environment by identifying challenges, investigating resources, and gathering information about their students. With a support provider, participating teachers focus on their class, school, district, and community and use this information to guide instructional decisions and identify areas for professional growth.

1.3 Need and Significance of the Study

Nowadays learning seems to be more interesting since innovations in teaching and learning are interactive and encourage the learners to be active, in terms of achieving learning objectives. Learners are not merely sitting back on the desk, but they are motivated to explore their skills with regard to their environment. Moreover, learners are expected to understand something beyond they obtain from textbooks. Those experiences may be obtained from explanations and situations provided by the teacher in the classroom and we call them as context of learning.

Effective learning should encourage learners to grab the world by understanding what the purpose of learning is and what the context within the learning is and why they have to do so. There are some perspectives regarding to the effective learning. The first thing is the significance of discovery process in learning, because many learn best in a concrete manner involving personal participation, physical or hands on activities, and opportunities for personal discovery. The second is learning should convey learners to see their reality. Learning is greatly enhanced when concepts are presented in the context of relationship that are familiar to the
student. Moreover, most people relate better to concrete, tangible examples and experiences than to abstract conceptual model. The next point is learning should establish and encourage learners to be more active, regarding to build relationship and partnership. Most students learn best through some sort of personal interaction with other students-through study group, team learning, and so on. The fourth is rote learning which should be avoided because it ineffective and inefficient. And the last is, learning should build learners confidence to face the several of situation dealing with learning process. Transfer of learning from one situation to another is not consistently predictable and the ability to do so is a skill that must be learned.

The philosophy of Contextual Teaching Learning are rooted from the work of (Dewey, 1900). He believed that the students will learn effectively if they can make a connection between what they are learning with the experience they had, and effective learning occur, when they are actively involved in the learning are process in the classroom. In other words, what an individual has learned in the way of knowledge and skill in one situation becomes an instrument of understanding and dealing effectively with the situation which follow. Contextual Teaching Learning is the theories which describe learning as the process of connecting learners with the reality and then they are required to study the context of surrounding, later on draw the inference from it. Bern (2001), defines Contextual Teaching Learning that helps teachers, relate subject matter content to real world situations; and motivates students to make connections between knowledge, its application to their life as family members, citizens and workers and engage in the hard work that learning requires.
In Contextual Teaching Learning, teacher should present the students real world inside the classroom. Therefore the teachers should have experience with the actual life situations such as news, its interrelationship, internet and so forth to guide learners to face the real world outside.

Life Skills help individuals to be empowered to manage their lives in meaningful and responsible ways by exercising control over their living and working conditions. Individuals must act autonomously in order to participate effectively in the development of society and to function well in different spheres of life including the workplace, family life and social life. In order to face the challenges in everyday life, it is imperative to build the capacities of the adolescents and young people to face the various pressures and demands. An individual with Life Skills have the capacity to assimilating knowledge, competence to plan and execute tasks and further engineer their characteristic traits. The Contextual Teaching Learning helps to develop Life Skills which are a boosting agent for achievement. Kerala – the state with highest suicide rates in the country. 85% of cases were in the age group of 14 to 18 years were as 15% were in the 11 to 14 years of age, which shows the severity of issue in the middle or late adolescence. Suicide is a major public health problem in Kerala, which is higher than the national average (11.6 per 1 lak population) NCRB,1999. Kerala contribute 10.1% of all the suicides in India, while it form only 3 % of the nation’s population (Suresh,2004). A study conducted by (Dinesh & Syamakumari, 2010) on secondary school students of Kerala shows that 93 to 100% of the children aged 4 to 17 years showed medium to moderate stress while 1.9% severe stress. Only 1.79% came under normal group.
This suggests that in every age more than 90% of the school children of the state are facing above normal levels of stress and tension. The study further reveals that the stress rate is high at the age of 4, 7, 8, 12, 13 and 15, (100%). Also more than 97% of the children above 10 years showed above average stress. More number of children with severe stress was observed at the age of 14 whereas the majority of the children between 13 to 15 showed moderate or severe level of stress than any other age groups. These clearly explain that the literacy rate is not the indication of Human resource development. Hence necessary steps are taken by the policy makers for the development of Life Skills among adolescence. There for it is the duty of the teachers to plan lessons and adopt new strategy to develop Life Skills along with Achievement.

1.4 Statement of the Problem

There is a mismatch between what is taught, what learned and what is practiced. This mismatch widens in teaching and learning of science subjects. As already mentioned science is doing. What are taught in the classroom should be related to the day to day experience of the child. Hence the learned material has a transfer value and meaningfulness. Thus the acquired information should be able to apply in the real life situations. The investigator has focused a special strategy by name ‘REACT’ strategy propend by Crawford (2002) with the primary objectives of relating and translating a learned material in day to day experiences the child gains. In other words an instructional package when framed from the contextual experiences of the learner will have longer duration in cognition and is relatively permanent in the mind of the learner. Thus the investigator developed a specialised
learning package based on the experiential background of the learner as per the Crawford’s ‘REACT’ strategy. Hence the problem of the present study is worded as “Development of Contextual Teaching Learning Package in Biology Based on ‘REACT’ Strategy for Enhancing Life Skills Among Secondary School Students of Kerala.”

1.5 Definition of Key Terms

**Contextual Teaching Learning:** The existing system of education in our country is unrelated to the real life situation of the students. For the creation of constructivist approach in the classroom certain deliberate change is implemented in the present system of education.,

(Oxford Advanced Learner’s Dictionary, 2010), defines contextual Teaching Learning as learning that is designed so that students can carry out activities and solve problems in a way that reflects the nature of such task in the real world.

In the present study Contextual Teaching Learning represents the use of events from students’ and teachers' life, social, and cultural background as a platform to learn biology, as means to strengthen students’ understanding of biology and broaden their perspectives.

**REACT strategy**

REACT (Relating, Experiencing, Applying, Cooperating, and Transferring) is one of strategies in contextualization proposed by Crawford (2001), Relating what is being taught into the context of the real world, Experiencing the new knowledge,
Applying new concepts to the real world situations, solving problems by cooperating with each other and Transferring that knowledge to an experience that they will have in the future

‘REACT’ strategy means instructions are structured based on contextual learning strategies to encourage five essential forms of learning: Relating, Experiencing, Applying, Cooperating, and Transferring.

**REACT Strategy:** Crawford defines REACT strategy as a classroom strategy in which classroom activities are developed by giving chance for Relation, Experience, Application, Cooperating and Transfer of knowledge.

In the present study, the investigator connects or relates the concept with students, personal, social and environment through various classroom experiences through application, analysis and comparison and transfer it to their life situation.

**Life Skills:** Life Skills have been defined by (WHO,1999) as abilities for adaptive and positive behaviour that enable individuals to deal effectively with the demands and challenges of everyday life.

The present study investigator selected five Life Skill among ten proposed by (UNESCO) such as self awareness, critical thinking, creative thinking, problem solving and decision making, which can be developed through classroom and closely related with science learning.

In the present study, Life Skills means those skills that help the individual to successfully overcome daily life situations and demands, through thinking creatively
and critically, making correct decisions, solving problems, and having a responsible attitude.

1.6 Variables of the Study

Independent Variable

In the present study, the independent variable is Contextual Teaching Learning Package based on ‘REACT’ strategy in Biology

Dependent Variables

Life Skills and Achievement in Biology were treated as Depended variables

Classificatory Variables

Gender of the subjects and Type of Management of Institution, Type of family and Locale of the Family, viz Rural-Urban residence were treated as classificatory variables.

1.7 Objectives of the Study

The objectives taken for the study are classified into two:

i) Major objectives ii) Minor objectives

Major Objectives

1. To Develop Contextual Teaching Learning Package in Biology based on ‘REACT’ strategy for enhancing Life Skills among secondary school students.
2. To test the effectiveness of the Contextual Teaching Learning Package in Biology based on ‘REACT’ strategy for enhancing Life Skills among Secondary School students.

**Minor Objectives**

1. To assess the Life Skills of secondary school students.

2. To study the awareness on Contextualisation of science teaching and learning among secondary school science teachers.

3. To compare the Life Skills of secondary school students belonging to different subsamples based on, Gender, Type of Management of the Institution, Type of Family, and Locale of the Family.

4. To compare the awareness of secondary school science teachers belonging to different subsamples based on, Gender, Type of Management of the Institution, Length of Teaching experience

5. To find out the effectiveness of the developed Contextual Teaching Learning Package in Biology based on ‘REACT’ strategy for enhancing Life Skills among secondary school students based on Gender and Type of Management of Institution.

6. To find out the effectiveness of the developed Contextual Teaching Learning Package in Biology based on ‘REACT’ strategy in enhancing Achievement in Biology of secondary school students for the whole sample, and the relevant subsamples based on Gender and Type of Management of Institution.
7. To compare the effectiveness of Contextual Teaching Learning Package in Biology based on ‘REACT’ strategy and the presently followed activity method of instruction in schools for enhancing Life Skills and Achievement in Biology for the total sample and the relevant subsamples based on Gender and Type of Management of the Institution.

1.8 Hypotheses

1. There is no significant difference in the Life Skills of secondary school students for the total sample and the relevant subsamples based on
   a) Gender
   b) Type of Management of Institution
   c) Type of Family
   d) Locale of Family

2. There is no significant difference in the awareness of secondary school science teachers on contextualizing of science teaching and learning for the whole sample and the relevant subsamples based on
   a) Gender
   b) Type of Management of the Institution
   c) Length of Teaching Experience

3. There exists no significant difference in the Life Skills and Achievement in Biology of secondary school students when taught through Contextual Teaching Learning Package in Biology based on ‘REACT’ strategy for the whole sample and the relevant subsamples based on Gender and Type of Management of Institution.
4. There exists no significant difference in the mean pre test scores on Life Skills and Achievement in Biology between experimental and control group for the whole sample and the relevant subsamples based on Gender and Type of Management of Institution.

5. There exists no significant difference in the mean post test scores on Life Skills and Achievement in Biology between experimental and control group for the whole sample and the relevant subsamples based on Gender and Type of Management of Institution.

6. There exists no significant difference in the mean pre test scores and mean post test scores on Life Skills and Achievement in Biology for the experimental group for the whole sample and for the relevant subsamples based on Gender and Type of Management of Institution.

1.9 Methodology

Survey and experimental methods were adopted for the present study. The method adopted was experimental method and the design used was **Quasi-experimental pre-test-post test experimental group control group design.** Experimental group was taught with developed Contextual Teaching Learning package in Biology based ‘REACT’ strategy and control group the same topic by the existing activity method. Immediately after instruction, experimental groups and the control groups post were administered based on Life skills. The scores obtained after conducting the post test were subjected to statistical analysis and the results compared.
1.9.1 Sample

Sample for the study consisted of both secondary school students and science teachers. The investigator adopted a random sampling technique for selecting the sample for the experimentation. For the survey the investigator selected four districts namely Kasargod, Kannur, Wayanad and Kozhikode by using purposive random sampling technique. Sample for the experiment consisted of VIII standard students from two schools of Kannur district

1.10 Material Developed

Contextual Teaching Learning Package in Biology based on ‘REACT’ strategy

1.11 Tools

1. Ravans’ Standard Progressive Matrices (Ravan, 1968)
2. Life skills assessment Scale for secondary school students (Bindu and Helen, 2012)
3. Scale to study the awareness of science teachers’ on Contextualisation of science teaching and learning (Bindu and Helen, 2012).
4. Achievement test in Biology (Bindu and Helen, 2014)
5. Package Evaluation Schedule (Bindu and Helen, 2012)

1.12 Statistical Techniques

For analyzing the data, the investigator used the following statistical techniques
1. Descriptive statistical techniques like mean and standard deviation

2. Percentage analysis

3. Test of significance of difference between the mean scores of
   a) two independent groups
   b) two dependent groups
   c) ANCOVA- Analysis of covariance
   d) Effect size Cohen’s $d$

1.13 Scope and Limitations of the Study

Life Skill education in school is an important means to promote psychological competence among youth. India being a vast and diverse country, the Indian youth is slowly undergoing cultural transition in their outlook due to globalization, communication and media. Inculcation of Life Skills through classroom teaching helps the individual to be a better citizen.

UNESCO 2005 envisages that an effective education in the twenty first century must provide a harmonious balance between academic education and practical skill development. The prime aim of teachers is to impart right education and remove the sign of ignorance from all life style. (Jometin, Declaration on Education for All, 1990). Therefore teachers want to change the methodology of teaching according to the needs of today. The investigator hopes that the finding of the study will be used to educational administrators, educationist, teachers and research scholars to modifying teaching learning process. The finding will full fill
the gap if any, in the studies conducted so far and would trigger deeper studies by the future research in this area.

Since the role of schools is the socialization of young people the present study highlights the significant role of schools towards introduction of Life Skill education.

In spite of these limitation, the investigator feels that a genuine efforts has been made to study all the relevant features of the problem as far as possible and believe that the finding of this investigation will be useful to school administers and policy makers.

The biggest problem faced by the learners now is that, they are not able to connect between what they learnt and how that knowledge is used. The students feel difficulty in understanding academic concept because the teaching methods used by the educators are confined to the transaction of subject knowledge rather than the impact on their life. Contextual teaching and learning based on Contextual Learning theory can answer the problem.

Contextual Teaching Learning theory advocates that, teaching learning activity matches the performance of the brain. It helps the learner to develop meaning to learning by linking academic content to the context of everyday life (Hull, 1995).

The Contextual Teaching Learning method can be used to enhance Life Skills. It helps the students to make a link between the content of study with real life situation. Contextual Teaching Learning helps the students to find meaningful
relationship between abstract ideas with practical application in real world context. Regular practice of Contextual Teaching Learning methods in education helps the students to explore personal talents and to develop at their own pace.

Contextual Teaching Learning classroom encourages the students to be always creative, critical thinking in order to provides something useful, motivates, the students to accept responsibility for own decision, makes choices, develops plan, analyses information, creates solution and critically assess the evidence. All these activities are the indicators of Life Skills. Investigator presumes that REACT strategy is one of the strategies in Contextual Teaching Learning to enhance students understanding, new insight, personal interest, the power of imagination, ability to survive, and self awareness. All these abilities enhance Life Skills of the students.

Research shows that contextual teaching and learning is the right method which can be used in developing Life Skills because it has the potential to create meaningful classroom which is relevant to the real world situation (CORD, 2001). There are not much study conducted on contextual teaching and learning to enhance life skills. Hence the investigator decided to conduct a study on Contextual Teaching Learning for enhancing Life Skills.

Teacher should be exemplary. He has to make use of all the possible sources while teaching the class. He has to make use of teaching learning materials and make classroom lively. One should not curb the interest of the students. He has to allow the students to learn in their own pace reactively indulging in the classroom teaching. The investigator being a biology teacher strongly believe that teaching of
biology using Contextual Teaching Learning based on ‘REACT ‘ strategy can enhance the Life Skills of students and hence the study.

1.14 Organization of the Report

The study has been reported in six chapters. The details are given below:

Chapter – I ‘Introduction’ describes need and significance of the study, statement of the problem, hypotheses set for the study, objectives of the study and scope and limitations of the study.

Chapter –II. ‘Theoretical Overview’ contains detailed theoretical description of the meaning of Contextual Teaching Learning its definition, implication and its history. Theoretical support for Life Skills and Life Skill education

Chapter –III. ‘Review of Related Studies’ presents the review of related studies and literature on the contextual teaching and learning, Life Skill education.

Chapter – IV ‘Methodology’ gives a description on the selection of sample and variables, the tools employed for the collection of data, the procedure followed and statistical techniques used in the study.

Chapter – V ‘Analysis and Interpretation of Data’ is concerned with the analysis of data obtained for the study followed by interpretation of the obtained results.
Chapter – VI: ‘Conclusions and Suggestions’ summarizes the study in retrospect. It presents the summary of the procedure, major findings, conclusions, implications of the study and suggestions for further research in this area. The report is supported with lists of Tables and Figures and Appendices pertaining to the study.