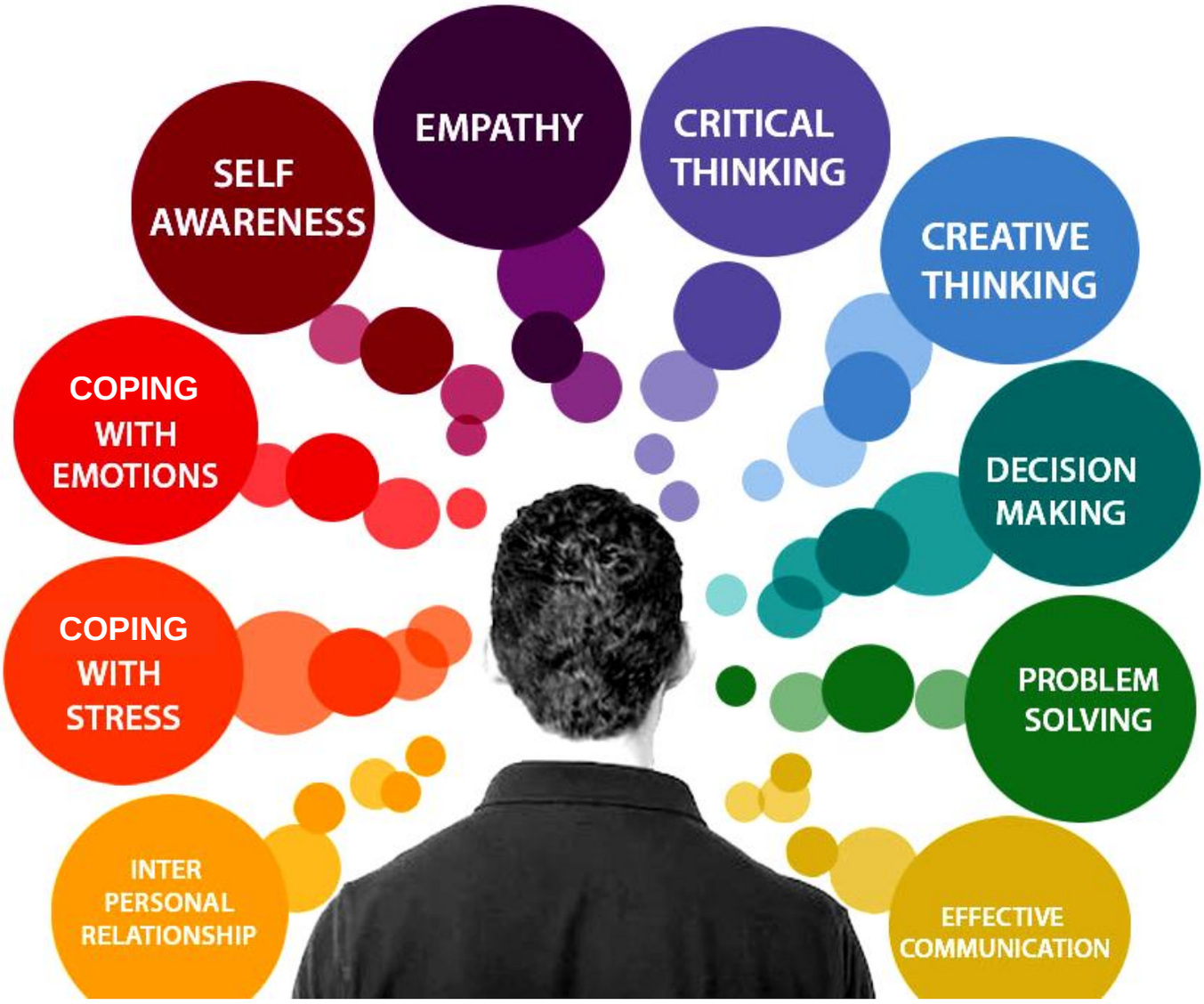

Dr. Bhagyashree Dudhade

Self-Awareness
Effective Communication
Critical Thinking
Problem Solving
Decision Making

Life Skills:

Self-awareness, Effective communication, Critical thinking, Problem solving, Decision making

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Preface

At the heart of Life Skills education is the learning of Life Skills. Life Skills are 'abilities for adaptive behaviour that enable individuals to deal effectively with the demands and challenges of everyday life' (WHO, 1997, p.1). The core set of Life Skills (WHO 1997: p.1) that follow the above description are:

- Problem solving
- Communication
- Coping with emotion
- Decision-making
- Interpersonal skills
- Coping with stress
- Critical Thinking
- Creative thinking
- Self-awareness
- Empathy

Life Skills education promotes mental well-being in young people and equips them to face the realities of life. By supporting mental well-being and behavioural preparedness, Life Skills education equips individuals to behave in a pro-social ways and it is additionally health giving (Birell Weisen and Orley, 1996). To achieve health giving pro-social behaviour a Life Skills programme must have effect on the inner layer of mental well-being and middle layers of behavioural preparedness. Consequently, Life Skills education can be seen as empowering children and thus enabling them to take more responsibility for their actions (Orley, 1997).

At the United Nations Inter-Agency Meeting held at WHO, Geneva (WHO, 1999: p.4) Life Skills education was considered as crucial for:

- The promotion of healthy child and adolescent development;
- Primary prevention of some key causes of child and adolescent death, disease and disability;
- Socialization;
- Preparing young people for changing social circumstances.

Life Skills education has been developed by different organisations with different objectives, for example, prevention of substance abuse (Perry and Kelder, 1992) prevention of bullying and prevention of AIDS (WHO, 1994). However, Orley (1997) argues that learning Life Skills is a desirable activity on its own as it helps individuals to deal effectively with everyday demands and does not have to be justified as preventing anything. Nor it is necessary to introduce a Life Skills education programme only when and where there are mental and behavioural disorders (WHO, 1999). Effective application of Life Skills can influence the way children feel about others and themselves, which in turn can contribute to the children's self-confidence and self-esteem. I believe that the school is a good place to introduce Life Skills programmes, as the school years, during which children acquire a major part of their formal education, are important developmental years in an individual's life. In school, besides academics children also learn social skills and encounter authority other than their parents (Matheson and Grosvenor, 1999). Students often look to adults in the school community for guidance, support and direction (Brooks, 2004). Furthermore, schools have a high credibility with parents and community members (WHO, 1997) and thus have a great influence on children and their families. For these reasons, I think the school is a formidable

institution for a Life Skills intervention. I believe school education should emphasise not only academics but also the mental well-being of children to make it a positive place of learning. Moreover, schools are crucial in building or undermining self-esteem and sense of competence as teachers and peers play an important role in the development of self-esteem of school going children (Woolfolk, 2001). I therefore believe a comprehensive teacher-training programme in Life Skills education would facilitate not only better teachers but also would support children's educational and mental health requirements (Edwards, 1994; Cohen, 1999; Brooks, 2001). In this manner schools can act as a safety net, protecting children from hazards, which affect their education, developmental and psychosocial well-being.

Health as stated by WHO is not, merely the absence of any disease, but it refers to the total wellbeing of students. Health is the outcome of the interaction between the person and environment. To be healthy, one needs to make conscious choice. This choice is influenced by their values and beliefs. Peer influence has a profound impact on the choice. Students need more than information to make choices, they need to know how to make decisions. Life Skills help students to make informed choices. Life Skills are those that students need in order to cope up with issues and problems related to the entire spectrum of their survival and wellbeing (UNICEF: 1999). Life Skills help students to convert intangible assets like knowledge and attitude into healthy behaviours.

Researches have shown that Life Skills have produced the following effects:

- Increase in pro-social behaviour & Decrease in self-destructive behaviour.
- Strengthened effective choice making.
- Improved self-awareness & relationship.
- Strengthening of constructive thinking.

NICEF identifies the following criteria to ensure a successful Life Skills based education:

- ✓ It should not only address knowledge and attitude change, but, more importantly, behaviour change.
- ✓ Traditional "information-based" approaches are generally not sufficient to yield changes in attitudes and behaviours. The lecture should be substantiated with exercises and situations where participants can practice and experience its effects. The adult learning theory emphasizes that adults learn best that which they can associate with their experience and practice.
- ✓ It will work best when augmented or reinforced. If a message is given once, the brain remembers only 10 % of it one day later, and when the same message is given six times a day, the brain remembers 90 % of it. Hence, the need to repeat, recap, reinforce and review.
- ✓ It will work best if combined with policy development, access to appropriate health services, community development and media.

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Dr. Bhagyashree Dudhade

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CHAPTER - I

INTRODUCTION

1.1 The Problem

In the 21st century, the objective of education for all must be geared towards enhancing capabilities, enlarging choices and developing agency by building different dimensions of well- to be less vulnerable to the variations within a given context. Educational content must therefore be reviewed to remove the stereotypes and age-old norms that persist. Every aspect of education must then work towards fighting all types of poverty, including reducing vulnerability by building potential and increasing agency and well-being of individuals and societies.

Life skills are a set of human skills acquired via teaching or direct experience that are used to handle problems and questions commonly encountered in daily human life.

The basic element of a skill is the ability to create and materialize an effective sequence of choices, to achieve the desirable effect. It is important that somebody allocate life skills in six broad sectors: sensitivity, experiencing emotions, realism thought, language and the internal logos, harmony in self-attribution and communication and finally, remuneration activity in finding a meaning in profession being, by building self-image and self-worth, which in turn help individuals.

Hereford, Z. (n.d.). Life Skills. Retrieved June 2012, from http://www.essentiallifeskills.net/

Personal development is the pursuit of developing, honing and mastering the skills that help us become the best that we can, with all that we have. It is the reaching for, and realizing of, our full potential as human beings. We all want to live full; productive lives, but sometimes, we just do not know where to begin. There is so much information 'out there' that it can be overwhelming and hard to sort out. Depending on the problem, what seems to work for one person, may not necessarily work for everyone. There are so many different programmes, strategies and techniques that it is hard to choose the right one.

Thus, if we want to accomplish anything in life and realize our full potential, we must have some skills - in this case, life skills.

“To be what we are, and to become what we are capable of becoming, is the only end of life.” - **Robert Louis Stevenson**

"If you plan on being anything less than you are capable of being, you will probably be unhappy all the days of your life." - **Abraham Maslow**

"Established in Self-Realization, one is not moved even by the greatest calamity." - **Bhagavad Gita**

"I do the best I know how, the very best I can; and I mean to keep on doing it to the end." - **Abraham Lincoln**

1.2 Historical (Theoretical) Background

The challenges, children and young people regularly faces are many, and require more than even the best numeracy and literacy skills. That is why the 164 nations committed to Education for All (external) have included "life skills" as a basic learning need for all young people.

Tobacco – Free Youth. Retrieved May 2011, from http://www.amro.who.int/English/DD/PUB/SP579_04.pdf

As do earlier prevention programmes, “Life Skills” programmes in operation today also are based on the social learning theory. This theory promotes opportunities for processing life experiences, structuring experiences, and actively gaining experiences (Bandura, 1977 [as cited in Botvin, 1986]). The Life Skills approach is built around creating opportunities for youth to acquire skills—such as media literacy or critical thinking—that enable them to avoid manipulation by outside influences. The idea is for young people to be able to recognize the coercive forces of social pressures, as well as organized campaigns, such as tobacco advertising, that promote behaviors known to jeopardize their health. The Life Skills approach aims to assist young people to regain control over their behavior while taking informed decisions that can lead to positive behaviors and values (e.g., deciding not to smoke). Additional Life Skills generally taught by such programmes include self-awareness, stress management, assertiveness, and negotiation. Curricula based on this theory stress experiential learning and opportunities to practice new skills acquired during instruction. Programme activities actively involve young people through work in small groups, peer facilitation, role-

playing techniques, games, presentations, and other interactive events. It also result in improved student/ teacher relations, better academic performance, higher school attendance rates, and fewer behavioral problems in the classroom (WHO, 1998 April). The Life Skills approach, as used in the prevention of substance use, has been shown to reduce smoking initiation by between 25% and 87% at one-to six-year follow-ups (Botvin, Renick, and Baker, 1983; Botvin and Eng, 1982; Botvin, G., Baker, Dusenbury, Botvin, E. and Diaz, 1995). Beginning in 1979, noted behavioral scientist and professor of psychiatry, Dr. Gilbert Botvin, published a highly effective Life Skills training programme.

Skills learned in the programme include assertiveness, critical thinking, decision making, and problem solving abilities. These skills boost protective factors in students, such as self-confidence, self-esteem, autonomy, and self-control (Botvin, et al., 1995).

Botvin's intention in developing this life skill programme was to create a single prevention strategy that could effectively target multiple types of substance use behaviors (Botvin, G., Baker, Renick, Filazolla, and Botvin, E., 1984). His conceptual framework is based in part on Jessor's problem behavior model. (1977, [as cited in Botvin, et al., 1984])

UNICEF (1997) recognizes several levels of Life Skills:

• Basic psychological and social skills (strongly shaped by cultural and social values);

• Situation-specific skills (e.g. negotiation, assertiveness, conflict resolution);

• Applied life skills (e.g., challenging gender roles or refusing drugs).

The WHO Life Skills Initiative

"Life Skills are abilities for adaptive and positive behaviour that enable individuals to deal effectively with the demands and challenges of everyday life". (WHO, 1997, p.1.).75

- Life Skills are essentially those abilities that help to promote physical, mental and emotional well-being and competence in young people as they face the realities of life.
- Life Skills are nothing new. We use it in different situations, but have been categorized for better understanding.
- Life skills can be learned/enhanced throughout life.
- Many life skills are used in combination in dealing with certain situations.
- Rehearsing the use of life skills in simple situations makes it easy for utilizing them in complex situations also.

Tobacco – Free Youth. Retrieved May 2011, from http://www.amro.who.int/English/DD/PUB/SP579_04.pdf

The World Health Organization promotes Life Skills school-based programmes as a means to develop skills among young people that lead to healthy lifestyle choices and optimum physical, social, and psychological wellbeing. Depending on the culture, different specific abilities are emphasized. WHO considers the following Life Skills to be the most essential (WHO, 1993):

1. The ability to make decisions helps students assess their options and carefully consider the different consequences that can result from their choices.
2. The ability to solve problems helps students find constructive solutions to their problems. This skill can significantly reduce anxiety.
3. The capacity to think creatively is essential to decision making and problem solving. It enables students to explore all possible alternatives together with their consequences. It helps students look beyond their personal experience. Studies show that teaching and learning these skills as a generic group of "life skills" is more effective in the prevention of harmful behavior than teaching the skills as isolated solutions to specific problems such as teen pregnancy or substance abuse.

4. The capacity to think critically helps students objectively analyze available information along with their own experiences. It is this ability that helps students recognize the factors that influence their behavior, such as societal values, peer influence, and influence of the mass media.
5. The ability to communicate effectively helps students to express their feelings, needs, and ideas to others— verbally or otherwise.
6. The ability to establish and maintain interpersonal relations helps students to interact positively with people whom they encounter daily, especially family members.
7. Knowledge of self is the capacity of students to know who they are, what they want and do not want, and what does and does not please them. It also helps students recognize stressful situations.
8. The capacity to feel empathy is the ability to imagine what life is like for another person in a very different situation. It helps students to understand and accept diversity, and it improves interpersonal relations between diverse individuals.
9. The ability to handle emotions enables students to recognize their emotions and how they influence their behavior.
10. The ability to handle tension and stress is a simple recognition by students of the things in life causing them stress.

With the Global School Health Initiative and the Health-Promoting Schools campaign, WHO has supported Life Skills activities through workshops, the development of materials, and the consultation with governmental and non-governmental agencies interested in this approach to youth health and development (WHO, 1995 and 1998b).

Around the world, Life Skills-Based Education (LSBE) is being adopted as a means to empower young people in challenging situations. LSBE refers to an interactive process of teaching and learning which enables learners to acquire knowledge and to develop attitudes and skills, which support the adoption of healthy behaviors. It is also a critical element in UNICEF's definition of quality education.

1.3 Conceptual Background

Chang, J. (December, 24, 2008). Math Teaching Strategies. Retrieved May 2011, from https://wn.com/math_teaching_strategies_teaching_math_to_life_skills_students

Life skills are a set of human skills acquired via teaching or direct experience that are used to handle problems and questions commonly encountered in daily human life. The subject varies greatly depending on societal norms and community expectations. For example, UNICEF states, "there is no definitive list" of life skills but enumerates many "psychosocial and interpersonal skills generally considered important." It asserts life skills are a synthesis: "many skills are used simultaneously in practice. For example, decision-making often involves critical thinking ("what are my options?") and values clarification ("what is important to me?"). Ultimately, the interplay between the skills is what produces powerful behavioral outcomes, especially where this approach is supported by other strategies..." (UNICEF, 1997)

Life skills can vary from financial literacy, substance abuse prevention, to therapeutic techniques to deal with disabilities, such as autism. Life skills also emphasize communications and practical skills needed for successful independent living for developmental disabilities/special education students with an Individualized Education Programme (IEP). However, some programmes are for general populations, such as the Overcoming Obstacles programme for middle schools and high schools. Other life skills programmes are focused on social welfare and social work programmes. Such programme covers diverse topics: career planning, communication, daily living, home life, housing and money management, self-care, social relationships, work and study skills, work life, pregnancy and parenting.

Which skills are life skills?

There is no definitive list of life skills. The list below includes the psychosocial and interpersonal skills generally considered important. The choice of, and emphasis on, different skills will vary according to the

topic and local conditions. Though the list suggests these categories are distinct from each other, many skills are used simultaneously in practice.

Retrieved May 2011, from http://blog.eahdfoundation.org/2010/01/14/life-skills-and-the-life-skills-based-education-in-schools/

Communication and Interpersonal Skills

Interpersonal communication skills

- Verbal/Nonverbal communication
- Active listening
- Expressing feelings; giving feedback (without blaming) and receiving feedback

Negotiation/refusal skills

- Negotiation and conflict management
- Assertiveness skills
- Refusal skills

Empathy

- Ability to listen and understand another's needs and circumstances and express that understanding

Cooperation and Teamwork

- Expressing respect for others' contributions and different styles
- Assessing one's own abilities and contributing to the group

Advocacy Skills

- Influencing skills & persuasion
- Networking and motivation skills

Decision-Making and Critical Thinking Skills

Decision making / problem solving skills

- Information gathering skills
- Evaluating future consequences of present actions for self and others
- Determining alternative solutions to problems
- Analysis skills regarding the influence of values and attitudes of self and others on motivation

Critical thinking skills

- Analyzing peer and media influences
- Analyzing attitudes, values, social norms and beliefs and factors affecting these
- Identifying relevant information and information sources

Coping and Self-Management Skills

Skills for increasing internal locus of control

- Self-esteem/confidence building skills
- Self-awareness skills including awareness of rights, influences, values, attitudes, rights, strengths and weaknesses
- Goal setting skills
- Self-evaluation / Self-assessment / Self-monitoring skills

Skills for managing feelings

- Anger management
- Dealing with grief and anxiety

- Coping skills for dealing with loss, abuse, trauma

Skills for managing stress

- Time management
- Positive thinking
- Relaxation techniques (UNICEF, 1997)

10 core Life skills to be inculcated among the students are:

i. Self-awareness
ii. Empathy
iii. Interpersonal relations
iv. Communicating effectively
v. Critical thinking
vi. Creative thinking
vii. Problem solving
viii. Decision making
ix. Copying with emotions
x. Copying with stress

Facilitator's Manual on Enhancing Life Skills. (2009) and Life Skills Education: Teachers' Handbook - Part II has explained the concept of Life Skills as follows –

➢ **Self-Awareness:** Self-awareness is a probe into one's own self, in relation to the surroundings in which he lives. It is an unbiased assessment about one's character, capacity, capability, competency, desire and dislikes.

Definition: Self-awareness includes our recognition of character, our strengths, weaknesses, desires, dislikes and ourselves. It can help us to recognize when we are stressed or feel under pressure. It is often a pre-requisite for effective communication, interpersonal relationship and developing empathy for others.

➢ **Empathy:** Our mental capacity to accept without emotional disturbances, people in distress as if we are in such a distress situation.

Definition: "Empathy is forgetting oneself in the joys and sorrows of another, so much so that you actually feel that the joy or sorrow experienced by another is your own joy and sorrow. Empathy involves complete identification with another."

➢ **Effective Communication:** Communication is a dynamic and ongoing process, which interacts and leads to changes in behavior and attitudes of individuals.

Definition: Communication is conveying a message, orally, verbally, written or using signs. Communication is the art of expressing and exchanging ideas, feelings and thoughts through gestures, speech or writing.

➢ **Interpersonal relationship:** Initiate and maintain positive relationships and de -link unconstructive relationships.

It is the ability to establish positive relationships - helps us to relate in positive ways with the people we interact with. Being able to make and keep friendly relationships, which can be of great importance to our mental and social well-being. Ex: keeping good relations with family members, which are an important source of social support.

➢ **Critical thinking:** Making objective judgments about choices and risks.

Critical thinking is an intellectually disciplined process of actively and skilfully conceptualizing, applying, analysing, synthesizing and evaluating information gathered from or generated by observation, experience, reflection, reasoning or communication as a guide to belief and action. It is the ability to analyze information and experiences. It can help us recognize and assess the factors that influence our attitude and behavior.

- **Creative thinking:** Unique way of thinking based on depth of knowledge and insight.

Creative thinking is the **ability/ skill** to imagine something new/original and appropriate/meaningful. Creative thinking when used to face challenges in life is a life skill. It is a process of improvement, innovation and problem solving.

- **Problem solving:** Best possible way to get one's needs accomplished.

Problem-solving is a tool, a skill, and a process. Problem solving is an attempt to find an appropriate way of attaining a goal when the goal is not readily available.

- **Decision Making:** Favorable alternative considering consequences.

Decision making is our ability to choose the best alternative solution to a problem from the available options, with due consideration of the consequences of different decisions. Decision making is the process of gathering information about relevant alternatives and making an appropriate choice. It is a choice of what to do and what not to do.

- **Coping with emotions:** Coping with emotion is a life skill, which is extremely important for living a successful and healthy life. All human beings have emotions-that is normal. However, one has to know when and how to express these emotions, and how to cope with them. That is what coping with emotions is all about.

It is a complex condition, underlying feelings, actions and physiological changes such as fear, rage, and excitement and so on. It alters/disrupts routine experiences and activities. Emotions - Overt (outside), action of feelings.

- **Coping with stress:** Coping with stress means to recognize the source of stress and find the way to control it.

Stress is our body's reaction to people and events and to our own thoughts. Stress is a dynamic condition of physical or mental strain or disturbance that produce changes in the body and behavior of the person. Stress may be considered as any physical, chemical, or emotional factor that causes bodily or mental unrest and that may be a factor in causing disease.

1.4 SKILL DEVELOPMENT PROCESS

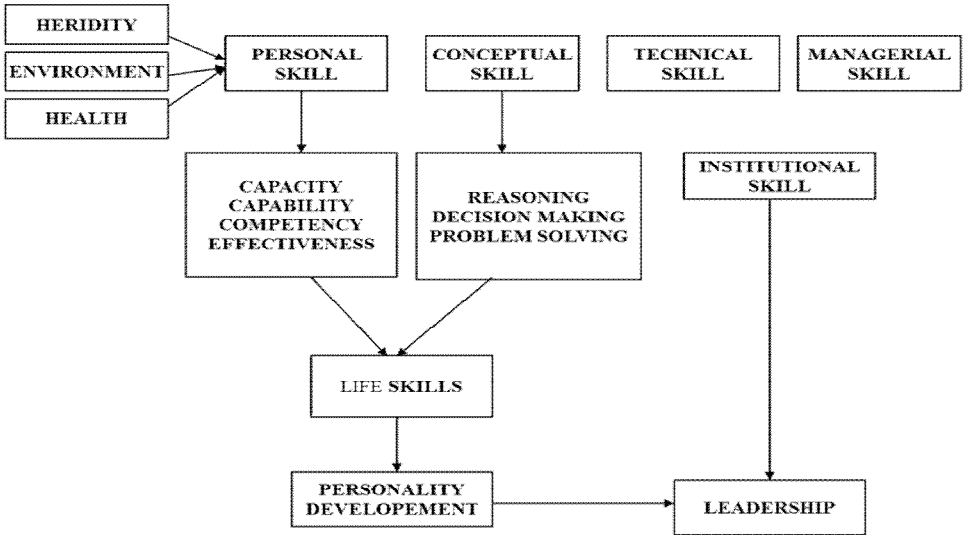


Figure-1.1: Skill Development Process

Thus, Life skills are defined as skills, which can provide you with a better perspective on life, skills which can allow you to maintain a higher awareness of both yourself and the world around you.

A number of studies have shown that the typical human being only uses a small portion of their brain capacity on a daily basis, but much of our potential as human beings remains dormant. However, you can unlock the other side of your mind by always working hard to reach your full potential.

While school/college gives you the knowledge, which is part of the formula, a school/college education cannot give other things you.

The life skills described are difficult to develop in a classroom setting; in fact, these skills are best learned outside the classroom. While these skills are difficult to learn in a traditional academic setting, mastery of them will lead to a life of wealth, power, success, and most importantly, self-fulfillment and inner peace.

1.5 Science

The rate of advancements in science and technology is so high that one needs to have a re-look at the strategies to cope with change and to be able to contribute towards the growth of new knowledge and its application. The young students have to be prepared to face the challenges of shrinking world, a growing technology dependent human life and fast growing scientific base. Students have to be inspired to be the future leaders who would make fundamental contributions. Keeping in view the present scenario and challenges of future emphasis should be given on teaching learning of science at various levels of formal education especially at school level. First, we will see the definitions of science.

It is difficult to write a short, simple and universally accepted definition of science. Many attempts have been made to define science; few common definitions are as follows:

The term science is derived from Latin noun Scientia meaning Knowledge Commonly speaking; Science is a systematized body of knowledge.

Science can be simply defined as a way of describing and explaining some aspects of the world around us.

According to (The Columbia Encyclopedia 1963) **"**Science is an accumulated and systematized learning, in general usage restricted to natural phenomenon. The progress of science is marked not only by an accumulation of fact, but by the emergence of scientific method and of the scientific attitude".

From the above definition three basic principles of nature of science can be identified,

1. An accumulated and systematized body of knowledge.
2. The scientific method of investigation and
3. The scientific attitudes or ways of thinking

The first point indicates the product of science while second and third points indicate the process of science. Thus, science is both a product and process.

(Sharma, R. C. and Shukla C. S. 2002, p. 2- 3) states "Science can also be defined as, science is what scientists do. There are at least three basic things that the scientists do. They make descriptions, explanations and predictions".

(Fredric, Fitzpatrick 2002) is of the opinion that, "Science is a cumulative theories and endless series of empirical observations which results in the formation of concepts and with both concepts and theories being subject to modification in the light of further empirical observations. Science is both a body of knowledge and the process of acquiring it".

1. The body of Scientific Knowledge

The body of scientific knowledge can be classified into facts, concepts, generalizations, theories and laws. These form the structure of science.

2. The process of science

The second dimension of science is the process by which knowledge is acquired. In an attempt to define processes of Science, the American Association for the Advancement of Science (AAAS) asked scientists to say what they actually do. The following list of thirteen processes came from this inquiry.

i) Observation,	ii) Classification,
iii) Number relations,	iv) Measurement,
v) Space/time relations,	vi) Communication,
vii) Prediction,	viii) Inference,
ix) Making operational definitions,	x) Formulating hypothesis,
xi) Interpreting data.	

According to (Vaidya (1974) "In the literal sense, science means the pursuit of knowledge but it has a wider connotation for our purpose, and can be said to mean knowledge of nature in the widest possible form. This includes nature study, physics, astronomy, meteorology and much more. It is equally important to look beyond one precise definition and see what science includes, and the following are of fundamental importance to the approach to this subject.

1. Direct and indirect observations.
2. Scientific inquiry-asking questions.
3. The drawing of inference from evidence.
4. Recording observations.
5. Developing ways and means to find answers.
6. Classification and checking evidence.

Science in fact is more than subject, it is a method of acquiring knowledge and of necessity the approach must be correct".

Science is a body of empirical, theoretical, and practical knowledge about the natural world produced by a global community of researchers making use of scientific methods, which emphasize the observation, experimentation and explanation of real world phenomena. Given the dual status of science as objective knowledge and as a human construct, good historiography of science draws on the historical methods of both intellectual history and social history.

Science is the effort to discover and increase human understanding of how the physical world works. Through controlled methods, scientists use observable physical evidence of natural phenomena to collect data, and analyze this information to explain what and how things work. Such methods include experimentation that tries to simulate natural phenomena under controlled conditions and thought experiments. Knowledge in science is gained through research.

According to (Vaidya 1968) In the literature surveyed, definitions of science have varied from magic, trick, health happiness, comfort, classified common sense, to deliver a knockout blow in an argument organized, systematized, precise, accurate, objective tested and material knowledge deducible from a limited number of principles, observations, explorations, experimentation and investigation along with control and comprehension, asking appropriate question, prediction, ventilation and testing of our ideas against observed facts, discovery of casual systems, experience in search of meaning and thereby develop concepts that makes observations coherent and logical.

1.6 Importance of Science

Pandit Jawaharlal Nehru in his address at the Indian Science Congress, held at Calcutta in December 1937 appropriately summed up the importance and the vision of science and society as follows -

With reference to (University News 2000) Science was not a pleasant divergent and abstraction, but was a very texture of life, without which our modern world would vanish away. Politics let me to economics, and

this led me inevitably to science and the scientific approach to all our problems and to life itself. It was science alone that could solve the problems of hunger and poverty, of insanitation and illiteracy, of superstitions deadening customs and traditions, of vast resources running to waste, of rich country inhabited by starving people.

As everyday dawns with scientific invention, this explosive expansion of scientific knowledge has penetrating influence on nation's economy. Today in our life, we enjoy because of scientific inventions only.

Science content informed by a historical perspective enables the learner to appreciate how the concepts of science evolve over time. It also helps the learner to view science as a social enterprise and to understand how social factors influence the development of science.

As science placed in the wider context of the learner's environment, local and global enable him to appreciate the issues at the interface of science, technology and society, and equipping him with the requisite knowledge and skills to enter the world of work. Science plays a vital role in the economic and social development of a country. Science is considered as the backbone of civilization.

(Sharma, R. C. and Shukla C. S. 2002, p. 2 - 3) are of the view that “Science is one of those activities that man has created to gratify certain human needs and desires. Disinterested curiously has been greatest motive power of scientific research”.

(Sharma, R. C. 2002, p. 9 - 10) emphasized on, the scientific policy Resolution of the Government of India, 1958- stated: The dominating feature of the contemporary world is the intense cultivation of science on a large scale, and its application to meet the country's requirements.

Indian Education Commission (1964-66) underlines the importance of science as : There is, of course, one thing about which we feel no doubt or hesitation : education, science based and in coherence with Indian culture and values can alone provide the foundation as also the instrument for the nation's progress, security and welfare. UNESCO's International Education Commission (1972) recommended that Science and technology must become essential components in any educational enterprise; they must be incorporated into all educational activity intended for children, young people and adults, in order to help the individual to control Social energies as well as natural and productive ones, thereby achieving mastery over himself, his choices, actions and finally they must help man to acquire a scientific turn of mind so that he becomes able to promote science without being enslaved by it.

Study of science enables the pupils to concentrate their minds. By studying science student can develop intellectual powers like ability to observe, to classify, to compare, to quantify, to measure, to draw conclusion, to find the cause – effect relationship, to apply principles of science, to interpret, to predict, to analyze, ability to verify the conclusions, to think logically and systematized reasoning. It also helps to discipline the mind and helps the student to imbibe so developments. Study of Science does help in formation of interest, attitudes in science, moral development and vocational training. Thus, science is very important in the development of individual as well as society and the progress of the nation. Therefore, for each individual effective Science Education should be provided.

1.7 Science Education

Science education occupies a very eminent place in curriculum both at school and university stages of education. Today's children are tomorrow's citizens. It is therefore essential to develop proper interests, abilities and appropriate skills in younger generations to prepare them for the use of science and technology.

Secondary Education is an important stage of education, which links primary education to the higher education. In fact, secondary stage is the backbone of education. At this stage, students are more active, ready to learn new things and they take interest in learning. Their habits and attitudes are developing at this stage and remain permanent.

The Science Policy Resolution (1958) recognized science and technology as a key factor for economic development, and emphasizes the importance of the study of science and its application not only as a means of providing material and cultural amenities and services to every member of community but as a method of influencing basic human values. According to the recommendations of Science Policy Resolution National

Government took several steps to establish institutions for governmental guidance and created conditions, which could promote science and technology.

National Curriculum for Primary and Secondary Education (1985) stated that, "The influence of Science and Technology is so pervasive that knowledge of science, scientific thinking and related skills has become indispensable for leading a meaningful life in the modern world. Education should help the individual not only in acquiring knowledge and application but also in developing a scientific temper and rational world view."

The National Policy on Education (1986) of India emphasizes, "Science Education should develop in the child well defined abilities and values such as the spirit of inquiry, creativity, objectivity, courage to question and aesthetic sensibility. Scientific knowledge and skills should help an individual to question the existing beliefs, prejudices and practices, and act as a liberating force. It should also help the child to search for truth, harmony and order.

(National Council for Educational Research and Training 2005, p. 50) briefed on Science education as, Science and mathematics are compulsory up to class X. Science education programs will be strengthened to enable the learner to acquire problem solving and decision making skills and to discover the relationship of science with health, agriculture, industry and other aspects of his daily life.

Science education promoted the values of honesty, objectivity, cooperation and freedom from fear and prejudice and inculcates in the learner a concern for life and preservation of the environment.

Science education in different measures is indispensable for all sections of the population. The cultivation of a scientific temper requires that the benefits of the scientific way of thinking and of evaluation facts and situations as also the positive orientation of science towards change and development should reach the vast numbers who have remained outside the pale of formal education.

Science education engages the learner in acquiring the method and processes that lead to the generation and validation of scientific knowledge and nurtures the natural curiosity and creativity of the child in science. Thus, it helps the student in 'learning to learn' science.

1.8 Objectives of Science Education

The study of science gives pupils a better understanding of the things around them. It gives experience with the scientific method in solving problems. It also helps them better to adjust their methods of living to changes in the Science and Information Technology age. The science curriculum will be designed according to objectives of the course. Many commissions and individuals have proposed different objectives of science teaching. Science teacher must remember that pupil should acquire the following objectives for the science education.

(Vaidya 1968, p. 42) stated, the objectives of science education as follows -

1. “Functional understandings

a. Scientific vocabulary

b. Scientific facts

c. Scientific concept

d. Applications new phenomena

2. Scientific skills

3. Scientific attitudes

4. Scientific interests

5. Scientific appreciations”

The objectives of science education are also explained as follows-

1. Knowledge and Understanding

By doing, seeing and thinking pupils will gain a large body of scientific knowledge with the ability to apply it.

2. Observation and Skills

Science gives pupils opportunities to make repeated and accurate observations and should form in them the habit of relying on their own eyes rather than on the statements of others. Science provides many pupils activities and demonstrations for the development of those skills, which the scientist uses. Skills involve the ability to plan as well as perform.

3. Scientific attitudes

Science encourages in pupils the tendency to base the judgment on facts. This attitude means the habit of answering questions based on evidence not on opinion. Science encourages pupils to be open – minded. This attitude makes pupils willing to change their opinions or beliefs when new evidences are available. It also helps to develop respect for the opinion of others. Science improves the pupils' ability to distinguish between fact and theory. This attitude helps to distinguish between things that are true and things, which may be true. Science also gives pupils a better comprehension of the cause and effect relationship. Reliable knowledge and useful application depends on the correct assignment of each effect to its real cause.

4. Interest

Science inculcates socially desirable interests among the pupils. The take interest in scientific activities like reading scientific literature, making collections of seeds, leaves, flowers, minerals, shells etc. They keep interest in scientific hobbies like preparing soaps, candles, chalks etc. Pupils also take interest in making apparatus, scientific models etc. They visit scientific places, take interest in activities of Science club.

5. Abilities

Content of Science develops certain abilities among the pupils such as thinking, reasoning, problem solving, ability to develop reliance on facts, ability to organize scientific activities, ability to form independent judgment, ability to evaluate, to generalize, ability to interpret data systematically, to classify things and other general as well as higher mental abilities.

6. Habits

Science develops habits such as honesty, truthfulness, self-reliance, self-confident etc. among the pupils.

7. Scientific method

Science gives pupils many illustrations of the methods scientists have used to solve their problems. Pupils can learn the scientific method by the use of controlled experiment and by improving the trial and error method.

Thus, science helps in the proper development of pupil's mind and developed mind helps in suitable development of science.

According to (Wilbur Beauchamp – 1932, p. 47 – 48), the objectives of science teaching at secondary schools are as follows –

Jensen, G. D. (n.d.). The development and evaluation of some behavioral objectives. Retrieved May 2016, from https://shareok.org/bitstream/handle/11244/30138/Thesis-1972D-J54d.pdf?isAllowed=y&sequence=1

A. "Knowledge

1. To acquire information about science.
2. To acquire the knowledge of our environment. This will produce its better understanding.
3. To acquire the knowledge necessary to correct superstition and erroneous beliefs.
4. To acquire a scientific vocabulary.
5. To acquaint the student with the source of scientific knowledge.

6. To acquire information concerning the lives of the great men of science.
7. To acquire a body of facts. This will enable one to read scientific literature.
8. To acquire a knowledge of the fundamental principles of the subject.
9. To acquire a knowledge of the application of principles in industry.
10. To acquire the knowledge necessary for future course in science or prepare for college.

B. Exploration

1. To give the pupil a view of the field of science so that he may explore his interests, capacities and abilities.

a. As a basis for the election of further courses in science

b. As a basis for the selection of a vocation.

c. To acquire new fields of interest.

C. Abilities

1. To develop the ability to think scientifically

a. To develop reliance on facts

b. To develop the power of interpretation.

c. To develop the power of observation.

d. To develop the ability to form independent judgments.

e. To develop the ability to evaluate.

f. To develop the ability to generalize.

g. To develop the ability to locate problems

h. To develop the ability to plan prior to execution.

i. To develop the ability to gather data systematically.

j. To develop the ability to recognize defects and errors in conditions and processes.

2. To develop the ability to use the scientific instruments common in the laboratory.

D. Attitudes

1. To develop a scientific attitude as shown by ability-

a. To view facts objectively.

b. To be free from dogma and superstitions.

c. To hold one's conclusion as tentative and suspended judgments until facts are secured.

d. To revise one's opinions if the evidence warrants.

e. To have a spirit of inquiry.

f. To be open- minded.

g. To have a conviction of the universality of cause and effect of relationship.

2. To develop attitude of appreciation of –

a. The contribution of scientific method.

b. The contribution of science to humankind.

c. The great men of science.

d. Expert judgment.

e. Nature

f. One's responsibility in the world.

g. Natural laws.

E. Ideals and habits

1. To acquire ideas or habits of accuracy, persistence, honesty, self-control truth etc.

F. Interest

1. To acquire an appetite for investigations in science.
2. To acquire an appetite for scientific readings.
3. To acquire an interest in taking more science.
4. To acquire an interest in nature.
5. To acquire an interest in vocational fields.
6. To acquire wholesome interests. This may be used to enjoy spare time.

(Rao 2002, p. 39 - 40) points out, National Society for of Education in its Yearbook (1947) published the objectives under these categories, Viz.

1. Functional information of habits,
2. Functional concepts,
3. Functional understanding of principles,
4. Instrumental skills,
5. Problem solving skills,
6. Attitudes,
7. Appreciations and
8. Interests.

(Rai 1963, p. 18) in his report on school, Science Teaching stated the following objectives for teaching science -

1. "To arouse the curiosity of the student about the world we live in and to encourage him to understand the various natural phenomena.
2. To train to acquire that habit of observing in planned way.
3. To develop scientific attitude.
4. To give an idea how a scientist works".

(Rao 2002, p. 43) refers Approach paper on science and mathematics in general education (1985) developed by N.C.E.R.T. thought of the possibility of fulfilling the following objectives for secondary level for enabling the students.

1. To study a few aspects of physical and life sciences in detail with a special emphasis on those care concern like food, shelter, health, energy. Nutrition and major components of environments.
2. To appreciate the need of quantification in the students,
3. To develop interest in science and ability to put the interest into action.
4. To manipulate tools, equipment in a proper manner.
5. To identify the factors operating in the environment and
6. To collect data, classify and draw reasonable inferences.

These objectives of secondary stage are to be fulfilled along with the objectives of primary and middle stages, which include –

i. Collection of information,
ii. Classification of objects, events etc.,
iii. Identification of cause and effect relationship,
iv. Development of scientific attitude,
v. Acquainting with natural phenomena,
vi. Giving emphasis to the relevance of science to daily life etc.

National Policy on Education (1986) states that, 'Science Education will be strengthened so as to develop in the child well defined abilities and values such as the spirit of inquiry, creativity, objectivity, the courage to question and an aesthetic sensibility'.

(Rao 2002, p. 44) emphasized on objectives of science teaching such as knowledge, understanding, application, skills, abilities, scientific attitudes and interests.

(Bloom 1956, p. 12 – 13) According to Bloom's Taxonomy of Educational objectives, the objectives can be classified into three domains.

1. Cognitive Domain –
Cognitive objectives were further classified in to six categories viz. Knowledge, Comprehension, Application, Analysis, Synthesis and Evaluation.

2. Affective domain –
Affective domain objectives deal with interest, attitudes, values, appreciation and adjustment. They were further classified into five categories viz. Receiving (Attending), Responding, Valuing, Organization and Characterization.

3. Psychomotor Domain-
Psychomotor domain classified into five categories viz. Imitation, Manipulation, Precision, Articulation and Naturalization.

(Siddiqi and Siddiqi 2006, p. 37 - 38) summarized, Cognitive and Affective domain are related with each other. It is hard to compartmentalize human behaviors clearly in terms of cognition and affect. The cognition and the affect can never be separated. It is noticed that interest arises from increased information about something. According to Bruner and other workers have felt that it is the process of problem solving and discovery in learning that bring about the increased motivation for the subject and therefore develops interest and attitudes. Their view is that it is not much what is learned, but now it is learned which will determine the affective objectives that will be attained the sometime as the cognitive objectives.

(Sharma 1993, p. 224 - 225) stated that, according to Taxonomy of Educational Objectives in the RCEM approach, (Regional College of Education Mysore approach) the objectives are classified into four categories, which have been further, divided into seventeen categories -

Objectives		Mental Abilities
1.	"Knowledge	1.1 Recall
1.2	Recognize	
2.	Understanding	2.1 Seeing relationship
2.2	Cite example	
2.3	Discriminate	
2.4	Classify	
2.5	Interpret	

2.6	Generalize	
3.	Application	3.1 Reason out
3.2	Formulate hypotheses	
3.3	Establish hypotheses	
3.4	Infer	
3.5	Predict	
4.	Creativity	4.1 Analyze
4.2	Synthesize	
4.3	Evaluate"	

Objectives of Science subject at secondary level given by Maharashtra State Board of Secondary and Higher Secondary Education, Pune

(As amended and update up to 31st Dec, 2000)

To help the students to:

1. Consolidate and strengthen the knowledge, competencies and skills acquired up to the primary stage.
2. Acquire understanding of scientific concepts, principles and laws.
3. Develop instrumental, communication and problem-solving skills.
4. Develop scientific temper, scientific approach and scientific attitude such as open mindness, intellectual honesty, courage to ask questions, respect for human dignity and decision-making.
5. Cultivate social, moral and aesthetic values, which exalt and refine the life of individual and the society.
6. Appreciate the contributions of scientists and develop sensitivity to possible uses of science and concern for clean and healthy environment and preservation of ecosystem and to create an awareness to guard against the possible misuse" of science.

All the above aims and objectives of science education directly or indirectly stress the importance of science abilities, scientific attitudes, scientific aptitudes, skills and interest in science. The Researcher found that the focus is on importance of Science Education and relation of Science with day-to-day life. It further emphasizes on the development of soft skills as well as life skills, essential and important for leading a stressful, contended and successful life.

1.9 Learning theories supporting the Research study

(A) Social Emotional Learning (**SEL**) is a process for learning life skills, including how to deal with oneself, others and relationships, and work in an effective manner. In dealing with oneself, SEL helps in recognizing our emotions and learning how to manage those feelings. In dealing with others, SEL helps with developing sympathy and empathy for others, and maintaining positive relationships. SEL also focuses on dealing with a variety of situations in a constructive and ethical manner.

Historical influence

During the mid-1990s, Daniel Goleman published his book *Emotional Intelligence: Why It Can Matter More Than IQ*, which popularized the concept of emotional intelligence. The term social emotional learning (SEL) emerged from the research in social competence programs, which could be applied to emotional intelligence. More recently, psychologist Matthew D. Lieberman released a book - "Social" (2013) - arguing that research in the field of social neuroscience (i.e. the study of how our brain responds to social engagement) demonstrates the primacy of our need to connect with others and the impact that this has on our behavior. Such works have inspired further research and inquiry into how these findings can be used to improve public education in countries such as Canada and the United States. Some programs have been developed in response, such as, for example, the "Mind UP" Curriculum.

Skills involved

The following 15 skills listed are involved and promoted in SEL:

1. "Recognizing emotions in self and others"
2. "Regulating and managing strong emotions (positive and negative)"
3. "Recognizing strengths and areas of need"
4. "Listening and communicating accurately and clearly"
5. "Taking others' perspectives and sensing their emotions"
6. "Respecting others and self and appreciating differences"
7. "Identifying problems correctly"
8. "Setting positive and realistic goals"
9. "Problem solving, decision making, and planning"
10. "Approaching others and building positive relationships"
11. "Resisting negative peer pressure"
12. "Cooperating, negotiating, and managing conflict nonviolently"
13. "Working effectively in groups"
14. "Help-seeking and help-giving"
15. "Showing ethical and social responsibility"

(B) Experiential learning

The Office of Learning and Teaching. (2004). Retrieved Jan. 2015 from http://www.unesco.org/new/en/education/themes/strengthening-education-systems/quality-framework/technical-notes/influential-theories-of-learning

Experiential learning theories build on social and constructivist theories of learning, but situate experience at the core of the learning process. They aim to understand the manners in which experiences – whether first or second hand – motivate learners and promote their learning. Therefore, learning is about meaningful experiences – in everyday life – that lead to a change in an individual's knowledge and behaviours. Carl Rogers is an influential proponent of these theories, suggesting that experiential learning is "self-initiated learning" as people have a natural inclination to learn; and that they learn when they are fully involved in the learning process. Rogers put forward the following insight: (1) "learning can only be facilitated: we cannot teach another person directly", (2) "learners become more rigid under threat", (3) "significant learning occurs in an environment where threat to the learner is reduced to a minimum", (4) "learning is most likely to occur and to last when it is self-initiated" (Office of Learning and Teaching, 2005, p. 9). He supports a dynamic, continuous process of change where new learning results in and affects learning environments. This dynamic process of change is often considered in literatures on organizational learning.

(C) Situated Learning Theory and Community of Practice

The Office of Learning and Teaching. (2004). Retrieved Jan. 2015 from http://www.unesco.org/new/en/education/themes/strengthening-education-systems/quality-framework/technical-notes/influential-theories-of-learning

"Situated learning theory" and "community of practice" draw many of the ideas of the learning theories. Jean Lave and Etienne Wenger develop them. Situated learning theory recognizes that there is no learning, which is not situated, and emphasizes the relational and negotiated character of knowledge and learning as well as the engaged nature of learning activity for the individuals involved. According to the theory, it is within communities that learning occurs most effectively. Interactions taking place within a community of practice – e.g. cooperation, problem solving, building trust, understanding and relations – have the potential to foster community social capital that enhances the community members' wellbeing. Thomas Sergiovanni reinforces

the idea that learning is most effective when it takes place in communities. He argues that academic and social outcomes will improve only when classrooms become learning communities, and teaching becomes learner-centered. Communities of practice are of course not confined to schools but cover other settings such as workplace and organizations.

(D) Social Learning Theory

The Office of Learning and Teaching. (2004). Retrieved Jan. 2015 from http://www.unesco.org/new/en/education/themes/strengthening-education-systems/quality-framework/technical-notes/influential-theories-of-learning

Albert Bandura, who works within both cognitive and behavioural frameworks that embrace attention, memory and motivation, has developed a well-known social learning theory. His theory of learning suggests that people learn within a social context, and that learning is facilitated through concepts such as modeling, observational learning and imitation. Bandura put forward "reciprocal determininsm" that holds the view that a person's behavior, environment and personal qualities all reciprocally influence each other. He argues that children learn from observing others as well as from "model" behaviour, which are processes involving attention, retention, reproduction and motivation. The importance of positive role modeling on learning is well documented.

(E) Constructivism

The Office of Learning and Teaching. (2004). Retrieved Jan. 2015 from http://www.unesco.org/new/en/education/themes/strengthening-education-systems/quality-framework/technical-notes/influential-theories-of-learning

Constructivism emerged in the 1970s and 1980s, giving rise to the idea that learners are not passive recipients of information, but that they actively construct their knowledge in interaction with the environment and through the reorganization of their mental structures. Learners are therefore viewed as sense-makers, not simply recording given information but interpreting it. This view of learning led to the shift from the "knowledge-acquisition" to "knowledge-construction" metaphor. The growing evidence in support of the constructive nature of learning was also in line with and backed by the earlier work of influential theorists such as Jean Piaget and Jerome Bruner. While there are different versions of constructivism, what is found in common is the learner-centered approach whereby the teacher becomes a cognitive guide of learner's learning and not a knowledge transmitter.

(F) Socio-constructivism

The Office of Learning and Teaching. (2004). Retrieved Jan. 2015 from http://www.unesco.org/new/en/education/themes/strengthening-education-systems/quality-framework/technical-notes/influential-theories-of-learning

In the late 20th century, the constructivist view of learning was further changed by the rise of the perspective of "situated cognition and learning" that emphasized the significant role of context, particularly social interaction. Criticism against the information-processing constructivist approach to cognition and learning became stronger as the pioneer work of Vygotsky as well as anthropological and ethnographic research by scholars like Rogoff and Lave came to the fore and gathered support. The essence of this criticism was that the information-processing constructivism saw cognition and learning as processes occurring within the mind in isolation from the surrounding and interaction with it. Knowledge was considered as self-sufficient and independent of the contexts in which it finds itself. In the new view, cognition and learning are understood as interactions between the individual and a situation; knowledge is considered as situated and is a product of the activity, context and culture in which it is formed and utilized. This gave way to a new metaphor for learning as "participation" and "social negotiation".

(G) Brain based Learning

Zupanick, C. E. (n.d.). Child Development Theory. Retrieved Oct. 2014, from http://library.aumhc.org/poc/view_doc.php?type=doc&id=41183&cn=1310

This learning theory is based on the structure and function of the brain. As long as the brain is not prohibited from fulfilling its normal processes, learning will occur.

People often say that everyone **can** learn. Yet the reality is that everyone **does** learn. Every person is born with a brain that functions as an immensely powerful processor. Traditional schooling, however, often inhibits learning by discouraging, ignoring, or punishing the brain is natural learning processes.

The core principles of brain-based learning state that:

1. The brain is a parallel processor, meaning it can perform several activities at once, like tasting and smelling.
2. Learning engages the whole physiology.
3. The search for meaning is innate.
4. The search for meaning comes through patterning.
5. Emotions are critical to patterning.
6. The brain processes wholes and parts simultaneously.
7. Learning involves both focused attention and peripheral perception.
8. Learning involves both conscious and unconscious processes.
9. We have two types of memory: spatial and rote.
10. We understand best when facts are embedded in natural, spatial memory.
11. Learning is enhanced by challenge and inhibited by threat.
12. Each brain is unique.

The three instructional techniques associated with brain-based learning are:

Orchestrated immersion–Creating learning environments that fully immerse students in an educational experience

Relaxed alertness–Trying to eliminate fear in learners, while maintaining a highly challenging environment

Active processing–Allowing the learner to consolidate and internalize information by actively processing it

How Brain-Based Learning Impacts Education?

Curriculum – Teachers must design learning around student interests and make learning contextual.

Instruction – Educators let students learn in teams and use peripheral learning. Teachers structure learning around real problems, encouraging students to also learn in settings outside the classroom and the school building.

Assessment – Since all students are learning, their assessment should allow them to understand their own learning styles and preferences. This way, students monitor and enhance their own learning process.

Teachers must immerse learners in complex, interactive experiences that are both rich and real. Students must have a personally meaningful challenge. Such challenges stimulate a student's mind to the desired state of alertness. In order for a student to gain insight about a problem, there must be intensive analysis of the different ways to approach it, and about learning in general. This is what is known as the "active processing of experience."

(H) Cognitive Development Theory

Piaget's theory of cognitive development is a comprehensive theory about the nature and development of human intelligence. Piaget believed that one's childhood plays a vital and active role in a person's development. Piaget's idea is primarily known as a developmental stage theory. The theory deals with the nature of knowledge itself and how humans gradually come to acquire, construct, and use it. To Piaget, cognitive development was a progressive reorganization of mental processes resulting from biological maturation and environmental experience. He believed that children construct an understanding of the world around them, experience discrepancies between what they already know and what they discover in their environment, and then adjust their ideas accordingly. Moreover, Piaget claimed that cognitive development

is at the center of the human organism, and language is contingent on knowledge and understanding acquired through cognitive development. Piaget's earlier work received the greatest attention. Many parents have been encouraged to provide a rich, supportive environment for their child's natural propensity to grow and learn. Child-centered classrooms and "open education" are direct applications of Piaget's views. Despite its huge success, Piaget's theory has some limitations that Piaget recognized himself: for example, the theory supports sharp stages rather than continuous development (decalage).

Sensorimotor	Birth - 2 years	-Identifies object permanence: the object still exists when out of sight -Recognition of ability to control objects and acts intentionally
Preoperational	2 - 7 years	-Begins to use language -Egocentric thinking: difficulty seeing things from other viewpoints -Classifies objects by single feature: example- color
Concrete Operational	7 - 11 years	-Logical thinking -Recognizes conservation of numbers, mass and weight -Classifies objects by several features and can place them in order
Formal Operational	11 years and up	-Logical thinking about abstract propositions -Concerned with the hypothetical and the future -Create hypotheses and test

Table-1.1: Piaget's Stages of Cognitive development

(I) Multiple Intelligence Theory

Dr. Howard Gardner, professor of education at Harvard University, developed the theory of multiple intelligences in 1983. It suggests that the traditional notion of intelligence, based on I.Q. testing, is far too limited. Instead, Dr. Gardner proposes eight different intelligences / learning styles to account for a broader range of human potential in children and adults. Gardner says that these differences challenge an educational system that assumes that everyone can learn the same materials in the same way and that a uniform, universal measure suffices to test student learning. Indeed, as currently constituted, our educational system is heavily biased toward linguistic modes of instruction and assessment and, to a somewhat lesser degree, toward logical-quantitative modes as well." Gardner argues, "a contrasting set of assumptions is more likely to be educationally effective. Students learn in ways that are identifiably distinctive. The broad spectrum of students - and perhaps the society as a whole - would be better served if disciplines could be presented in a numbers of ways and learning could be assessed through a variety of means." The learning styles or intelligences are:

1. Linguistic intelligence ("word smart")
2. Logical-mathematical intelligence ("number/reasoning smart")
3. Spatial intelligence ("picture smart")
4. Bodily-Kinesthetic intelligence ("body smart")
5. Musical intelligence ("music smart")
6. Interpersonal intelligence ("people smart")
7. Intrapersonal intelligence ("self-smart")
8. Naturalist intelligence ("nature smart")

(J) Child Development Theory – Adolescent

Zupanick, C. E. (n.d.). Child Development Theory. Retrieved Oct. 2014, from http://library.aumhc.org/poc/view_doc.php?type=doc&id=41183&cn=1310

Adolescence is an amazing period of growth spanning the ages of 12-24 years old. Youth enter this developmental stage with the body and mind of a child, and then exit 10-12 years later, with the body and

mind of an adult. There is a strong inter-relationship among the various aspects of development - physical, cognitive, emotional, social, moral, and sexual dimensions. In addition, there is a great deal of individual variation within the normal developmental process. Individual youth may reach developmental milestones at ages that are different from averages, and yet these youth would still be considered "normal." Physically, adolescents grow to reach their adult height, and their bodies begin to resemble adult bodies in size, shape, and body composition. Moreover, they become capable of sexual reproduction. Cognitively, adolescent thinking skills rapidly advance as they enter Piaget's stage of formal operations. Youth are now able to think in abstract terms so that they can conceptualize theoretical ideas, moving beyond the limitations of concrete information. Youth analyze problems in a more logical and scientific manner. This ability to think abstractly and analytically simultaneously promotes their social, emotional, and moral development. As their brain continues to develop, youths' capacity for memorization expands as the brain develops more sophisticated methods of organizing information, allowing for more rapid and accurate information storage and subsequent retrieval. However, the brain's frontal lobe is not fully developed until the very end of adolescence. The frontal lobe of the brain enables humans to inhibit primitive sexual or emotional impulses by using rationale thought to override these impulses. The incomplete development of the frontal lobe means that adolescents will continue to struggle to make wise and thoughtful decisions in the presence of powerful emotional, social, or sexual pressures.

Emotionally, adolescents encounter many new experiences that challenge their ability to cope with a broad array of intense emotions. Youth must learn how to handle stressful situations that trigger powerful emotions without harming or hurting themselves, or other people. Once youth have learned to identify their emotions, and the source of their emotional reactions, they must then learn healthy ways to cope with situations that cause strong emotional reactions. When this learning is completed, youth will have developed emotional efficacy; a landmark skill that enables them to be successful in their future careers, and to enjoy meaningful relationships with others.

Emotional maturity is closely tied to the knowledge of oneself, and one's values. This self-identity develops and solidifies during adolescence. Erik Erikson and James Marcia both proposed theories of identity development and these theories were reviewed. Despite theoretical differences, both theorists agree some youth will develop a clear set of values and beliefs through experimentation with different identities, and an examination of their values. Other youth will not advance this far. Either these youth will continue to question their values; or, they may not examine their values at all. Some youth are so disadvantaged they do not have opportunities to explore values beyond mere survival.

Socially, as youths' need for independence increases, their primary social support shifts away from their families, and toward their peers. Because of the increased importance of peer relationships, youth are especially sensitive to peer pressure (meaning, to conform to the standards of the peer group). By late adolescence, youth will ordinarily re-establish close relationships with their families, provided these relationships were positive to begin with. Youth also create more meaningful and productive relationships with other people outside their circle of family and friends; e.g., bosses, coaches, teachers, co-workers, and other acquaintances. Romantic relationships begin to flourish during this developmental phase. In early adolescence, these connections may be of a more flirtatious nature, and may bloom and fade rather quickly. However, by late adolescence, many of these relationships become more stable, mature, and emotionally intimate.

Moral development naturally progresses as mental and emotional maturity improves. Youths' understanding of right and wrong becomes more sophisticated and nuanced. Both Piaget's and Kohlberg's theories of moral development were reviewed, but Kohlberg's theory has been more strongly supported by the research. According to Kohlberg's theory, some youth will eventually base their moral decisions on a set of ethical principles that surpass existing laws or rules. Other youth will remain primarily concerned with rules, laws, and fairness.

Sexual development was described as a complex merger of physical, cognitive, emotional, social, and moral development. During this time, youth solidify their gender identity as masculine, feminine, or transgendered. Youth will also become aware of their sexual orientation, which refers to a pattern of attraction to others, not sexual behavior. Youth will begin to realize they are primarily attracted to the opposite gender (straight), the

same gender (gay or lesbian), both genders (bisexual), or still uncertain (questioning). During early adolescence, most teens become curious about sex, but any sexual behavior is usually limited to masturbation. However, by middle to late adolescence, many teens begin to experiment with various sexual behaviors via masturbation, partners, or both. Because of the brain's incomplete development, youth are at risk for making poor or risky decisions regarding their sexuality. Ultimately youth must determine what type of sexual behavior is acceptable to them, and under what circumstances. These decisions are best made in advance of the need to make them.

In conclusion, adolescent youth experience monumental changes in every single aspect of their lives as they make the transition from childhood into adulthood. The purpose of this article was to provide parents and other caregivers the foundational information needed to recognize and to appreciate the normal developmental progression of adolescents. Therefore, this article was primarily descriptive in nature. However, the process of adolescent development can become quite challenging and sometime overwhelming for both youth and their families. Our Adolescent Parenting article builds upon this foundation to provide parents and other caregivers concrete advice and practical solutions to common problems that arise during adolescence. Armed with this information, caregivers will feel more confident and successful as they guide their child through these often confusing and difficult years.

(K) Problem Behaviour Theory

Anonymous. (September, 2013.). Problem Behavior Theory and schools. Retrieved May 2016, from http://www.schools-for-all.org/page/Problem+Behaviour+Theory+and+Schools+ (EE)

Problem Behaviour Theory (PBT) was developed by Richard Jessor and colleagues during the 1960s to explain problem behaviour in a small, rural tri-ethnic community (Jessor, Groves, Hanson & Jessor, 1968). Jessor recognized that youth was a segment of the lifespan in which change is the predominant characteristic, and that rapid change is not unusual; he also recognized the need for a far-reaching understanding of young people and of youthful development (Jessor & Jessor, 1977). The influence of Rotter‘s Social Learning Theory (1954) and Merton‘s (1957) concept of anomie are evident in the theory.

PBT is an intersection of the fields of social psychology, developmental psychology and the psychology of personality (Jessor & Jessor, 1977). It enlarges the boundaries of the typical discipline-confined approach by encompassing factors that lie in the person, as well as those that lie in the social environment, and by examining their joint contribution to variation in human action and experience. It is not a grand theory, but rather a theory of mid-range—a network or concept of modest scope oriented toward a delimited concern—problem behaviour in youth (Donovan, 1996).

Problem behaviour is defined as behaviour that departs from norms—both social and legal—of the larger society; it is behaviour that is socially disapproved of by institutions of authority and tends to elicit some form of social control response, whether mild reproof, social rejection or even incarceration (Jessor, Chase & Donovan, 1980). It is important to note that what is defined as problem behaviour for young adolescents may not be considered as such for a senior in college or an adult, and that problem behaviours may be culturally and historically specific.

Problem behaviour is considered purposive, goal-oriented or functional by the individual and important enough to counter the likelihood of legal or social sanctions (Jessor, Jessor & Finney, 1973). Such behaviours are seen as characterizing the occupancy of a more mature status, engaging in them becomes a way of marking—both for self and others—a developing transition, a transition from less mature ‘to more mature’, from younger ‘to older’, from youth ‘to adult’. For example, Jessor (1991) states that it is important to recognize that some outcomes or consequences of the behavioural risk of marijuana use can be desirable and positive and sought out by adolescents. Smoking marijuana, for example, can lead to social acceptance by peers and to a subjective sense of autonomy and maturity. A psychosocial reformulation of risk calls for a thorough cost and benefit analysis of risk factors. Behaviours that serve important social and personal functions for adolescents are unlikely to be abandoned in the absence of alternatives unless these alternatives can provide similar satisfactions without the costs. Research shows that adolescent risk behaviours are functional, purposive, instrumental and goal-directed, and that these goals are often central to normal adolescent development. While society may consider these behaviours problematic, there is nothing

perverse, irrational or psychopathological about such goals. Jessor (1986) indentified eight psychosocial functions of adolescent drinking behaviour, including: signaling commonality with peer group, affirming independence from parents, coping with feelings of inadequacy, failure and stress, and just having fun and enjoyment. The framework for this theory rests on the social-psychological relationships within and between each of the three systems of psychosocial influence: the personality system, the perceived environment system and the behaviour system. Within each system, the explanatory variables reflect either instigations to engage in problem behaviour or controls against it. Together, these systems generate a dynamic state called ―proneness that specifies the likelihood of occurrence of normative transgression or problem behavior. The framework is both complex and comprehensive, with more than 30 variables in three major systems and nearly 50 variables overall. Each of the three major systems of the theory is organized around structures of variables representing instigations to engage in problem behaviour and controls against engaging in problem behaviour. It is important to note the bidirectional relationship among the variables.

The theory proposes that many problem behaviours are interrelated so that the personal and situational factors influencing one behaviour may be the same as those influencing another. This has led to the suggestion that there exists a syndrome of problem behaviour and that it might be useful to deal with it as part of a lifestyle rather than discrete or separate behaviour.

(L) Resilience and Risk Theory

Zimmerman, A. (n.d.). Resilience Theory. Retrieved Oct. 2015, from http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3966565/

Resiliency Theory provides a conceptual framework for considering a strengths-based approach to understanding child and adolescent development and informing intervention design (Fergus & Zimmerman, 2005; Zimmerman & Brenner, 2010). Resiliency theory supplies the conceptual scaffolding for studying and understanding why some youth grow up to be healthy adults in spite of risks exposure (Garmezy, 1991; Masten, et al., 2007; Rutter, 1987; Werner & Smith, 1982). Resiliency focuses attention on positive contextual, social, and individual variables that interfere or disrupt developmental trajectories from risk to problem behaviors, mental distress, and poor health outcomes. These positive contextual, social, and individual variables are called *promotive factors* (Fergus & Zimmerman, 2005), operate in opposition to risk factors, and help youth overcome negative effects of risk exposure. Fergus & Zimmerman (2005) identified two types of promotive factors: *assets and resources*. Positive factors that reside within individuals such as self-efficacy and self-esteem are defined as assets. Resources refer to factors outside individuals such parental support, adults mentors and youth programs that provide youth with opportunities to learn and practice skills. Assets and resources provide youth with the individual and contextual attributes necessary for healthy development.

Several of the papers in this theme issue on adolescent health, although not intentionally applying a resiliency approach, include attention to promotive factors. Applying a resiliency lens to examine the papers in this issue, however, provides an opportunity to consider how we can study systematically adolescent health using a strengths-based approach. Steele et al.'s (2013) study focuses on an individual asset, self-efficacy, that is associated consistently with positive health related outcomes. Their SE-HEPA scale focuses on confidence in making the correct choices for healthy eating and physical activity can be used to evaluate programs designed to develop a youth asset that may be help youth make healthy behavioral choices. Similarly, the analysis of intrapersonal factors associated with sex risk behavior by Shneyderman & Schwartz (2013) included a measure of birth control self-efficacy. Their study provides empirical evidence of health education programs that focus on enhancing this individual asset, which may be effective for encouraging healthy sexual behavior.

Several of the articles in this theme issue also focus on resources associated with positive youth development outcomes and that can help youth overcome risk. Families are consistently identified as a vital resource for healthy youth development for a variety of health outcomes (Caldwell et al., 2004). The Steering Teens Safe study provides an example of the role parents can play as a key resource for youth learning how to drive (Ramirez et al., 2013). Ramirez et al. exploit the potential of positive influences of parents as a key resource for improving driving skills among their teenage children just learning how to drive. Malcolm et al. (2013) study the positive effects of family functioning on condom use among Latino youth. The study by

Shneyderman & Schwartz (2013) also included family factors such as parent-child relationship quality. Promotive resources also include programs that provide youth with opportunities to learn and practice skills. Springer et al. (2013) describe the CATCH program for middle school youth, which can be conceptualized as a promotive resource for youth because it focuses on helping youth develop the knowledge, confidence, and skills for engaging in the positive behaviors of healthy eating and physical activity.

While many of the studies highlighted in this issue focus on promotive factors, they do not explicitly apply an analytic framework guided by resiliency theory. Resiliency theory includes several models that describe how promotive factors may counteract, protect against or inoculate youth from the negative effects of risks (Masten et al., 2007; Luthar, 2006). These models guide data analytic strategies and can inform the design of intervention by defining strategies to enhance promotive factors. The compensatory and protective models of resiliency are the two most commonly studied in the research literature (Fergus & Zimmerman, 2005; Garmezy et al., 1984; Masten, et al., 2007). A third model has limited empirical support, but also provides an explanation for how youth may overcome the adverse consequences of risks.

In the *compensatory model*, promotive factors neutralize risk exposure in a counteractive fashion. Thus, compensatory factors have an opposite effect on a developmental outcome (e.g., healthy eating, violence) than risks. This is a direct and independent effect from risks. Thus, compensatory factors contribute additively to the prediction of outcomes and are simply entered in a regression analysis after risks are accounted for in the equation. Parental support, for example, was found to compensate for risks associated with fighting and being around violent adults (Zimmerman, et al., 1998). In this study, parent support predicted less violent behavior among their adolescent children and this effect was independent and in the opposite direction of the risks.

The *protective factor model* suggests that promotive assets or resources modify the relationship between a risk another promotive factor and outcomes. Two possible protective models are risk-protective and protective-protective. Risk-protective models indicate that promotive factors operate to moderate or reduce the association between risks and negative outcomes. Protective-protective models operate to enhance the effects of either promotive factor alone for predicting an outcome. Protective models are tested using interaction effects in regression or multi-group analysis in structural equation modeling. Hurd and Zimmerman (2010) provide an example of a risk-protective model in their study of adolescent mothers. They found that natural mentors helped protect adolescent mothers from the negative effects of stress on their mental health. A study of self-esteem and cultural identity among Native American youth provides an example of a protective-protective model (Zimmerman et al., 1995). They found that self-esteem increased the negative association between cultural identity and alcohol use in an interaction effect in a regression analysis.

Rutter (1987) also introduced the *challenge model* of resiliency. This model operates as inoculation whereby exposure to modest levels of risk actually help youth overcome subsequent exposures that make them vulnerable to negative outcomes. It is vital; however, that the initial risk exposure must be challenging enough to help youth develop the coping mechanisms to overcome its effects, but not too taxing as to overwhelm any effort to cope. Interpersonal conflict that is resolved amicably, for example, can help youth learn how to overcome social tensions to avoid a violent response in some later more heated social disagreement that may involve others (e.g., a gang fight).

Resiliency theory provides a useful framework for considering how promotive factors may operate for encouraging positive youth development. It is not an adolescent trait that can be measured by a self-report questionnaire (Fergus & Zimmerman, 2005). Rather, resiliency models posit relationships and processes, and concomitant analytic strategies for testing them. Although many researchers study resiliency by examining single risks and promotive factors, a burgeoning area of research focuses on the cumulative effects of multiple promotive factors across ecological domains (e.g., individual, family, community) to more accurately reflect the complex nature of influences on adolescent development (Ostaszewski & Zimmerman, 2006; Stoddard et al., 2012).

Researchers often study positive factors in youths' lives and evaluate interventions designed to enhance promotive factors for health adolescent development, as many of the papers in this theme issue illustrate.

Application of resiliency theory, however, provides a conceptual framework and a unifying theme that can guide researchers and practitioners interested in studying and enhancing assets and resources. A unifying theme like resiliency theory is useful for public health education because it helps to develop a common language and analytic approach that cuts across the specific issue or domain being studied to build knowledge and inform practice using a strength-based paradigm. Research that applies a resilience framework will have common characteristics that can be replicated across populations and contexts, and contribute more broadly to our understanding of the processes by which youth overcome adversity and develop into healthy adults despite risk exposure.

1.10 Need and Importance of the Research study

We find that behaviour does not always follow the mind. This is when incidents of "I know but I can't help it" occur. What we need is the ability to act responsibly. Life skills enable us to translate knowledge, attitudes and values into actual abilities.

The host of factors that promote high-risk behaviour such as alcoholism, drug abuse and casual relationships are boredom, rebellion, disorientation, peer pressure and curiosity. The psychological push factors such as the inability to tackle emotional pain, conflicts, frustrations and anxieties about the future are often the driving force for high-risk behaviour. Life skills training is an efficacious tool for empowering the youth to act responsibly, take initiative and take control. It is based on the assumption that when young people are able to rise above emotional impasses arising from daily conflicts, entangled relationships and peer pressure, they are less likely to resort to anti-social or high risk behaviours.

Why develop Life Skills?

- To develop a dynamic self-image and great self esteem
- To improve the communication skills
- To make relationships better and handling interpersonal problems
- To boost our decision making ability and make informed decisions
- To help us to deal with the challenges of everyday life
- To become a well-adjusted individual
- Deal effectively with the peer pressure
- Prevent high risk behaviours
- Prevent communication gap with the parents
- To reduce vulnerability and improve utilization of protective factors
- To enable the youth to adapt to situations and people

It is necessary for every individual to possess the Life Skills because without having developed them, one will always feel that something is missing in one's life. What good is all the financial success in the world if one do not have, self-confidence, know who one really is, what one wants, or what one is doing here? We have all witnessed many outwardly successful and famous people who have not been able to find personal happiness. No amount of fame or fortune could fill the void they felt inside.

Therefore, in order to enjoy the fruits of any achievement one must first be happy with oneself.

The Life Skills programme developed by the Researcher is a school-based programme where Life Skills are imparted in a supportive learning environment by using various strategies and activities. They are applicable for all ages of children and adolescents in school. However, the age group targeted is mainly 13-14, adolescent years, since young people of this age group seem to be most vulnerable to behaviour related health problems. The programme is for the promotion of overall well-being and targeted group is all children.

Implementing the Life Skill Programme has enabled to develop the following five Life Skills in the following way:

1. **Self-awareness** - The ability to introspect, analyze and accept one's thoughts, actions and feelings. Recognizing and acknowledging one's needs and desires. Being aware of the good points about oneself to help build a sense of self-esteem and self-confidence. Being aware of weaknesses to make willing to learn more. To utilize the opportunities available to them in relation to their abilities. Knowing about oneself developed a positive attitude towards life. In making decisions, prioritizing work, and reasoning out many actions and reactions. To recognize when one is stressed or is under pressure. It is often a pre-requisite for effective communication, interpersonal relationship and developing empathy for others.
2. **Effective communication** -The ability to express, verbally through spoken or written language and non-verbally through gestures and body movements, in ways that are culturally acceptable. Facilitated one's understanding of the other person's point of view and how they see the world.
3. **Critical Thinking** - In developing intellectually disciplined process of actively and skillfully conceptualizing, applying, analyzing, synthesizing and evaluating information gathered from or generated by observation, experience, reflection, reasoning or communication as a guide to belief and action. In developing the process of determining the authenticity, accuracy or value of something characterized by the ability to seek reasons and alternatives, perceive the total situation, and change one's view based on evidence. It helped to think clearly and rationally. To reflect on things and situations and think independently. To recognize and assess the factors that influence our attitude and behaviour.
4. **Problem solving** - Developed information gathering skills, evaluating future consequences of present actions for self and others, determining alternative solutions to problems and analysis skills regarding the influence of values and attitudes of self and others on motivation.
5. **Decision making** - Developed the process of gathering information about relevant alternatives and making an appropriate choice. It is a choice of what to do and what not to do. The ability to choose the best alternative solution to a problem from the available options, with due consideration of the consequences of different decisions. To weigh the pros and cons of alternatives and make an informed decision.

1.11 Significance of the Research study

Hereford, Z. (n.d.). Life Skills. Retrieved June 2012, from http://www.essentiallifeskills.net/

In order to excel at a job, a sport or any discipline, a person must acquire and master certain skills. Living life fully and productively is no different.

Furthermore, possessing Life Skills enables you to deal with the life's inevitable difficulties and adversities more effectively. It lessens your chances of overusing prescription drugs, engaging in addictive behaviors, and experiencing overall despair and hopelessness. When you have the proper tools and strategies at your disposal, you have more control over your life and are therefore happier and more productive.

Where do you begin?

You begin by establishing a firm foundation. That foundation is "you". You must know who you are, what you want, and what you are capable of. You must then determine which values, goals and principles you will set up to guide your actions.

Learning about and applying the Essential Life Skills helps to:

- know and understand oneself better
- live life more consciously and deliberately
- attain personal satisfaction and fulfillment

1. The Research study undertaken was not only helpful to the students for enhancing their achievement level but also a step towards leading a successful life. It threw light on the necessity of including content-based Life Skill Programme in the school curriculum.
2. It emphasized on the essentiality of the Life Skills school-based programmes as a means to develop skills among young people that lead to healthy lifestyle choices and optimum physical, social, and psychological wellbeing.
3. It has served as a model of modification in preparing instructional materials for teacher training, practicing teacher, teacher trainer, or administrators.
4. Mastery of Life Skills leads to a life of wealth, power, success and most importantly, self-fulfillment and inner peace.
5. Thus, acquiring Essential Life Skills not only contributes to your personal growth and development, it makes you a more interesting and dynamic individual.

1.12 Rationale of the study

Over the last decade there has been an increased interest in the development of Life Skills in the adolescents. Much of the interest stems from several papers and reports published by the Carnegie Council on Adolescent Development (e.g., Hamburg, 1990; Carnegie Council, 1995), coupled with research that links increase in Life Skills with decrease in at risk behaviours such as smoking, drinking or drug use in young adults (e.g., Gilchrist, Snow, Lodish, & Schinke, 1985; Hays & Elickson, 1990; Schwarzerm &Fuchs, 1995). But still it is in its infancy and we need to explore the possibilities in this area.

Considering the need, importance and present state of Life Skills in the education system of our country, this study will be of great significance.

1.13 Statement of the Problem

Taking into consideration the need and the importance of inculcating the Life Skills in the students, the Researcher had decided to undertake the present research study.

The statement of Research problem was -

To develop a Life Skills Programme (Self – awareness, Effective Communication, Critical Thinking, Problem Solving, Decision Making) based on the Science content, for the students of standard VIII of S.S.C Board in Pune city and find out its effectiveness and usability.

1.14 Definitions

1.14.1 Conceptual Definitions

1. Life Skills: Life Skills are abilities for adaptive and positive behaviour that enable individuals to deal effectively with the demands and challenges of everyday life. (WHO, 1997)

2. Self-Awareness: Self-awareness includes our recognition of character, our strengths, weaknesses, desires, dislikes and ourselves. It can help us to recognize when we are stressed or feel under pressure. It is often a pre-requisite for effective communication, interpersonal relationship and developing empathy for others. (WHO, 1997)

3. Effective Communication: Communication is conveying a message, orally, verbally, written or using signs. Communication is the art of expressing and exchanging ideas, feelings and thoughts through gestures, speech or writing. (WHO, 1997)

4. Critical thinking: Critical thinking is an intellectually disciplined process of actively and skilfully conceptualizing, applying, analysing, synthesizing and evaluating information gathered from or generated by observation, experience, reflection, reasoning or communication as a guide to belief and action. It is the ability to analyze information and experiences. It can help us recognize and assess the factors that influence our attitude and behavior. (WHO, 1997)

5. Problem solving: Best possible way to get one's needs accomplished. Problem solving is a tool, a skill, and a process. Problem solving is an attempt to find an appropriate way of attaining a goal when the goal is not readily available. (WHO, 1997)

6. Decision Making: Decision Making is the ability to choose the best alternative solution to a problem from the available options, with due consideration of the consequences of different decisions. Decision Making is the process of gathering information about relevant alternatives and making an appropriate choice. It is a choice of what to do and what not to do. (WHO, 1997)

1.14.2 Definition of the key terms

It is necessary for the Researcher to define the key words included in the Statement of the problem.

(1) Content-based Life Skill Programme - A Life Skill Programme that is based on the selective content of Science subject of Standard VIII affiliated to S.S.C. Board. It is a programme designed and developed by the Researcher for enhancing five life skills -

a. Self – awareness

b. Effective Communication

c. Critical Thinking

d. Problem Solving and

e. Decision Making,

of the eighth standard students, which includes various teaching methods/strategies/ techniques such as interactive lecture, demonstration, power point presentation, role-play, brain storming, situation based analysis, poster presentation, collage, laboratory method, demonstration, fish – bone method, action maze, group discussion, group presentation, quiz, skit, field visit and study assignment. It has a theoretical base. The supporting theories are – Social Emotional Learning, Experiential Learning, Situated Learning and Community of Practice, Social Learning Theory, Constructivism, Socio – constructivism, Brain – based Learning, Cognitive Development Theory and Multiple Intelligence Theory.

(2) Effectiveness - Increase in the post - test scores of the students of the experimental group related to the development of the five Life Skills (Self – awareness, Effective Communication, Critical Thinking, Problem Solving, Decision Making), after implementing the Life Skill Programme on the experimental students.

(3) Usability – The capacity of the daily use of the Life Skills Programme for Science teachers of Std. VIII, S.S.C. Board, to develop/enhance the five Life Skills (Self – awareness, Effective Communication, Critical Thinking, Problem Solving, Decision Making).

(4) Self – awareness – It is the increase in the ability to gain knowledge about what one thinks, feels and acts as reflected in the posttest scores obtained through the Standardized Rating Scale.

(5) Effective Communication – It is the increase in the competency in listening, speaking, reading and writing. Elaborately, exchange of ideas, thoughts, feelings, emotions etc., understanding and giving relevant response; verbally and/or non – verbally as reflected in the posttest scores obtained through the Standardized Rating Scale.

(6) Critical Thinking – It is the increase in the ability of making objective judgment based on reasons and evidences as reflected in the post test scores obtained through the Standardized Rating Scale.

(7) Problem Solving – It is increase in the ability of the process of understanding a problem and coming out with the best possible solution as reflected in the post test scores obtained through the Standardized Rating Scale.

(8) Decision Making – It is the increase in the ability of making logical conclusion, solving problems and taking appropriate decision from the available alternatives, as reflected in the posttest scores obtained through the Standardized Rating Scale.

1.15 Objectives of the Research

For the present Research study, the Researcher had decided the following objectives:

1. To identify suitable topics from eighth standard Science textbook to be included in the Life Skill programme.

2. To assess the current status of all the 10 Life Skills possessed by the students.
3. To develop a Life Skills Programme and test its effectiveness.
4. To test the usability of the developed programme.

1.16 Research Questions

1. Which topics of Std. VIII, Science Textbook can be effectively included in the Life Skills Programme?
2. What is the current status of the Life Skills possessed by the students of Std. VIII?
3. Can any programme be developed by the Researcher for enhancing the Life Skills?
4. Is the developed programme usable?

1.17 Assumptions

Following assumptions were taken in to consideration while conducting the Research study-

1. Science subject can be taught by carrying out different activities in and out of the classroom. (Ph.D. Thesis - Mariana, S. *Learning - Based Experiments in Physics Teaching at Secondary School Level.*)
2. Students can actively participate in the activities. (Ph.D. Thesis - Stoicescu D. and Stoicescu I. *Environmental Projects to Motivate Science Learning in Primary Schools*)
3. Every individual possesses Life Skills in varying number and extent or intensity. (Book - Darlene M. *Life Skills Activities For Secondary Students with Special Needs*)
4. Life Skills can be developed through Science content. (Life Sills Education Handbook, SCERT)
5. Life Skills are essential for every individual in every mode of life and empowering the life of an individual. (Casey Life Skills Guide)

1.18 Hypotheses

The main purpose of conducting any Research study is testing of the Hypothesis. For the present Research study, following Hypotheses have been formulated and subsequently tested by the Researcher

1.18.1 Research Hypothesis

The content-based Life Skill Programme enhanced the five Life Skills (Self – awareness, Effective Communication, Critical Thinking, Problem Solving, Decision Making), in the students.

1.18.2 Null Hypothesis

There is no significant difference between the mean scores of the pre – test and post-test of the experimental group after implementing the Life Skills Programme.

1.19 Variables

For the present Research study, following variables were taken into consideration.

- **Independent Variable –** Life Skill Programme developed by the Researcher
- **Dependent Variables –** Achievement (scores achieved in the pre – test and post – test) of the students
- **Controlled Variables –** Timetable**,** Age of the students, Topics, Medium of Instruction, IQ of the students, absentee of the students, self – motivation, attitude, interest, span of attention, fatigue etc.

1.20 Research Methodology

1.20.1 Type and Method of Research

The present Research study falls under - Applied Research.

The Researcher had selected, 'Multi - method Research and Mixed – Method Procedures for Survey and Experiment (Quan + qual)', for conducting the research.

For Objective 1, Survey and Content analysis methods were used.

For Objective 2, Survey method was used.

For Objective 3, Product and Experimental methods (Pre-Experimental Design - The One-Group, Pretest-Posttest Design) were used.

For Objective 4, Survey method was used.

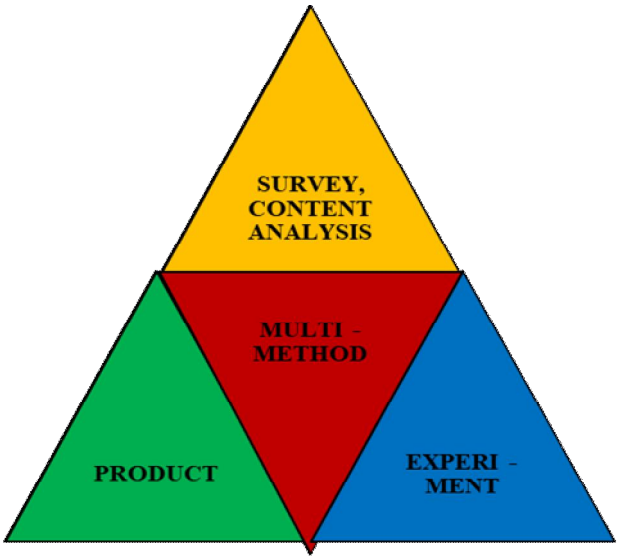


Figure-1.2: Multi - Method

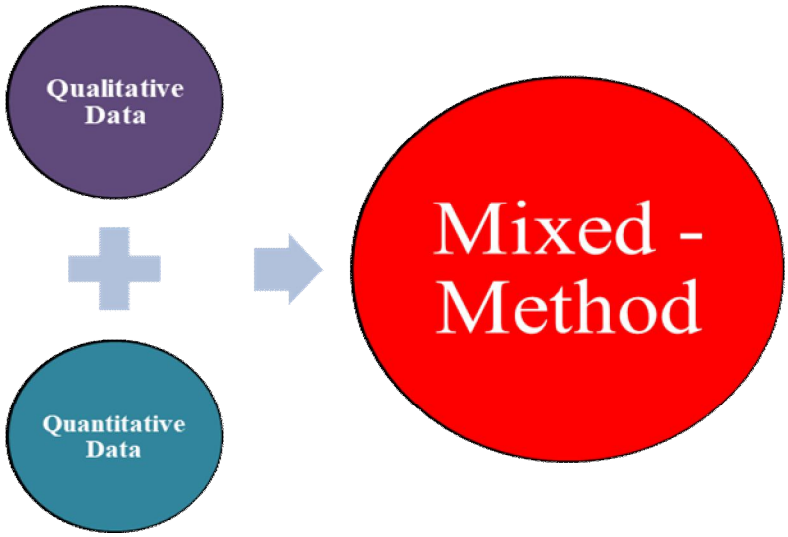


Figure-1.3: Multi – Method

Objective No.	Research Method	Sampling procedure – Method, Technique	Sample size	Tools and techniques for Data collection	Tools for Data analysis
1	Survey and Content Analysis	Non – Probability, Purposive Sampling Method	17 Science teachers	Researcher made Questionnaire and Check - List	Coding and Grouping (Qualitative tools of analysis of data)
2	Survey	Probability, Random Sampling Method	1528 students of Std. VIII	Standardized Rating Scale	Tabular and Graphical representation
3	Product Development and Experiment	Non – Probability, Purposive Sampling Method (Exp.)	33 students of Std. VIII (Exp.)	Standardized Rating Scale with relevant editions (Exp.)	a. Tabular and Graphical representation (Q – Q plot) b. Descriptive Statistics (Mean, Standard Deviation)

					c. Repeated Measures MANOVA (Standard Error, Effect size – Partial Eta Squared values, Bartlett's Test of Sphericity, Pillai's Trace, Greenhouse – Geisser)
4	Survey	Non – Probability, Purposive Sampling Method	10 Science teachers	Researcher made Rating Scale	Coding and Grouping, Percentage, Tabular and Graphical representation

Table No-1.2: Research Methodology, Sample and Tools

1.20.2 Population and Sampling

1.20.2.1 Population:

The results of this study are applicable to all the students of Std.VIII, English Medium schools, of SSC Board, of Maharashtra.

1.20.2.2 Selection of the sample:

For **Objective 1**, the Researcher used **Non - Probability Sampling Method, Purposive Sampling Method** for selecting 17 Science teachers, of English Medium Schools, S.S.C. Board, for administering the questionnaire and check – list (both were validated from six subject experts and one research expert), for selecting the content from Std. VIII, Science textbook to be included in the Life Skills programme as well as for the development of the programme / product. List of Science teachers is been annexed.

For **Objective 2**, the Researcher used **Probability Sampling Method, Random sampling Method** for selecting 16 English Medium Schools (1528 students), from Pune Corporation area for conducting the **Survey**. List of schools and students is been annexed.

For **Objective 3**, the Researcher used **Non - Probability Sampling Method, Purposive Sampling Method** for selecting a school for conducting the Experiment on 33 students. List of students is been annexed.

For **Objective 4**, the Researcher used **Non - Probability Sampling Method, Purposive sampling Method** for selecting 10 Science teachers of English Medium Schools, S.S.C. Board, teaching to Std. VIII for administering the Researcher made Rating Scale for knowing the usability of the Life Skills Programme i.e. the product. List of Science teachers is been annexed.

1.20.3 Tools and Techniques for data collection:

For Objective 1 - In the present Research study, a Questionnaire was prepared for the teachers to help in the designing and development of the Life Skills Programme. While preparing the Questionnaire, the Researcher attempted to put forth the questions in such a way that the subjects were able to provide the required information. The topics and issues to be covered were prepared in advance, checked, and verified by the experts.

A Check – List was prepared for the teachers in such a way to help in the designing and development of the Life Skills Programme. The topics and issues to be covered were prepared in advance, checked, and verified by the experts.

Questionnaire and **Check - List** were administered on 17 science teachers for selecting the content from Science textbook of Std. VIII affiliated to S.S.C. Board, to be included in the Life Skills Programme and the development of the Product. In addition, the Researcher herself followed the Content Analysis Method to achieve the same.

For Objective 2 – Standardized Rating Scale was used by the Researcher for collecting factual information under Survey method, to know the extent or level of all 10 Life Skills that 1528 students possess.

For Objective 3 – Standardized Rating Scale with necessary modifications, was used as a pre-test and post-test on 33 students, under Experimental method.

For Objective 4 – Researcher made Rating Scale was administered on 10 Science teachers, teaching to Std. VIII, English Medium School, and S.S.C. Board, to know the usability of the Life Skills Programme i.e. the product, under Survey method.

1.20.4 Statistical tools

Data collected were analyzed by using following statistical tools.

For Objective 1 - Coding and Grouping (Qualitative tools of analysis of data)

For Objective 2 - Tabular and Graphical representation

For Objective 3 - Tabular and Graphical representation

Q – Q plot

- Descriptive Statistics

Mean

Standard Deviation

- Repeated Measures MANOVA

Standard Error

Effect size - Partial Eta Squared values

Bartlett's Test of Sphericity

Pillai's Trace

Greenhouse - Geisser

For Objective 4 - Coding and Grouping

Percentage

Tabular and Graphical representation

1.21 Scope, Delimitations and Limitations

1.21.1 Scope

This research study is applicable to all the eight Std. English medium schools, of S.S.C. Board, Pune city.

- The study was concerned with the Science teaching for developing / enhancing the Life Skills (Self – awareness, Effective Communication, Critical Thinking, Problem Solving, Decision Making) of the students.

1.21.2 Delimitations

≈ The study was delimited to the schools in and around Pune City.

≈ The study was delimited to the English Medium Schools in and around Pune city.

≈ The study was delimited to the development of five Life Skills (Self – awareness, Effective Communication, Critical Thinking, Problem Solving and Decision Making).

≈ The Life Skill Programme was developed based only on the selected contents of Science textbook of Std. VIII, English Medium School of S.S.C. Board.

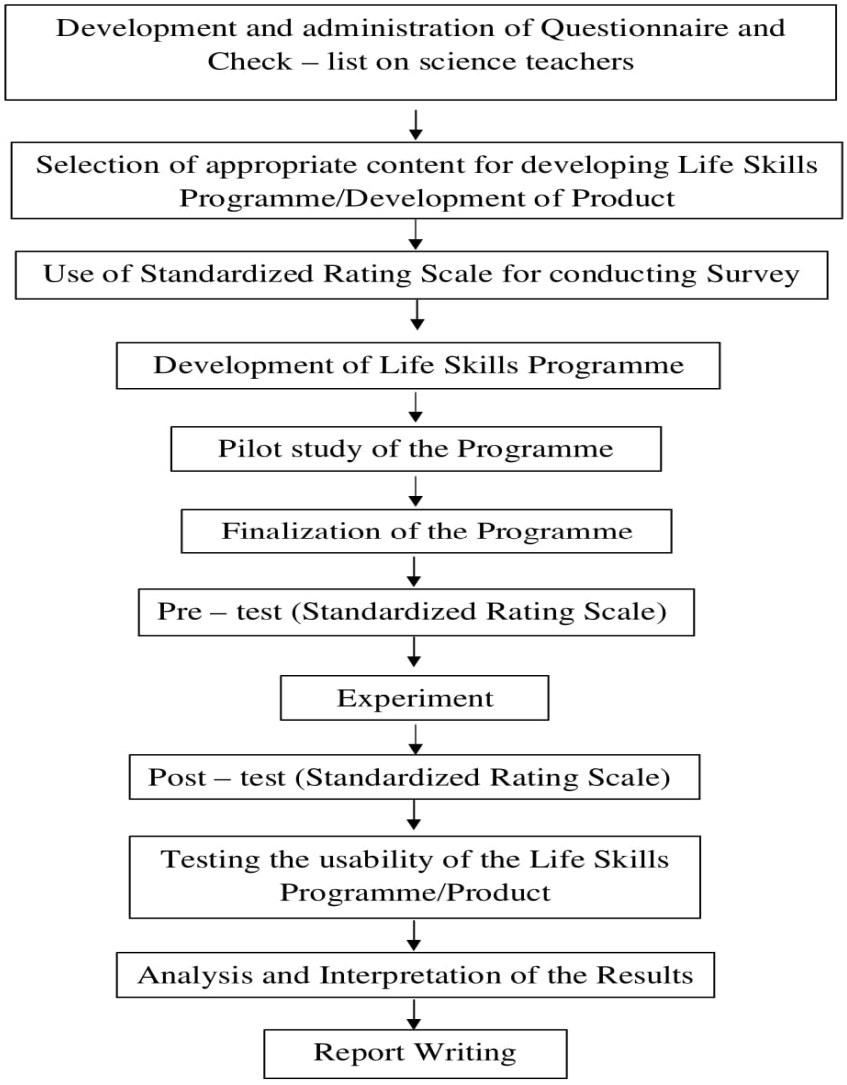
≈ The survey includes the responses only of those teachers who teach Science to the students of Std. VIII in English Medium School of S.S.C. Board.

≈ The tools used for data collection i.e. Questionnaire and Check – the Researcher developed List.

1.21.3 Limitations

1. Aspects like attitude, interest, motivation, fatigue etc. of the students and teachers are beyond the control of the Researcher.
2. The difference in the achievement level occurred due to time and maturity was not considered.
3. The conclusion of the study depended upon the analysis of the responses of the eighth standard students regarding the extent to which these students possess the five Life Skills.

1.22 Procedure of the Research



1.23 Conclusion

In the present chapter, the Researcher has given details about, the historical or theoretical and conceptual background of the Research undertaken, learning theories supporting the Research study, need, importance and significance of the Research study, objectives of the Research, assumptions of the Research, hypotheses, variables, research methodology, scope, limitations and delimitations and procedure of the Research. Review of the Related Literature is discussed in the next chapter.

CHAPTER - II

REVIEW OF THE RELATED LITERATURE

2.1 Introduction

Today Science and Technology has advanced to such an extent that the inventions of the day are outdated on the other day. Then too, this advancement and new inventions adds to the knowledge and knowledge is increasing in all its dimensions. Due to these inventions various branches of knowledge and sciences came into existence and knowledge explosion is been witnessed. Man is the only animal who takes the advantage of this knowledge. No Research can be done alone or in isolation and thus the production of new knowledge is fundamentally dependent on past knowledge.

To conduct the Research in the right direction, it is necessary for the Researcher to know about the work done in the problem area and study the different variables of the problems in detail. The past Researches related to the problem and the related literature including the variables of the problem and the different aspects or the steps of the Research are helpful for the Researcher. Thus, for any specific Research the Researcher must be thoroughly familiar with both, the previous theories and related Researches done in the past. All this need the Researcher to do the review of the related literature.

The Phrase 'Review of the Related Literature' consists of two important words – Review and Literature. Literature refers to the knowledge of a particular area of investigation of any discipline, which includes theoretical, practical and its Research studies. Review means to organize the knowledge of the various fields in which Research has been done and to verify the utility of these studies for a particular problem area. (Dr. Jha, 2011, Research Methodology. P.58)

Review of literature means all the types of books, encyclopedias, journals, published and unpublished Research papers, theories, magazines, newspapers, etc. which are related to problem area and which aid the Researcher in the formation of hypothesis, selection of tool, research method, etc. A careful review of the journals and thesis on the problem is one of the important step in the planning of any research study.

The main reason of review of the related literature is allowing the Researcher to acquaint himself/herself with current knowledge in the field or area in which s/he is going to conduct his/her Research. It enables the Researcher to define the limits of his/her field.

The important specific reason for reviewing the related literature is to know about the recommendations of previous Researches listed in their studies for further Research. (Lokesh Koul. 2007. Methodology of Educational Research. P. 89)

In every Survey and Experimental Research, the review of the literature helps for the actual collection of data and to create the context from the past for new study. Thus, by reviewing the literature, the Researcher develops the foundation of ideas and results on which his study will be built. Further, it involves the reporting of this foundation of ideas in the Research report.

In the present chapter, initially the need, objectives, importance and sources of the review of related literature is discussed. Then an account of literature related to Life Skills is presented. Finally, the necessity of the present Research study in the light of previous Researches is discussed.

2.2 Need of the Review of the Related Literature

The following points depicts the need of the review of the related literature:

1. To do the quantitative and qualitative analysis of previous Research in the relevant area.
2. To avoid the replication of the study.
3. To direct the Researcher about the Research work and the steps of the Research.
4. To plan and conduct the study.
5. To update the Researcher with the previous Researches and the related literature.
6. To formulate the hypothesis.
7. To acknowledge the Researcher with the methods of Research, tools and statistics.
8. To provide the rationale of the study.

9. To discuss the results and findings of the study.
10. To justify the endeavor of the Researcher related to his/her Research.
11. To know the past and design Research to build on what is known and study what is not studied.
12. To move knowledge forward.
13. To form a base for new Research because if it is not based on a thorough review of the literature, it becomes an isolated entity bearing at best accidental relevance to what has done before.

Thus, the review of literature indicates the clear picture of the problem to be solved and gives direction to the Researcher for his Research work. It gives the vision to the Researcher.

2.3 Importance of the Review of the Related Literature

A distinction must be made between the literature read by the Researcher and that discussed in the study under the importance of the study under the heading review of the literature. The importance of the term, 'review of literature', can be easily clarified from the following statements:

- If I have seen further than others, it is because I have stood on the shoulders of the giants. (Isaac Newton)
- The literature in any field forms the foundation upon which all further work will be built. If we fail to build the foundation of knowledge provided by the review of literature, our work is likely to be shallow and naïve will often duplicate work that has already been done better by someone else. (W. R.Borg)
- Practically all-human knowledge can be found in books and libraries. Unlike other animals that must start a new with each generation, man builds upon the accumulated and recorded knowledge of the past. His constant adding to the vast store of knowledge makes possible progress in all areas of human endeavor. (John W. Best)

It informs about how much work has been done in the area related to the problem.

Citing studies that show substantial agreement and those that seem to present conflicting conclusions help to sharpen and define understanding of existing knowledge in the problem area, provides a background for the research project and makes the reader aware of the status of the issue. Parading a long list of annotated studies relating to the problem is ineffective and inappropriate. Only those studies that are plainly relevant, competently executed and clearly reported should be reported. (Best, John W. 2006. P. 80 - 81)

Thus, in any field, related literature forms the foundation upon which all further work is to be built and repetition of Research can be avoided. Present Research has been designed keeping in mind the Research gaps identified through this review.

2.4 Objectives of the Review of the Related Literature

The review of literature serves the following purpose in conducting Research work:

1. To provide the insight to the Researcher regarding strength and limitations of the previous studies.
2. To know the work done related to the problem area.
3. To distinguish what has been done from what needs to be done.
4. To avoid the replication of the study.
5. To develop the expertise in the investigation of the study.
6. To provide theories, principles, ideas, meaning and definitions for Research.
7. To define the phrase of the problem.
8. To discover the important variables of the study.
9. To form the appropriate hypotheses for the Research.
10. To select appropriate Research methods.

11. To suggest the appropriate procedure, sources of data and statistical techniques for the Research.
12. To help in data analysis and interpretation.
13. To compare the conclusions of the study with the related studies.
14. To enable the Researcher to improve his investigation.

Hence, it is rightly said by Woodrow Wilson, "I not only use all the brains that I have, but all that I can borrow." Research may be done alone but never in isolation. The production of new knowledge is fundamentally dependent on past knowledge. Knowledge builds, and it is virtually impossible for Researcher to add to a body of literature if they are not conversant with it. Working with literature inspires, informs, educates and enlightens. It generates ideas, helps to form significant questions, and is instrumental in the process of Research design. It is also central to the process of writing up a clear rationale supported by literature is essential, while a well-constructed literature review is an important criterion in establishing research credibility.

In general, purpose of the review is to help the Researcher to develop a thorough understanding and insight into previous Research and the trends that have emerged. The review can also help for specific goals:

- ✓ Delimiting the Research problem
- ✓ Seeking new approaches
- ✓ Avoiding sterile approaches
- ✓ Avoiding duplication
- ✓ Insight into methods
- ✓ Recommendations for further Research

Following figure outlines the variety of tasks involved in working with literature and explores some of the steps one can follow to find it, manage it, use it and review it. (Walliman N. 2006. P.47)

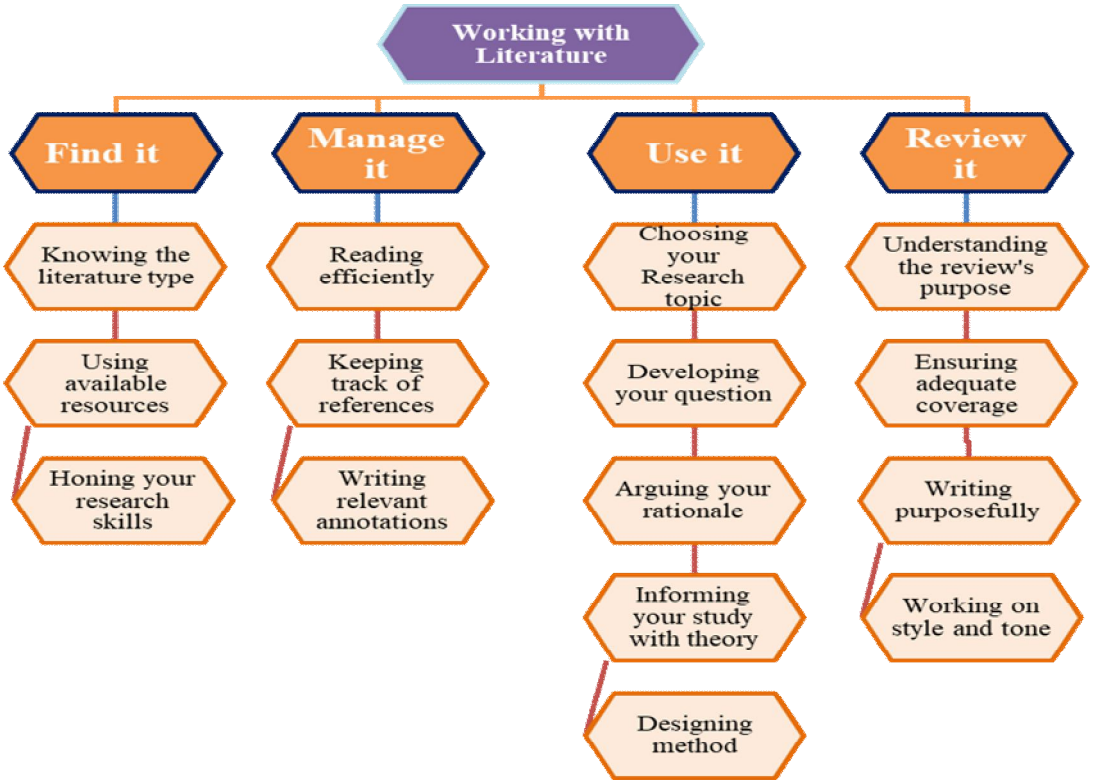


Figure-2.1: Working with Literature

By overview Researches in the era of Life Skills Education it is observed that there are few Researcher attempt to search in the area and very few focus is on the awareness and development of Life Skills Education. It is difficult to classify the diverse kind of Researches in this field, still an attempt have been made to review and present the Researches pertaining to this field. The present study is aimed at investigating the development of Life Skills in the students through Science content at Higher Primary level and its effective implication.

In this chapter the literature as well as Researches has been reviewed in the light of Life Skills Development.

2.5 Sources of the Review of the Related Literature

In sources of related literature, the first step in reviewing the related literature is identifying the material that is to be read and evaluated. The identification can be made through the use of primary and secondary sources available in the library.

In the **primary sources** of information, the author reports his/her own work directly in the form of Research articles, books, monographs, dissertations or theses. Such sources provide more information about a study that can be found elsewhere. Primary sources give the Researcher a basis on which to make his/her own judgment of the study.

In the **secondary sources**, the author complies, summarizes the findings of the work done by others, and gives interpretations of these findings. In them, the author usually attempts to cover all of the important studies in an area reported in encyclopedia of education, education indexes, abstracts, bibliographies, bibliographical references and quotation sources. (Koul L. 2005. P. 166)

The Researcher has visited the following libraries to review the different relevant material for the problem selected for Research -

1. Department of Education and Extension, Savitribai Phule Pune University, Maharashtra.
2. Jaykar Library, Savitribai Phule Pune University, Maharashtra.
3. S.N. D.T University of Women, Pune, Maharashtra.
4. Tilak Maharashtra Vidyapeeth, Pune, Maharashtra.
5. Rajiv Gandhi University of Youth Development, Sriperumbudur, Chennai, Tamil Nadu.
6. Maharashtra State Council of Education and Research Center, Pune, Maharashtra.
7. Balabharti, Pune, Maharashtra.
8. Tilak College of Education, Pune, Maharashtra.
9. H. G. M. Azam College of Education, Pune, Maharashtra.
10. Abhinav College of Education, Pune, Maharashtra.
11. Indian Institute of Education, Pune, Maharashtra.
12. Phlox Education Private Limited, Pune, Maharashtra.

2.6 Research Review

2.6.1 Literature Reviews for understanding Life Skills

Dalton (2009) in her Research study tried to understand how emphasis placed on winning might impede the coaching process, specifically as a barrier to teaching Life Skills. She had adopted Survey Method and found that Coaches teach a diverse array of Life Skills that they also believe will help their teams to win games. These coaches view the relationship between the importance of winning and teaching life skills as complimentary and not contradictory concepts.

This study has helped the Researcher in overall understanding of Life Skills.

Balda and Sangwan (July 2015) conducted a Research study – "**Competency building for Management of Aggression among Children**". The Research study was carried out in two cultural zones of Haryana state. Total sample constituted of 400 children, 200 in experimental group and 200 in control group. All

these children were pre – tested for their **problem solving skills** with peers in hypothetical situations. Sic stories were used, three for obtaining access to an object in another child's possession and three for consequential thinking after grabbing a toy from another child. The child being interviewed was asked what the story character could do or say in each situation to accomplish the desired goal. Strategies suggested by children were coded as positive or aggressive for alternative thinking. For consequential thinking, number of consequences suggested by children was computed. Use of aggressive strategies in interpersonal dilemmas is one of the indicators of anger and aggression in children. It is very important to build competency in children to manage aggression from early years to prevent its ill effects on children and others. Hence, intervention programme was developed and imparted to experimental group children for a period of two months to build competency for alternative and consequential thinking for management of aggression. The intervention programme included a series of lessons that teaches children basic skills and problem- solving language. Results revealed that in both the cultural zones, after exposure to intervention programme, experimental group children suggested significantly more number of positive and lesser number of aggressive strategies to solve interpersonal problems with peers as compared to control group children. Experimental group children also expressed significantly greater number of consequences as compared to control group children. Thus, it can be interpreted from these findings that intervention programme helped in competency building through alternative and consequential thinking for management of aggression.

This article of the journal gave an insight to the Researcher about the Life Skill – Problem Solving.

Joshy (July 2015) in his Research paper "**Redefining Masculinity through Life Skills**" mentioned Norms that govern masculine behaviors are not always explicit and visible. The first step toward challenging gender inequalities is to make masculinities visible and tangible, thereby making men more conscious of gender norms as it affects their own lives and those of women. By focusing on masculinities, the concept of gender becomes visible and relevant for men. In India, making the transition from being a child raised and protected by parents to a self – sufficient young adult has always been an important process. In the past, young people learned the skills and knowledge to make this transition from their parents, relatives and other concerned adults with whom they had a closed relationship, Indian society's social fabric has been changing drastically altering this transition process. It has increasingly become the role of teachers / youth peer leaders to help young people to learn these necessary life skills. For men and boys life skills have even more important given the gender roles they are expected to get into. Starting with self – awareness and through intra and inter – personal and service learning skills, life skills training has the potential to remove misconceptions around masculinity, liberate men/boys from the burden of socially constructed role of being 'real' men/boys and can redefine fundamentally how girls and boys relate to each other. Some of this could be taught via gender-inclusive curricula in the schools and in community based participatory life-skills programmes. Thus, gender inclusive life skills programme will go long way in addressing violence and issues of rigid masculine norms among youth.

This article of the journal made the Researcher aware of the new perspective about the development / enhancement of the Life Skills for the betterment of youths' life.

Reddy (Nov. 2014) in her Research paper "**Swami Vivekanand and Life Skills for the 21st Century Student**", discusses views of Swami Vivekanand – True education is a rare combination of skills, commitment, training, trust and respect for all forms of life. Education is the manifestation of the perfection that already exists in man. Swamiji's Life Skills are:

1. Flexibility
2. Initiative
3. Social Adjustment
4. Productivity
5. Leadership
6. Creative Thinking

Swami Vivekanand's teachings are not merely rhetoric or visionary principles, but are simple ideas, which can be applied at the micro levels of society, to bring about a successful life. If a student follows these life skills of Swamiji, they can benefit greatly both in the material world and the spiritual world.

This article of the journal helped the Researcher in correlating the Life Skills defined by Swami Vivekanand and those defined by WHO.

Namjoshi (Nov. 2014) in her Research paper "**Life Skills: Bridge between Ability and Success**", briefly discusses about Life Skills, Life Skills in Education and Role of the Teacher.

Life Skills development is a life-long process that helps individuals grow and mature; build confidence in their decisions taken on the basis of adequate information and thought, and discover sources of strength within and outside. Every culture and society has invested in educating and empowering its younger generation to lead fulfilling and responsible lives. For example, the 'Panchatantra' stories from India have very important lessons in Life Skills enhancement that remain relevant to all generations.

The 4 'H' leading to ten Life Skills:

1. Heart – comprises of Relating and Caring
2. Hands – comprises of Giving and Working
3. Head – comprises of Managing and Thinking
4. Health – comprises of Living and Being

This article of the journal helped the Researcher in understanding the role of Life Skills in Education as well as how important is teacher's role in development / enhancing Life Skills through education and the various ways for developing / enhancing the Life Skills.

Mehta (Nov. 2014) in her Research paper "**Empowering Teachers with Life Skills Education discusses about the Mission of Life Skills Education**", Need of Life Skills Education in today's globalized world, Importance of Life Skills Education, Role of teacher in imparting Life Skills Education and Life Skills Education in Teacher Education Curriculum.

This article of the journal helped the Researcher in understanding more about the Life Skills.

Nethagani (Nov. 2014) in her Research paper "**Life Skills Education**" discusses about the 3 domains – Cognitive, Affective and Psychomotor. Further, it throws light on ten core elements, ten values and ten life skills. In detail, it gives information about the concept of Life Skills, its importance in Education, its benefits and a matrix of teaching methods and outcomes for imparting Life Skills Education.

This article of the journal helped the Researcher in understanding more about the Life Skills.

Rathod (Nov. 2014) in her Research paper "**Study Habits: A Way towards Life Skills Development**" defines Life Skills, considers Secondary level of schooling as a stormy period of life, emphasizes on developing proper study habits of the students and explains the various aspects of study habits and considers the development of proper study habits as the first step towards Life Skills Development.

This article of the journal helped the Researcher in understanding the importance of correlation between the proper study habits and the development of Life Skills.

Khera and Khosla (2012) conducted "**A Study of Core Life Skills of adolescents in relation to their self-concept developed through YUVA School**". In this research study, these Researchers asserted, "Education plays an important role towards the overall development of human beings. School education helps in the formation of a sound personality in the child. School education can broadly be classified as elementary (class I to VIII) and secondary (IX XII) education. Today, more and more societal pressures, greater complexity, uncertainty and diversity, rapid changes in the environment and continued deprivation put adolescents at the crossroads of their lives facing an uncertain future in facing the responsibilities of adulthood and to enter the world of work. During the 21st century, life, globally, is undergoing significant transition and change. Among the most affected are the adolescents. Core life skills play an essential part of adolescents, which are the future of our country. The study investigated the relationship between self-concept and core life skills

selected randomly 500 adolescents studying in secondary classes of sarvodaya schools situated in south Delhi under gone for YUVA (SLP). The Major findings of the study that there is a positive co -relation between Core Affective Life Skill and Self Concept of adolescents which means those who possess these essential skills are better confidence in all aspects". (as cited in http://indianresearchjournals.com/pdf/IJSSIR/2012/November/12.pdf)

This article of the journal helped the Researcher in understanding more about the Life Skill – Self - awareness.

Yadav and Iqbal (October 2009) studied "**The impact of life skill training on self-esteem, adjustment and empathy among adolescents**". It aimed to see the impact of life skill training on self-esteem, adjustment and empathy among adolescents. Total sample comprised of 60 students (30 males and 30 females) from the Hans Raj Model School, Punjabi Bagh who has received life skill training from the team of Expressions India. Self-esteem inventory (school form), Adjustment inventory for school students (AISS) and the Empathy quotient (EQ) were administered in a group session one by one in two or three days both before training was given and after training. In the post condition, test scores were obtained after 5 months of training. Result showed that subjects improved significantly in post condition on self-esteem, emotional adjustment, educational adjustment, total adjustment and empathy. However, no significant difference was found on social adjustment in pre and post condition. Overall training was very effective as subjects improve in the post condition on all measures except one, thus showing that Life skill training do show positive results in bringing change in adolescent's attitude, thought and behavior by providing supportive environment to them.

This article of the journal helped the Researcher in understanding more about the Life Skill – Self - awareness.

Babu (Jan. 2008) studied "**Social skills development of undergraduate students**".
Social skills constitute assertiveness; Communication skills and interpersonal relationship are significant dimensions of Personality. Happiness and productivity of human life depend on improving these personality characteristics. 150 students (males) constituted the sample. Personality development index was used for assessing the social skills level and compared with other similar research for studying the effectiveness of training programs. Training on assertiveness and interpersonal relationship improves the social skills. Training in spoken English is seen as the best program for personality development.

This article of the journal helped the Researcher in understanding more about the Life Skill – Effective Communication.

A Compendium of Research Papers presented at the National Workshop on Life Skills Education in non – formal settings (Nov. 2004) emphasized on the following points –

- Targeting Life Skills Model
- Life Skills Learning through NFE
- Positioning Life Skills Education within NFE context

Positioning within the Educational Framework (four pillars)

a. Learning to know
b. Learning to be
c. Learning to live together
d. Learning to do

Life skills curriculum for primary school teachers in Uganda conducted a study to establish the extent to which teachers in primary schools were able to support learners in the development of Life skills revealed that many of them lacked the necessary competence to do so. The Life skills curriculum has therefore been developed as a tool to address this identified gap in the implementation of the Primary school and Primary Teacher Education curricula. Life Skills is not a stand-alone teaching subject, instead as a teacher, you must integrate Life Skills in the teaching process irrespective of which subject you teach. Life skills education in

Uganda is an integral part of the Primary School and Primary Teacher Education curricula. As if it is the case with all other learning areas, for a teacher to be able to effectively support learners in the development of Life skills he or she must have the relevant competences. The content of the curriculum is based on five themes, each of which is divided into topics. The five themes are: Introduction to the concept of life skills and life skills education, life skills for knowing and living with oneself, life skills for knowing and living with others, life skills for decision making, and application of life skills in the world of work. The Curriculum also suggests a number of strategies that may be used to enable learners in Primary Schools develop life skills. The curriculum is accompanied by a Teachers' Handbook, whose purpose is to enable teachers internalize the content for the curriculum. The Handbook also provides a variety of suggested activities teachers can benefit from to facilitate reflection, and to develop life skills within themselves and among learners. The life skills curriculum is presented in matrix form. The matrix indicates the themes, topics, competences and the content to be handled, as well as suggested teaching/instructional strategies.

This article of the journal helped the Researcher in understanding the role of teacher in the development / enhancement of the Life Skills in the students.

2.6.2 Literature Reviews for development of Product i.e. Life Skills Programme

Rawat (Jan. 2016) undertook a study to find out "**The Effect of life skills training on teachers perceived work environment and self-efficacy: An experimental study**". The study was experimental in nature. Researcher design was one group pretest posttest design. He found that Life skills training has been found effective in improving the performance of the trainees.

Geeta (Jan. 2015) conducted a Research study to find out "**Impact of an intervention programme on the development of life skills among children with dyslexia**". Keeping in view the nature, objectives and main purpose of the study, Experimental method was used by the investigator with Pre-test Post-test Control Group Design. The impact of the intervention programme to develop Life Skills among dyslexic children was found to be effective w.r.t. social competence and w.r.t. self-esteem. It was found that intervention programme had significant positive effect on the overall development of the all Life Skills among primary school dyslexic students.

eksjs (ekpZ 2012) in her research study – "*Hkkoh f'k{kdkalkBh ^thou dkS'kY; f'k{k.k* dk;Zdzekps fodlu"* adopted izk;ksfxd la'kks/ku i)rh & ,dyxV iwoksZRrj ijh{k.k vfHkdYi] adopted pkp.kh] iz'ukoyh and found 't' value. Her findings were - izLrqr la'kks/kukrhy la'kks/kdkus fodflr dsysyk f'k{k.k dk;Zdze Hkkoh f'k{kdkaph thou dkS'kY;s fodflr dj.;klkBh ifj.kkedkjd Bjyk] thou dkS'kY;s f'k{k.kdk;Zdze] ltZu'khyrk fodflr dj.;klkBh ifj.kkedkjd Bjyk] laizs"k.k] leL;k fujkdkj.k o ltZu'khy pkp.kh ;kr lokZf/kd ok< >kysyh vk<Gyh] Hkkoh f'k{kdkauk thou dkS'kY; dk;Zdzekpk izR;{k thoukr Qk;nk >kyk -

Helaiya (May 2010) Developed and implemented a life skills programme for student teachers. The study was carried out in three phases as follows:

Phase I: For first objective, the investigator referred the related literature and identified components of each Life Skill, to study the effectiveness of the Life Skills Programme; tools were prepared by considering components of each Life Skills.

Phase II: Based on components of each Life Skill identified, the investigator has developed a Life Skills Programme. A pilot study was conducted on 10 Student -Teachers. The programme was modified accordingly. Then it was given to two experts from the field of the Life Skills and the Teacher Education for validation.

Phase III: The developed Life Skills Programme was implemented on the Student –Teachers.

The study revealed that there was a remarkable gain in their Self Awareness Skill, Effective Communication Skill, and Interpersonal Relationship Skill, Coping with Emotions Skill, Decision Making Skill and Problem Solving Skill. There was moderate gain in their Coping with Stress Skill, Empathy Skill, Critical Thinking Skill and Creative Thinking Skill.

The most impeding factor in the life is that most of us lack Self Awareness Skill, that is, we fully know neither our strengths nor our weaknesses. We do not know our goals. As a result, we are poor in many other

Life Skills. If we are not in a position to identify with the self, then we fail to identify with others also, that is, we lack Empathy Skill. Creative Thinking Skill and Critical Thinking Skill, both in one, is a rare combination. Systematic attempts can enhance the combination of both the Creative Thinking Skill and Critical Thinking Skill. We need to learn how to zoom out and zoom in. The complexities of life are increasing day by day. We need to learn how to cope up with the stress and emotions. We need to learn how to be our own selves and equally how to be one with the others. We need to realize healthy constellations, through empathy, interpersonal relations and effective communication. We need to learn to take right decisions and solve problems efficiently.

Teachers need to possess healthy Life Skills for development of a healthy Society. Therefore, the Life Skills should be well integrated into Teacher Education.

Verma (Sep. 2009) developed and implemented a program for school going adolescents (13-14 years) to build life skills for their holistic development and healthy living. The quasi - experimental nonequivalent control group design was used to carry out an action research. It comprised needs assessment based on which the program was designed and implemented, followed by assessment and evaluation. A manual for educators in the schools was also prepared. Program evaluation showed that more inputs are needed for reducing tension and anxiety, recognizing emotions, and initiating leadership among adolescents. Negligible gender differences were observed in the different domains of life skills, except for the session on reproductive health.

Sherlynn (May 2008) in her Research study examined "**The effect of direct instruction in critical thinking skills on students' critical thinking and academic achievement**". The research study conducted comprised of, "Intervention programs using the Thinker's Guides based on Richard Paul's model of critical thinking and Tim van Gelder's Rational Argument Mapping Program revealed no significant improvement in students' critical thinking skills. However, the Thinker's Guides did show improvement in students' final grades but students using all materials as an independent study (Control Group) in critical thinking improved grades as well. It appears that instruction in critical thinking, whether through direct instruction or independent study in addition to tutoring may be factors that contribute to the improvement of students' academic achievement. However, due to the sample and small effect size, these conclusions must be interpreted cautiously. Repeating this study with a substantial increase in sample size may be one method to determine the true effect of direct instruction on students' critical thinking and academic achievement. The CAT: CV also revealed a significant relationship with students' final grades. Although there has been very little research regarding the ability of the CAT: CV to predict students' final grades, it demonstrated a relationship to final grades in this study. There were several students with high error scores on the CAT: CV and one with an extreme error score of 130. These students may have had minimal benefit from critical thinking skills instruction or tutoring because of actual neurological impairment indicated by their very high error scores. A final thought regarding the lack of significant improvement in critical thinking skills may be the relationship of the instruction of critical thinking skills to training in study strategies because of the meta-cognitive component inherent in both instructional interventions. One must question whether study strategies actually transfer to one's growth in critical thinking as reflected in students' final grades. Perhaps one of the reasons that significant improvement in final grade was observed for students exposed to critical thinking training but no concomitant increase in critical thinking as measured by the CCTST-2000 would be that specific study strategies were transferred (amenable to the dependent variable), while overall critical thinking and metacognitive skills did not improve". (as cited in http://dspace.lib.iup.edu:8080/dspace/bitstream/2069/70/1/Sherlynn+Bessick2+Corrected.pdf)

Ann, Marie and Conerly (1997) in their study tested the effect of Life Skills instruction on locus of control in Adult male inmates who participated in the Basic Life Skills program at South Mississippi University. Experimental and Controlled group design was adopted. Statistically significant differences between the scores of the control and experimental groups with regard to all three scores were found. The experimental group showed great improvement in each of the three areas, indicating that upon completion of the program they felt more in control of their own circumstances and believed that they were able to make the necessary changes to improve their chances of success upon release from prison.

Chaturvedi (May 2012) developed a Skill Development Programme and was implemented by Nehru Yuva Kendra Sangathan in Shivpuri District. RGNIYD, Sriperumbudur, Chennai.

The M.A. dissertation helped the Researcher in deciding the steps of Product development and implementation of the Life Skills Programme.

Kumari (1991) studied Reasoning and Problem Solving Strategies in which she studied the problem solving strategies of 10-12 years of age children and examined their relationship with certain cognitive capabilities like combinatorial thinking, proportionality and probability reasoning.

It helped the Researcher in selecting the five Life Skills for the Life Skills Programme i.e. the Product.

Kumari, (1990) studied Development of Logical thinking among students in which she examined the development of abilities of conservation of mass, weight, thinking volume and of seriation and classification in relation to intelligence and socio-economic status (SES). Predictions were made about age, specific development in various abilities and their relationship with SES and intelligence. While there appeared to be a general increase in the percentage of mass, weight, reasoning and intelligence with an increase in children age and the development was not clearly age specific. High intelligent children showed an earlier conservation of mass, weight and volume including the abilities of seriation and classification than low intelligent children.

It helped the Researcher in selecting the five Life Skills for the Life Skills Programme i.e. the Product.

Ranjan and Nair (July 2015) in their Research paper "**Approaches and Strategies for effective implementation of Life Skills Education**" mentioned that "Skills have become the global currency of the 21st C, but this currency can depreciate if it isn't used" said Andreas Schleicher, Deputy Director of Education at the OCED Forum (25th May 2012). There is a growing, national understanding of the importance of developing psychosocial skills to help individuals excel in the school, college and all spheres to successfully navigate through life's challenges. Recognizing the need for skill development, the Government of India has adopted skill development as a national priority and introduced life skills in education realm to create skilled and competent work force that is not only employable but also empowered. Provisions of multiple opportunities for ongoing skill development and practice are been programmed at all levels and in a variety of contexts.

Life skills approach is a comprehensive, multi-strategy, approach, aiming at effectively bringing desired positive behaviors in the individuals through the transfer of appropriate knowledge, skills, values and attitude in the learner. The goal of this approach is to promote healthy, sociable behavior and to prevent or reduce risk-behaviours, as well as to make an impact on knowledge and attitudinal components. Nationwide network of high quality life skills training providers and assessment agencies have been doing their part providing life skills education to enhance Human Capital through Capacity Building, Preventive and/or Resiliency approaches. Life Skills program initiatives in India have taken a "Life Span Approach" to empower different strata of society. However, the task of imbibing life skills and actually transforming lives remain as a major concern. New methods and strategies have given rise to new approaches in evangelizing the skills education.

This paper discussed some of the on-going life skills education approaches and strategies carried out and the best practices followed. Various models were critically examined to ensure whether a holistic and multi-strategy approach is being followed to bring about sustainable development.

Gunjal (Nov. 2014) in her Research paper "**Life Skill Awareness among Teachers**" states that rapidly changing social, moral, ethical and religious values have ushered in certain life styles in the present society. Today's environment demands more from the students from all the disciplines and poses a number of challenges to them. In order to meet the demands of the changing world and to face the challenges with confidence, it is necessary for the students to acquire some skills. Life skills are abilities for adaptive and positive behavior that individual has to deal effectively with the demands and challenges of the environment. Life Skills provide opportunities to learn more from others, handling situations rationally, etc. The study investigated about the life skills awareness among teacher trainees. It was observed from the study that

decision making, sharing feelings with others and stress management are the life skills for which a sort of orientation is essential for teacher trainees.

This article of the journal helped the Researcher in deciding the five Life Skills to be included in the Life Skills Programme i.e. the Product.

Sakore (Nov. 2014) in her Research paper "**Critical and Creative Thinking Skills for Secondary School Children**" discusses about essentiality of Life Skills with more emphasis on Creative and Critical Thinking. In 21st C., life skill education is a necessity of the time. To survive full of mental, social and healthy ability we require life skills. There are different type of life skills among them cognitive life skills or thinking skills are important to develop intellectual level of students. Higher level of thinking skills can be developed if teacher provides that type of mental food to the students. This Research paper is useful for teachers to give direction for developing critical and creative thinking skills as it suggests techniques for developing critical and creative thinking and tools to evaluate critical and creative thinking.

This article of the journal helped the Researcher in deciding the techniques to be included in the Life Skills Programme for the Life Skill – Critical Thinking.

Premchandra and Jallel (2014) conducted a research study on "**Need of Life Skills in Science Teaching with Special Reference to Chemistry**", to highlight the major life – skills in the learning process. The purpose was to specify the necessary life-skills needed for science teaching with special reference to chemistry teaching and to highlight the advantages of life-skills in chemistry teaching. The Researcher collected information from the curriculum framework of CBSE, SCERT and NCERT. It was found that -

1. The major life-skills in the learning process include empathy, self-awareness, critical thinking, creative thinking, decision making, problem solving, effective communication, interpersonal relationship, coping with stress and coping with emotions.
2. The necessary life-skills needed for chemistry teaching are empathy, critical thinking, creative thinking, decision making and problem solving.
3. The life-skills enable individuals to translate knowledge, attitudes and values into actual abilities – i.e., what to do and how to do it, given the scope and opportunity to do so.

Thus, it can be concluded that the life-skills will be able to help students, lead balanced, happy and successful lives. Skills will determine economic fortunes for many countries in the foreseeable future and education will be the key to acquiring thinking skills, social skills and positive attitude.

This article of the journal helped the Researcher in deciding the five Life Skills to be included in the Life Skills Programme i.e. the Product.

Madegowda (2012) in his Research paper "**Life Skills course for Postgraduate students**" presented a structure of postgraduate programmes, which will include Hard core courses, Soft-core courses, Inter-disciplinary courses and additional Skill-oriented courses. The author has emphasized a need of creating awareness among the students about the skills such as – Stress Management, Time Management, Motivation, Reasoning, Group Discussions and Interview Skills, Emotional Intelligence, Creativity, Communication Skills, Know Thyself and Leadership qualities – which will enhance their employability.

This article of the journal helped the Researcher in formulating the outline / structure of the Life Skills Programme i.e the Product.

Maheshwari (2011) through her study "**Life Skill Education: A Democratic War to Empower the Youth**" emphasized that Life skills can be effectively taught through active rather than passive methods. Psychosocial competencies based on life skills can be operational zed through content, thematic or activity approach.

This article of the journal helped the Researcher in understanding that instead of passive methods of teaching, active methods can prove effective for the development / enhancement of the Life Skills in the students.

Vaidya (2007) undertook a Research study for "**Developing Entrepreneurial Life Skills: An Experiment in Indian Schools**". The study was a systematic and rigorous exploration of entrepreneurial construct among elementary stage students (11-14 years) by

(i) Developing an activity based module comprising seven interdisciplinary themes relating to entrepreneurship

(ii) Organizing an educational camp emphasizing experimental learning to conceptualize the term and its related meanings, as a part of this initiative. The study was conducted in a classroom setting with the help of social-science teachers. Children had no prior knowledge of entrepreneurship. Entrepreneurship is seen as a non-cognitive technique. The module motivates the child to progress from one-step to another through interrelated themes. Emphasis is on seeing-recalling from their immediate surroundings, learning from outside experiences and moving from familiar to unfamiliar. Continuous evaluation of understanding is done through textual activities and pictorial problems; participatory learning is the focus of the study. It was found that - The complex phenomenon of entrepreneurship could be brought down to elementary stage in an integrated manner. Entrepreneurial values can be developed in a social setting rather than only seen as an economic activity. The inspirational nature of curriculum motivates the child to grow with enterprising spirit, develop life skills to face challenges of life rather than pushing the child into it. The study has the implications for policy makers, educators and practitioners in the field. It provides new insights for general education with entrepreneurship as a central theme. The educational activities developed for this research demonstrate that these can be replicated as a cross disciplinary learning environment within the school set-up.

This article of the journal helped the Researcher in deciding the educational activities for the Life Skills Programme i.e. the Product.

Patel (July 2006) documented and analyzed "**The development of a life skills education program in Bhavnagar**", Gujarat. The program was conducted in conjunction with Shaishav, an NGO committed to promoting child rights and ending child labor in Bhavnagar. The framework of the program is based on various life skills that UNICEF and the WHO espouse as vital for all people to possess. The other skills and values incorporated into the program were chosen based on observations of the target communities and the goals and vision for Shaishav's programs. The target age group for this program was 3 to 14 years and distinct life skills modules were designed for three sub-groups: ages 3-5, 6-10, and 11-14. The intended population for these modules consisted of a cross-section of various socioeconomic, religious, and caste communities, ranging from non-school-going children living in slum areas to private school students. The paper will discuss the information gathered from observations and how this was used to develop modules. It will also discuss measure taken to ensure sustainability of the program.

Chaudhary and Mehta (n.d.) conducted a Research study "**Life skills intervention at high school: A needed pedagogic shift**". The life skill intervention program was an effort to reach out to the adolescents who are underprivileged and promote psychosocial competence in an interactive and participatory learning environment. The sessions, not only provided knowledge and information base on various skills like decision making, communication, dealing with conflicts, coping with peer pressure and emotions but also equipped the adolescents with the personal and social skills they need to translate their knowledge into behavior.

The program was modified to mould it to the needs of tribal adolescents as well as made context appropriate. For this, certain changes were brought into it, such as mellowing down the topic of physical changes and due to cultural taboo; it was dealt separately with boys and girls.

Though the program was effective in raising the awareness level of the adolescents and provide a basis for making informed decisions, translation of this knowledge into attitude and behavior would require more efforts on a regular basis.

It is recommended that the life skill education should be imparted on a regular basis and if possible could be interwoven with the academic curriculum. Further, as parents and teachers interact with the adolescents on day-to-day basis, they could also be trained to impart the skills to the adolescents.

For the youth to enter the community of responsible adults prepared for a diversity of social roles, they must possess critical thinking and problem solving skills along with effective resources and social competence. Life skills impart such skills and not only help the well-being of the youth but also contribute to a bright future of the nation.

2.6.3 Literature Reviews for understanding and providing Theoretical base to the present Research study

Pandey (June 2016) undertook a Research study to find out "**Correlation of Life Skills with physical fitness, mental health, socioeconomic status and emotional maturity of the school going adolescents**". The Research study was conducted in two phases.

In the first phase, the Life Skills Assessment Questionnaire (LSAQ) was developed. In addition, in second phase, during survey, the assessment of life skills, Physical fitness, mental health, socioeconomic status and emotional maturity was conducted and the relationship between these variables was studied.

It was found that there was a positive relationship between Life Skills and Mental health, there was a positive relationship between Life Skills and Emotional Maturity, there was no significant relationship between Life Skills and Physical fitness and there was no significant relationship between Life Skills and Socio-economic status.

2.6.4 Literature Reviews for understanding and deciding Research Methodology

Parmar (Oct. 2015) in her Research study determined "**Impact of life skills task package based on Indian philosophical thinking on student teachers perception regarding quality of life**"**.** It was an experimental study with an integration of quantitative as well as qualitative methods of interpretations. The two groups' pretest-posttest design was accepted for this study. For experimental group there was a pre-test, treatment and a post-test, whereas there was no treatment but only a posttest for the controlled group. It was found that the post-test mean scores on LSII was significantly higher than that of pre-test in experimental group and as compared to those of the controlled group. However, here was no significant difference in the post-test mean scores on LSII in the experimental group in relation to gender, parental education, religions faith and leisure time activities. The post - test mean scores on inventory of quality of life was significantly higher than that of pre-test in experimental group and as compared to those of the controlled group. Nevertheless, there were no significant difference in the post-test mean scores on inventory regarding quality of life in the experimental group in relation to gender, parental education, religions faith or leisure time activities. There was significant co- relation between the post-test scores on the LSII and post-test scores on the inventory of perceptions of quality of life in experimental group. Majority of the student teachers found this LSTP useful for their future life. All the student teachers had a general opinion that they learnt new skills necessary for quality of life i.e. Akatmatabhav, Nirikshan, Self- awareness, Vivek, Sanyam and became inclined to develop it. The researcher noted based on observation that the discussions, experiences and understanding during LSTP were very much motivational for the student teachers. The student teachers started judging their past and present experiences with a new insight.

Carol (1994) conducted a Research to test whether youth who have participated in a 4 H consumer Life Skills Project have acquired knowledge and skills for Making Purchasing Decisions as adults. An Experimental Single Group Pre – test, Post – test Design was adopted. The study indicated significant differences in consumer knowledge and skills by gender, monthly spending habits and age. Concerning gender – Females had higher levels of consumer knowledge than males. Under monthly spending habits – Teens, who spend under $50 per month, had the lowest overall level of consumers' knowledge while teens who spend $100 to $250 per month had the highest overall level of consumer knowledge.

Regarding age – As age increases, consumer knowledge increases.

Prasanta (July 2015) in his research study on "**Perception of Communities for Effectiveness of Life Skills Education (LSE) for promoting Adolescent Reproductive & Sexual Health (ARSH) among Tribes of Odisha**" put forth the views that Adolescence (10-19 years) is a vital stage of growth and development. It is a period of transition from childhood to adulthood and is marked by rapid physical, physiological and psychological changes. Adolescence is a period of rapid development during which young people acquires new capacities and are faced with many new situations. This period results in sexual,

psychological and behavioral maturation. This Research study describes the knowledge, attitude and practices of adolescents in tribal dominated districts in Odisha and the perception of community members towards Life Skills Education. The study was conducted among 10 districts of Odisha with five villages in each district. In each village, around 10 community members were interviewed. The members include SMC members of schools, PRI members in villages and other influential people related to different developmental activities in the area. In total 500 respondents data were collected through AEP approved LSE-ARSH data collection schedule. A quantitative single cross sectional Research design was adopted to analyze the collected information. The data were analyzed through statistical packages with regression model and presentation of information. The outcome of Research study on knowledge showed with changing information and mobile technology the knowledge level increases on ARSH issues. Around 87% of the community members agree to the concept of adopting LSE along with mainstream education to promote ARSH issue among the adolescents.

This article of the journal helped the Researcher in deciding the population and the sample of the Research study.

Kolosoa (2009) "**Life Skills of adolescents for National development regardless of diversity in culture, economic conditions and social and political structures**" (cited in) Khera and Khosla (2012) conducted a Research study of "Core Life Skills of adolescents in relation to their self- concept developed through YUVA School". The introduction of Life Skills Education at both basic and tertiary education was meant among other things to improve all aspects of the quality education, ensuring equitable access to appropriate learning and facilitating Education for All (EFA) and Millennium Development Goals (MDG) initiatives. The purpose was to explore the main components of life skills programmes in place at Lesotho education system to address social and development problems. The study examined how the programmes were implemented and evaluated at primary and secondary schools and institutions of higher learning.

This article of the journal helped the Researcher in knowing the various components of the Life Skills, essential for assessing the extent to which the students possess the Life Skills, thus helped in deciding and preparing the data collection tool.

2.6.5 Literature Reviews for Data Documentation

Bhakre (Jan. 2014) developed and implemented "**Advance Organizer Model for Improving Reading Skills of Higher Primary Students**". This thesis helped the Researcher in writing Chapter III – Research Methodology, of the thesis.

Bhamre (July 2014) conducted "**A study of Energy Education of Secondary School Students**". This thesis helped the Researcher in writing Chapter II – Review of Related Research and Chapter IV – Data Collection, Analysis and Interpretation, of her thesis.

Choukade (Mar. 2014) developed and implemented "**Scientific Attitude Improvement Programme for Adolescents and tested its Effectiveness**".

This thesis helped the Researcher in writing Chapter I – Introduction, of the thesis.

Belapurkar (Mar. 2014) conducted a survey to find out "**Inclusive Practices in Urban and Rural schools in Pune**".

This thesis gave the direction to the Researcher regarding the Chapterization for her thesis.

Chavan (Mar. 2009) conducted a Research study to find out "**Relationship between interest and ability in Science of Secondary school students**".

This thesis helped the Researcher in writing Chapter I – Introduction, of the thesis.

Ekua-Yankah (2002) in the Research study reviewed the literature on the effects and effectiveness of Life Skills based education of HIV prevention. Literature Survey was carried out. It was found that most interventions used life skills training as a component of the overall education strategy. Programs, worked best to positively influence, knowledge, attitude, intentions, skills and abilities. Programs rarely produced consistent effects on sexual behavior. Life Skills training has little effects on biological outcome.

This thesis helped the Researcher in writing the Chapter II – Review of the Related Literature of the thesis.

Momin (Nov. 2013) undertook "**Scholastic and Co-scholastic Life Skills Development Activities in Secondary Schools in Satara District: An Analytical Study**". UGC sponsored minor research project.

The minor research project gave direction to the Researcher for conducting the Review of Related Literature.

2.6.6 Literature Reviews for deciding the Title, Need, Importance / Significance Objectives, Scope of the present Research study.

Malhan (Dec. 2011) in his Research study found out "**The Effect of hybrid instructional model in cooperative learning situation on life skills of secondary students in relation to learning approaches**". The study employed an experimental method with pretest posttest control group design. It employed a 3 x 2 factorial design wherein the data were analyzed through 3x2 ANOVA. It was found that -

Results Based on the Analysis of Gain Scores on the Skill of Acquiring Knowledge in Chemistry

1. About 80 percent of students of HI-CL (DA) and HI-CL (SA) attained approximately 79 percent or more marks and 75 percent or more marks respectively. About 50 percent of students of these groups attained approximately 88 percent or more marks and 84 percent or more marks respectively. About 30 percent of students of these groups attained approximately 94 percent or more marks and 89 percent or more marks respectively.
2. About 80 percent of students of CL (DA) and CL (SA) attained approximately 70 percent or more marks and 60.5 percent or more marks respectively. About 50 percent of these students attained approximately 81 percent or more marks and 75 percent or more marks respectively. About 30 percent of these students attained approximately 88 percent or more marks and 81 percent or more marks respectively.
3. About 80 percent of students of CGL (DA) and CGL (SA) attained approximately 52 percent or more marks and 48 percent or more marks respectively. About 50 percent of these students attained approximately 59 percent or more marks and 54 percent or more marks respectively. About 30 percent of these students attained approximately 67 percent or more marks and 58.5 percent or more marks respectively.
4. The students studying through HI-CL achieved higher gain means than those studying in CL situation.
5. The students studying through HI-CL achieved higher gain means than those studying in CGL situation.
6. The students studying through CL achieved higher gain means than those studying in CGL situation.
7. The students with DA to learning scored higher gain means than the students with SA to learning.
8. There was no interaction among the instructional modes (HI-CL, CL and CGL) and approaches to learning (DA and SA) in respect of gain means.

Results Based on the Analysis of Gain Scores on the Skill of Acquiring Knowledge in Physics

1. About 80 percent of students of HI-CL (DA) and HI-CL (SA) attained approximately 74 percent or more marks and 64 percent or more marks respectively. About 50 percent of students of these groups attained approximately 84 percent or more marks and 77 percent or more marks respectively. About 30 percent of students of these groups attained approximately 89.5 percent or more marks and 85 percent or more marks respectively.
2. About 80 percent of students of CL (DA) and CL (SA) attained approximately 64 percent or more marks and 52 percent or more marks respectively. About 50 percent of these students attained approximately 77 percent or more marks and 69.5percent or more marks respectively. About 30 percent of these students attained approximately 84.5 percent or more marks and 77 percent or more marks respectively.
3. About 80 percent of students of CGL (DA) and CGL (SA) attained approximately 49.5percent or more marks and 42 percent or more marks respectively. About 50 percent of these students attained approximately 59 percent or more marks and 50 percent or more marks respectively. About 30 percent

of these students attained approximately 67 percent or more marks and 57 percent or more marks respectively.

4. The students studying through HI-CL achieved higher gain means than those studying in CL situation.
5. The students studying through HI-CL achieved higher gain means than those studying in CGL situation.
6. The students studying through CL achieved higher gain means than those studying in CGL situation.
7. The students with DA to learning scored higher gain means than students with SA to learning.
8. There was no interaction among the instructional modes (HI-CL, CL and CGL) and approaches to learning (DA and SA) in respect of gain means.

Results Based on the Analysis of Gain Scores on the Skill of Acquiring Knowledge in Biology

1. About 80 percent of students of HI-CL (DA) and HI-CL (SA) attained approximately 69.5 percent or more marks. About 50 percent of students of these groups attained approximately 80.5 percent or more marks and 79 percent or more marks respectively. About 30 percent of students of these groups attained approximately 87 percent or more marks and 85 percent or more marks respectively.
2. About 80 percent of students of CL (DA) and CL (SA) attained approximately 63 percent or more marks and 59 percent or more marks respectively. About 50 percent of these students attained approximately 71 percent or more marks and 71 percent or more marks respectively. About 30 percent of these students attained approximately 77 percent or more marks and 76 percent or more marks respectively.
3. About 80 percent of students of CGL (DA) and CGL (SA) attained approximately 47 percent or more marks and 44.5 percent or more marks respectively. About 50 percent of these students attained approximately 57 percent or more marks and 53 percent or more marks respectively. About 30 percent of these students attained approximately 64.5 percent or more marks and 59.5 percent or more marks respectively.
4. The students studying through HI-CL achieved higher gain means than those studying in CL situation.
5. The students studying through HI-CL achieved higher gain means than those studying in CGL situation.
6. The students studying through CL achieved higher gain means than those studying in CGL situation.
7. The students with DA to learning scored higher gain means than the students with SA to learning.
8. There was no interaction among the instructional modes (HI-CL, CL and CGL) and approaches to learning (DA and SA) in respect of gain means.

This thesis helped the Researcher in finalizing the title of the Research study and deciding the scope of the Research study.

Thalagala (n.d.) conducted "**A National Survey on Emerging Issues among Adolescents in Sri Lanka**". The research study conducted included, "A profile of Sri Lankan adolescents between the ages 10 –19, was obtained which includes; an assessment of level of life skills, factors affecting well - being, substance abuse, knowledge on reproductive health, and vulnerability to STD, HIV/AIDS, sexual behaviour and sexual abuse. Methodology adopted was A Study Design. This descriptive cross sectional survey included two components.

1. Component one –A survey of school going adolescents (10 - 19 years).
2. Component two –A survey of out- of - school adolescents (15 - 19 yrs.).

The survey came up with the following results -

Life Skills and Mental Wellbeing

Survey suggests considerable room for improvement of life skills among adolescents. For example. Findings indicate that about 28 % of in - school adolescents surveyed were not certain of their future goals, further 36 % aim to enter in to the traditionally popular professions such as doctors, engineers, accountants. The

findings indicate that adolescent ambitions are mostly governed by traditional societal norms rather than on a critical analysis based on availability of opportunities and capabilities. The probable reactions to failure in reaching goals also did not indicate adequate skills in problem solving and handling stress. Considering the professional goals of many and the competitive and limited opportunities available, the response of the majority that they would keep on trying appears somewhat unrealistic. Less than quarter chose the more realistic approach of selecting an alternative career path. The goal of the majority of out- of school adolescents was to find a job. It is important to note that 18 % did not have an identified goal and 31% felt deficient in useful skills. Considering the current employment opportunities, these adolescents represent a sizable number of the population experiencing frustration and stress. The results indicate a significant proportion of adolescents who have poor life skills. Nearly 40 % percent found it was stressful to cope with the academic pressure exerted on them by parents and teachers and further 13 % felt inhibited due to this pressure. Self-esteem was found to be low; 14 % of in school adolescents and 21% of out- of – school adolescents did not find any attribute they liked in themselves while 63 % of school adolescents and 70 % of out- of - school adolescents had some attribute in them that they did not like. Thirty-eight percent thought that they were not popular among others. About 40 % to 60 % of adolescents seemed to react positively to the academic pressure while about one fifth demonstrated negative reactions. Fear of failing exams financial problems parental disharmony and absence of mother at home were some of the worries identified by in - school adolescents. Financial worries fear of not being able to find a job, being not able to study and parental disharmony were the worries expressed by out- of school adolescents. Only 60 % of adolescents reported that they lead a happy life. The overall pattern of responses reflects a presence of a sizable group of adolescents in Sri Lanka who lack sound life skills while there is a high prevalence in society of situations that require considerable life skills". (as cited in http://www.unicef.org/srilanka/Full_Report.pdf)

This Research Project helped the Researcher in deciding the objectives of the Research study.

Buch (1988-92) this book helped the Researcher to finalize the title for her research study. It also helped to review the various researches related to her study.

Aparna and Raakhee (2011) studied "**Life Skill education for adolescents: Its relevance and importance**". They revealed that Adolescents are considered the productive members of a society due to their physical and intellectual capacity. Nevertheless, unfortunately most of the adolescents are unable to utilize their potential to maximum due to inappropriate environment. They are always engaging in antisocial activities and spoiling their life. To make life of adolescents valuable and to convert them to individuals with high potential, educational system should be reformed giving due importance to life skill education. Life skills are those abilities, which will help in the promotion of general well-being and psychosocial competence of the individual. Life skills empower young people to take positive action to protect them and promote health and positive social relationships. It also entails being able to establish productive interpersonal relationships with others. In the present paper, the investigator goes through the importance of life skills, various life skills, life skill education and the benefits imparting life skill education in our curriculum.

This article of the journal helped the Researcher in understanding the importance of imparting Life Skills Education to the adolescents and hence the importance of the Research study undertaken.

Vranda and Rao (Feb. 2011) through their Research paper "**Life Skills Education for young Adolescents – Indian Experience**" are of the opinion that in India today's adolescents are exposed to more information and cultural alternatives than in earlier periods. This provides the adolescents with culturally diverse choices, which cannot be easily exercised due to economic independence on parents and significant others. The adolescents has to prepare for a global successful adult life of competition and independent functioning, which is possible only through enhancing their psychosocial competencies through life skills training.

This article of the journal helped the Researcher in understanding the importance of Life Skills Education for the adolescents and hence the importance of conducting the Research study undertaken.

2.7 Conceptual Review

2.7.1 Literature Reviews for understanding Life Skills

The Department of Adult and Continuing Education organized an international workshop on life skills education for Youth Development at the University of Madras (2016). The workshop was organized with the support of UGC. The main points discussed in the workshop were that Life Skills are essentially those activities that help to promote mental well-being and competence in young people as they face the realities of life. Developing life skills helps adolescents translate knowledge, attitudes and values into health behaviors that improve their lives in general. The objectives of the workshop were to integrate life skills education in the curriculum at college level, to design and develop Training Manual on Life Skills Education, to design and develop learning modules for Life Skills Education, to design and develop training methods and programmers for college and community.

This article of the journal helped the Researcher in understanding more about the Life Skill – Self - awareness.

Dudhade (2016) in her book gives an overall idea about all the 10 Life Skills. It elaborates about the background and concept of Life Skills. It gives brief details about the concept, components, factors, types, steps, barriers/obstacles, activities etc. for all the 10 Life Skills. In the concluding chapters, it has very well discussed about the important FAQ, Matrix of Life Skills in classroom and Commandments to remember.

"**A Regional Overview prepared for: The South Asia Life Skills-Based Education Forum". (2005)** summarized that, "Across South Asia, life skills-based education is experiencing a rapid growth, involving both the creation of new programmes and the integration of life skills into existing ones. Given the diversity of regional needs and conditions, it is not surprising that this programming has responded with a similar diversity of methods and objectives. It is also not surprising that several challenges are common to most South Asian countries, including a reluctance to acknowledge adolescent sexuality, education sector capacity issues, limited access to child friendly services, and difficulties articulating and measuring behavioural outcomes. In South Asia, life skills programming is either general in nature, helping learners to make better choices, or specific, targeting risk behaviours and situations. This dichotomy, which usually defines the difference between in-school programming and programming for those especially vulnerable who are not in school, has occurred because of a societal reluctance to accept the existence of certain behaviours, particularly sexual behaviours, among school students, and because those who are especially vulnerable need more explicit interventions. In South Asian schools, life skills are taught as a standalone curriculum, a component of an existing curriculum (i.e. social studies), an extracurricular activity, or a blend of these. They cover a range of health and non-health issues and are taught in various grades, usually with more complex and sensitive issues being reserved for the higher grades. This is problematic; given that many students in South Asia never attend secondary school and that many are vulnerable or are exposed to risks in the years prior to secondary school. It is also unfortunate that many in-school life skills programmes do not question the societal structures underlying the vulnerabilities and risks they seek to reduce, and have difficulties linking the development of knowledge, attitudes and life skills to the practice of positive or protective behaviours. For example, although life skills are often taught with an objective of preventing HIV, this is frequently done separately from awareness sessions on HIV/AIDS or sexual and reproductive health (SRH). The assumption is that students will independently connect information they learn in one class or module with skills they learn in another, and spontaneously practice a desired behaviour. With regard to societal structures, life skills like negotiation or communication are frequently taught without reference to the inequities and discrimination, which impede young people from using these skills outside of the classroom. In Non-Formal Education (NFE), life skills can be combined with literacy, numeracy, and livelihood training, as in Bangladesh's Basic Education for Hard to Reach Urban Working Children Project. However, in South Asia, most government-supported NFE does not teach life skills. Outside of the education system, life skills are usually taught by non-governmental organizations to especially vulnerable children and adolescents, as with the UNICEF-supported Child Protection Project in Pakistan and Out-of-School Programme in Nepal. It is noted that such programming is usually delivered on a project basis and with limited government involvement, raising questions of long-term sustainability. The challenge of programming for defined behavioural outcomes is related to the perceived difficulties with articulating and measuring these behaviours. Fortunately, more countries are studying adolescent behaviour. Recently, Sri

Lanka, the Maldives and Pakistan have completed such studies. India and Nepal are planning to repeat earlier surveys. A final general observation is on the diversity of processes used to develop in-school programmes in South Asia. Sri Lanka's Life Competencies Programme is a testament to high-level cooperation between the ministries of education and health. Nepal's new life skills module is a result of coordination between the agencies that develop curriculum and train teachers, and the leadership of life skills "champions" within the Ministry of Education and Sports. In India, the Ministry of Human Resource Development worked to convince the Education Secretaries of 28 states and seven union territories to agree to a national Adolescent Education Programme with a common HIV/AIDS curriculum". (as cited in http://www.unicef.org/rosa/Life_skills-based_education_in_south_asia.pdf)

This article of the magazine helped the Researcher in understanding more about the Life Skills based Education.

Adolescence NCERT Education Programme Training and Resource Material (2010) differentiated Life Skills from other skills as -

- Other skills like mechanical skills, livelihood skills, vocational skills or language skills are technical, life skills are psychosocial (personal, social, interpersonal, cognitive, affective and universal) directed towards personal actions or actions towards others;
- Life Skills are interpersonal skills empowering individuals to interact with the self as well as others and develop healthy lifestyle and responsive and responsible behavior; and
- Other skills are product of continued practice, while Life Skills are developed through interactive experiential learning.

It defines Life Skills as the development, as a process of acquiring the ability to apply concerned skills in the specific context and not the development of that skill afresh.

Life Skills Education: Teachers' Handbook - Part II (n.d.) emphasizes 10 core Life skills to be inculcated among the students -

1. Self-awareness
2. Empathy
3. Interpersonal relations
4. Communicating effectively
5. Critical thinking
6. Creative thinking
7. Problem solving
8. Decision making
9. Copying with emotions
10. Copying with stress

It defines all the 10 Life Skills and helps us understand the concept of each Life Skill.

Facilitator's Manual on Enhancing Life Skills (2009) provides details about the Life Skills. According to it, Stress is our body's reaction to people and events and to our own thoughts. Stress is a dynamic condition of physical or mental strain or disturbance that produce changes in the body and behavior of the person. Stress may be considered as any physical, chemical, or emotional factor that causes bodily or mental unrest and that may be a factor in causing disease.

Manseta (2006) the book gives a brief introduction about the skills, which are useful for a common person to become capable to dwell in personal as well as professional life. It provides detail information about goal

setting, self-respect, respect for others, self-confidence, ability to adjust, communication skill, cooperation, creative thinking, accepting responsibilities, interpersonal relationships etc. and guides how to implement it.

Vaidya (1968) elaborates on Problem Solving in Science. According to him, "In the literature surveyed, definitions of science have varied from magic, trick, health happiness, comfort, classified common sense, to deliver a knockout blow in an argument organized, systematized, precise, accurate, objective tested and material knowledge deducible from a limited number of principles, observations, explorations, experimentation and investigation along with control and comprehension, asking appropriate question, prediction, ventilation and testing of our ideas against observed facts, discovery of casual systems, experience in search of meaning and thereby develop concepts that makes observations coherent and logical".

This book helped the Researcher in understanding more about the Life Skill – Problem Solving.

Vaidya (1968) stated the objectives of science education as follows-

1. "Functional understandings

a. Scientific vocabulary

b. Scientific facts

c. Scientific concept

d. Applications new phenomena

2. Scientific skills

3. Scientific attitudes

4. Scientific interests

5. Scientific appreciations"

Indian Journal of Life Skills Education (July 2011, July 2010 and July 2009) has helped the Researcher in understanding more about Life Skills and gave an insight about the activities for each Life Skill to be incorporated in the Life Skills Programme.

www.google.co.in/images

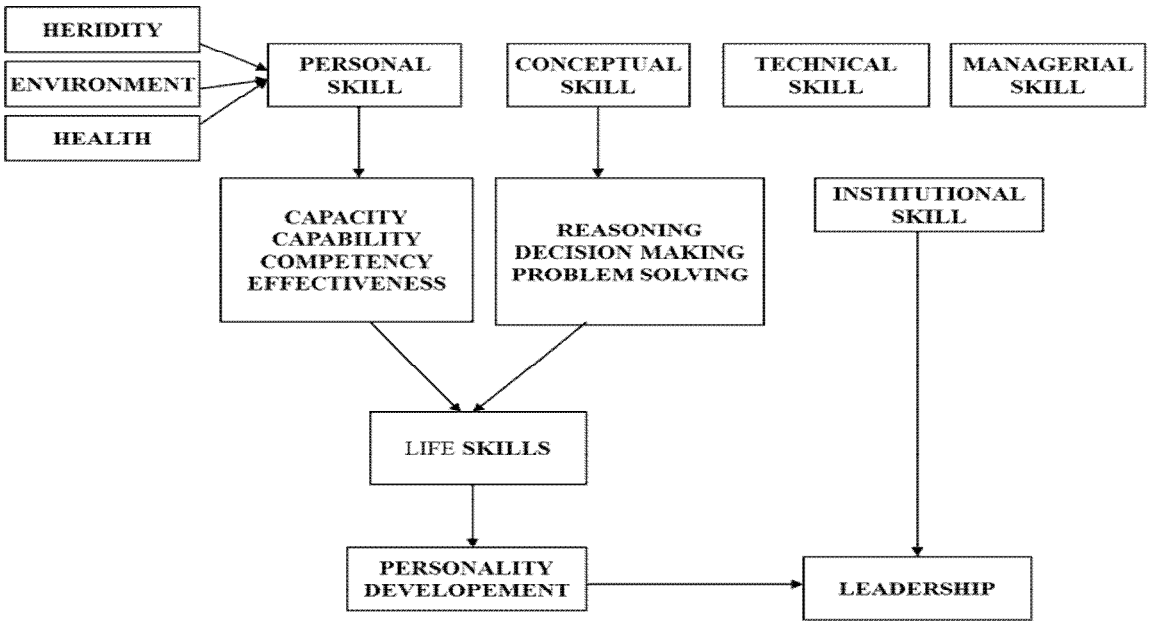


Figure-2.2: Skill Development Process

Hereford, Z. (n.d.). Life Skills. Retrieved June 2012, from http://www.essentiallifeskills.net/

"It is necessary for every individual to possess the Life Skills because without having developed them, you will always feel that something is missing in your life. What good is all the financial success in the world if you do not have, self-confidence, know who you really are, what you want, or what you are doing here? We have all witnessed many outwardly successful and famous people who have not been able to find personal happiness. No amount of fame or fortune could fill the void they felt inside.

Therefore, in order to enjoy the fruits of any achievement we must first be happy with ourselves and possess the following:

A healthy Self-Concept, which includes the three skills of:

1. Know Yourself
2. Love Yourself
3. Be True To Yourself.

The Critical thinking that is needed to work on developing and honing the rest of the skills include:

a. Having a Personal Value System
b. Perspective
c. Have An Open Mind
d. Sense of Humor
e. Resilience
f. Acceptance

In order to excel at a job, a sport or any discipline, a person must acquire and master certain skills. Living life fully and productively is no different.

Furthermore, possessing Life Skills enables you to deal with the life's inevitable difficulties and adversities more effectively. It lessens your chances of overusing prescription drugs, engaging in addictive behaviors, and experiencing overall despair and hopelessness. When you have the proper tools and strategies at your disposal, you have more control over your life and are therefore happier and more productive.

Where do you begin?

You begin by establishing a firm foundation. That foundation is "you". You must know who you are, what you want, and what you are capable of. You must then determine which values, goals and principles you will set up to guide your actions.

Learning about and applying the Essential Life Skills will help you. It will help you to:

- Know and understand yourself better
- Live life more consciously and deliberately
- Attain personal satisfaction and fulfillment".

Tobacco – Free Life. Retrieved May 2011, from http://www.paho.org/English/DD/PUB/SP579_04.pdf

"UNICEF (1997) recognizes several levels of Life Skills:

• Basic psychological and social skills (strongly shaped by cultural and social values);

• Situation-specific skills (e.g. negotiation, assertiveness, conflict resolution);

• Applied Life Skills (e.g., challenging gender roles or refusing drugs).

The WHO Life Skills Initiative:

The World Health Organization promotes Life Skills school-based programmes as a means to develop skills among young people that lead to healthy lifestyle choices and optimum physical, social, and psychological wellbeing. Depending on the culture, different specific abilities are emphasized.

With the Global School Health Initiative and the Health-Promoting Schools campaign, WHO has supported Life Skills activities through workshops, the development of materials, and the consultation with governmental and non-governmental agencies interested in this approach to youth health and development". (WHO, 1995 and 1998b)

http://www.unicef.org/lifeskills/index_whichskills.html

"Around the world, Life Skills-Based Education (LSBE) is being adopted as a means to empower young people in challenging situations. LSBE refers to an interactive process of teaching and learning which enables learners to acquire knowledge and to develop attitudes and skills, which support the adoption of healthy behaviors. It is also a critical element in UNICEF's definition of quality education.

- Communication and Interpersonal Skills
- Decision-Making and Critical Thinking Skills
- Coping and Self-Management Skills"

2.7.2 Literature Reviews for knowing more about Science

Fredric (2002) stated, "Science is a cumulative theories and endless series of empirical observations which results in the formation of concepts and with both concepts and theories being subject to modification in the light of further empirical observations. Science is both a body of knowledge and the process of acquiring it".

Rao (2002) emphasized about National Society for of Education in its Yearbook (1947) published the objectives under these categories, Viz.

1. "Functional information of habits,
2. Functional concepts,
3. Functional understanding of principles,
4. Instrumental skills,
5. Problem solving skills,
6. Attitudes,
7. Appreciations and
8. Interests".

Rao (2002) referred Approach paper on science and mathematics in general education (1985) developed by N.C.E.R.T. thought of the possibility of fulfilling the following objectives for secondary level for enabling the students.-

1. "To study a few aspects of physical and life sciences in detail with a special emphasis on those care concern like food, shelter, health, energy. Nutrition and major components of environments.
2. To appreciate the need of quantification in the students,
3. To develop interest in science and ability to put the interest into action.
4. To manipulate tools, equipment in a proper manner.
5. To identify the factors operating in the environment and
6. To collect data, classify and draw reasonable inferences".

Rao (2002) the author emphasized on objectives of science teaching such as knowledge, understanding, application, skills, abilities, scientific attitudes and interests.

Sharma and Shukla (2002) stated that the three basic principles of nature of science can be identified -"An accumulated and systematized body of knowledge.

1. The scientific method of investigation and

2. The scientific attitudes or ways of thinking

The first point indicates the product of science while second and third points indicate the process of science. Thus, science is both a product and process.

Science can also be defined as, science is what scientists do. There are at least three basic things that the scientists do. They make descriptions, explanations and predictions".

Sharma and Shukla (2002) emphasized, "Science is one of those activities that man has created to gratify certain human needs and desires. Disinterested curiously has been greatest motive power of scientific research".

Sharma (2002) referred "The scientific policy Resolution of the Government of India, 1958- stated: The dominating feature of the contemporary world is the intense cultivation of science on a large scale, and its application to meet the country's requirements".

Indian Education Commission (1964-66) underlines the importance of science as : "There is, of course, one thing about which we feel no doubt or hesitation : education, science based and in coherence with Indian culture and values can alone provide the foundation as also the instrument for the nation's progress, security and welfare. UNESCO's International Education Commission (1972) recommended that Science and technology must become essential components in any educational enterprise; they must be incorporated into all educational activity intended for children, young people and adults, in order to help the individual to control Social energies as well as natural and productive ones, thereby achieving mastery over himself, his choices, actions and finally they must help man to acquire a scientific turn of mind so that he becomes able to promote science without being enslaved by it".

University News (2000) recorded the address of Pandit Jawaharlal Nehru at the Indian Science Congress, held at Calcutta in December 1937 appropriately summed up the importance and the vision of science and society as follows-

"Science was not a pleasant divergent and abstraction, but was a very texture of life, without which our modern world would vanish away. Politics let me to economics, and this led me inevitably to science and the scientific approach to all our problems and to life itself. It was science alone that could solve the problems of hunger and poverty, of insanitation and illiteracy, of superstitions deadening customs and traditions, of vast resources running to waste, of rich country inhabited by starving people.

As everyday dawns with scientific invention, this explosive expansion of scientific knowledge has penetrating influence on nation's economy. Today in our life, we enjoy because of scientific inventions only.

Science content informed by a historical perspective enables the learner to appreciate how the concepts of science evolve over time. It also helps the learner to view science as a social enterprise and to understand how social factors influence the development of science.

As science placed in the wider context of the learner's environment, local and global enable him to appreciate the issues at the interface of science, technology and society, and equipping him with the requisite knowledge and skills to enter the world of work. Science plays a vital role in the economic and social development of a country. Science is considered as the backbone of civilization".

Sharma (1993) stated objectives of Science as follows -

Objectives	**Mental Abilities**
1. "Knowledge	Recall
2. Recognize	
3. Understanding	Seeing relationship

4. Cite example
5. Discriminate
6. Classify
7. Interpret
8. Generalize
9. Application Reason out
10. Formulate hypotheses
11. Establish hypotheses
12. Infer
13. Predict
14. Creativity Analyze
15. Synthesize
16. Evaluate"

The Columbia Encyclopedia (1963) discusses about Science as – "The rate of advancements in science and technology is so high that one needs to have a re-look at the strategies to cope with change and to be able to contribute towards the growth of new knowledge and its application. The young students have to be prepared to face the challenges of shrinking world, a growing technology dependent human life and fast growing scientific base. Students have to be inspired to be the future leaders who would make fundamental contributions. Keeping in view the present scenario and challenges of future emphasis should be given on teaching learning of science at various levels of formal education especially at school level. First, we will see the definitions of science.

It is difficult to write a short, simple and universally accepted definition of science. Many attempts have been made to define science; few common definitions are as follows –

The term science is derived from Latin noun Scientia meaning Knowledge Commonly speaking; Science is a systematized body of knowledge.

Science can be simply defined as a way of describing and explaining some aspects of the world around us.

Science is an accumulated and systematized learning, in general usage restricted to natural phenomenon. The progress of science is marked not only by an accumulation of fact, but by the emergence of scientific method and of the scientific attitude".

Vaidya (1974) discusses about Science as -

"The body of Scientific Knowledge

The body of scientific knowledge can be classified into facts, concepts, generalizations, theories and laws. These form the structure of science.

The process of science

The second dimension of science is the process by which knowledge is acquired. In an attempt to define processes of Science, the American Association for the Advancement of Science (AAAS) asked scientists to say what they actually do. The following list of thirteen processes came from this inquiry.

i) Observation,	ii) Classification,
iii) Number relations,	iv) Measurement,
v) Space/time relations,	vi) Communication,
vii) Prediction,	viii) Inference,

ix) Making operational definitions, x) Formulating hypothesis,

xi) Interpreting data.

In the literal sense, science means the pursuit of knowledge but it has a wider connotation for our purpose, and can be said to mean knowledge of nature in the widest possible form. This includes nature study, physics, astronomy, meteorology and much more. It is equally important to look beyond one precise definition and see what science includes, and the following are of fundamental importance to the approach to this subject.

1. Direct and indirect observations.
2. Scientific inquiry-asking questions.
3. The drawing of inference from evidence.
4. Recording observations.
5. Developing ways and means to find answers.
6. Classification and checking evidence.

Science in fact is more than subject, it is a method of acquiring knowledge and of necessity the approach must be correct".

Bloom (1956) According to Bloom's Taxonomy of Educational objectives, the objectives can be classified into three domains.

"Cognitive Domain –

Cognitive objectives were further classified in to six categories viz. Knowledge, Comprehension, Application, Analysis, Synthesis and Evaluation.

Affective domain –

Affective domain objectives deal with interest, attitudes, values, appreciation and adjustment. They were further classified into five categories viz. Receiving (Attending), Responding, Valuing, Organization and Characterization.

Psychomotor Domain-

Psychomotor domain classified into five categories viz. Imitation, Manipulation, Precision, Articulation and Naturalization".

2.7.3 Literature Reviews for development of Product i.e. Life Skills Programme

Dudhade (2016) in her book gives an overall idea about all the 10 Life Skills. It elaborates about the background and concept of Life Skills. It gives brief details about the concept, components, factors, types, steps, barriers/obstacles, activities etc. for all the 10 Life Skills. In the concluding chapters, it has very well discussed about the important FAQ, Matrix of Life Skills in classroom and Commandments to remember.

This book gave the Researcher a fair idea about the development of Life Skills Programme in terms of teaching methodology.

Training Manual of Life Skills/HIV/AIDS/Peer Education a Handbook for Counselors (2014) provides information about Life Skills Development – how to organize training sessions, rules for training, objectives, learning outcomes etc. It provides information of the planning of life skill development programme for empathy, decision making, goal setting, problem solving, effective communication and interpersonal relationship. It has provided a lesson plan, which includes – time, material, objectives, and methods and how to provide training.

This book helped the Researcher in planning of the Life Skills Programme i.e. the Product.

thou dkS'kY;s f'k{k.k & izf'k{k.k lap ¼ekpZ 2013½, Life Skills is defined as - thou dkS'kY;s Eg.kts nSuanhu thoukP;k vis{kk vkf.k vkOgkus ;kauk izHkkoh jhrhus gkrkG.;klkBh O;Drhe/;s ldkjkRed orZukpk fodkl gks;- thuo dkS'kY;s gk ekul'kkL=h; vusd {kerk rlsp vkarjO;fDrd dkS'kY;s ;kapk lewg gks;- The book elaborates 45 Life Skills Education: Learning Outcomes. It also emphasizes on the advantages of Life Skills Education.

This book helped the Researcher in preparing the Lesson plans for the Life Skills Programme.

Facilitator's Manual on Enhancing Life Skills (2009) provides details about the Life Skills. It suggests various activities for developing/enhancing Life Skills among the adolescents.

General Science: Book Six. Standard Eight (2009) is the core of the Life Skills Programme i.e the product developed by the Researcher. Selective content from this textbook was selected to form the base of the Life Skills Programme.

Learning by Doing: Science Activity book, Class –VIII (2009) is an effort by the Board to make Science learning more meaningful, interesting and joyful. Wide variety of activities including observation, exploration, analysis, games, riddles, crossword puzzles etc. have been included to meet diverse needs of learners and help them appreciate and enjoy the learning experiences. The suggested activities have been so designed that they can be done easily without using expensive materials or equipment. It has guided the Researcher in deciding and designing few activities of the Life Skills Programme.

This book has guided the Researcher in planning, designing and deciding few activities to be included in the Life Skills Programme i.e. the Product.

Thomas (2007) in his book primarily emphasizes on how to provide education on HIV/AIDS and Family Life through Life Skills Education. It discusses about various methods and techniques useful for imparting Life Skills Education through curriculum and programmes. In addition, how to provide health education and family life education along with school education is been emphasized. How to create awareness about skills necessary for life? How to incorporate life skills with value education? Is been discussed.

This book helped the Researcher in deciding the methods/techniques/strategies to be used in the Life Skills Programme for developing/enhancing the Life Skills amongst the students.

Siddiqi and Siddiqi (2006) elaborated, "Cognitive and Affective domain are related with each other. It is hard to compartmentalize human behaviors clearly in terms of cognition and affect. The cognition and the affect can never be separated. It is noticed that interest arises from increased information about something. According to Bruner and other workers have felt that it is the process of problem solving and discovery in learning that bring about the increased motivation for the subject and therefore develops interest and attitudes. Their view is that it is not much what is learned, but now it is learned which will determine the affective objectives that will be attained the sometime as the cognitive objectives".

This book helped the Researcher in selecting the five Life Skills for the Life Skills Programme i.e. the Product.

Games for social and Life Skills (1986) gave an insight to the Researcher to think on the lines of inclusion of games in the Life Skills Programme.

Life Skills Education: Std. I to VIII (n.d.) Maharashtra State Council of Educational Research and Training discusses on Life Skills Education and School Education -

- **Life in 21st C.**

21st C. is of Information Technology and tremendous competition. Society expects education to contribute storage and spread of information on a large scale. For this, it is necessary to extensively spread through education the knowledge and skills, which is continuously developing. As education forms the base/foundation for future skills. Every individual should be prepared to broaden his/her dimensions of knowledge, skills and attitude through education. Along with it, he/she should also be prepared to adjust and accommodate himself/herself with the changing world and be an opportunist.

Education means life. The actual expectation from education is to develop and acquire skills essential for living through education. Life Skills Education means appropriate development of the capacity/potential of the learners for progressive growth and development of life. Such education will help to lead life happily, peacefully, healthily and successfully. All necessary skills should be developed in students coherently. Due to which the learner will be able to live life effectively and skillfully. For this lot of opportunities should be provided to the students due to which they will be able to learn these skills easily, grasp it and use/apply it in their life. This is what the aim of Life Skills Education.

- **Need of Life Skills in School Education**

Today's era is of tremendous competition, wretchedness and struggle because of pleasure seeking attitude of people, morals and ethics are getting detiorated. Due to the cutthroat competitions at various levels, every person has to struggle with no choice left and have to face stress. Changing social norms, nuclear families, one or two children and high expectations of the parents, parents making comparisons, lack of parental education has led to lack of knowledge among parents about their children's psychology and misunderstandings. Further leading to having intensive and extensive adverse effects on future generations, creating inferiority complex, fear, anxietyand depression among students.

Because of all this students, commit suicide. Society is worried about violent behaviour, addiction, negativism, lack of confidence among students. To avoid all this it is necessary to provide Life Skills Education through school education.

- **Advantages of Life Skills Education**

1. Entire personality development.
2. Team co-operation or group development through interpersonal skills.
3. Social development.
4. Development of environmental skills.
5. Development of social health.

This book helped the Researcher in writing the Lesson Plans for the Life Skills Programme i.e. the Product.

Life Skills Education: Std. I to VIII (n.d.) Maharashtra State Council of Educational Research and Training discusses on Life Skills Education and Role of the teacher -

The contribution of Life Skills Education depends upon how the factors related to education perform its role. Teacher and students are the important components of the teaching learning process. The role of the teacher is important in Life Skills Education. The teacher should perform the following roles:

1. Teacher should work as a friend, guide and facilitator of the students. She/he should emphasize on providing conducive atmosphere to the students necessary for learning.
2. According to the teaching content, the teacher should make use of various teaching methodologies.
3. Students learn from experience. Teacher should adopt constructivist approach taking into consideration that students construct their own knowledge.
4. Teacher should have up to date knowledge of her/his own subject. In addition, from school's perspective teacher should think about new trends in education.
5. Teacher should inculcate life skills by establishing co-ordination between teaching skills and life skills during classroom teaching.
6. Skills required for guidance and counselling should be acquired, developed and utilized.
7. Emotional and mental support should be provided to the problem child.
8. As per the interest and aptitude of the students, guidance should be provided.
9. Enough opportunities and experiences should be provided to the students to express themselves through various activities like games, brainstorming, role-play, dramatization, presentation etc.

10. Scope should be given for teacher reflection through interactions between education and students and lesson of life skills learning.

This book helped the Researcher in writing the Lesson Plans for the Life Skills Programme i.e. the Product.

Teacher's Workbook for Student Activities. Adolescence Education Programme (n.d.) helped the Researcher in designing and preparing the Life Skills Programme.

Indian Journal of Life Skills Education (July 2011, July 2010 and July 2009) has helped the Researcher in understanding more about Life Skills and gave an insight about the activities for each Life Skill to be incorporated in the Life Skills Programme.

Report of the National Workshop on Life Skills Education in non – formal settings (Nov. 2004) summarizes about Life Skills as – "The Life Skills approach to education demands a radical shift in the entire process of education. While the conventional lecture – based, teacher – oriented approach is a widely used method of teaching and learning in the formal system, it started exhibiting numerous defects. But the very nature of Life Skills Education is such that it needs radical shift in the approach towards teaching and learning making it learner – centered. While learning Life Skills, more and more activity – centered and learner – oriented methods would be used. In fact, the Life Skills approach needs a paradigm shift in pedagogy in which in addition to earning of the three R's, many of the following items are also included as self – study methods. It includes games, songs, dramas, group – work, project method and puppet shows. In Life Skills Education, children and adolescents are actively involved in a teaching – learning process that is based on the principles of Social Learning theory. Methods used to assist skills acquisition, therefore, include working in groups, brainstorming, role-play, games and debates. The pedagogy of Life Skills Education is therefore based on cooperative learning, participative activities and experiential learning".

Life Skills are included in programmes like:

SRCs, JSS, Curriculum designed by NCERT, RKM (Kolkata), NGOs, UNFPA, IHMP (Pachod, Aurangabad), YCMOU perspective.

For developing materials for Life Skills Education efforts are taken by –

- UNESCO, UNICEF, UNFPA, ILO, WHO
- Directorates of Adult Education; Elementary Education; Non – formal Education
- NCERTs, SCERTs, SRCs, Women and Child Development
- NGOs, YCMOU

This article of the journal helped the Researcher in designing and development of Life Skills Programme i.e. the Product

Life Skills Education for Children and Adolescents in School: Programme on Mental Health World Health Organization (1997) documented introduction to Life Skills in the light of Psychosocial Competence, provides guidelines for the development and implementation of Life Skills Programme and discusses sample Life Skills lessons and Life Skills Programme Lesson Titles and Sequence.

Facilitator's Manual on Enhancing Life Skills (2009) expressed views about Life Skills. "Life Skills are abilities for adaptive and positive behaviour that enable individuals to deal effectively with the demand and challenges of everyday life" - WHO

"Life Skills are a group of psycho-social competencies and interpersonal skills that help people make informed decisions, communicate effectively, and develop coping and self-management skills to lead a healthy and productive life.

Life Skills enable us to translate knowledge, attitude and values into actual abilities by helping us decide what to do, when to do and how to do it.

- Life Skills Education is an approach that functions as an instrument of empowerment.
- Enhancing knowledge exclusively without enhancing Life Skills may not have practical application.

- Life Skills enable adolescent boys and girls to utilize the other skills such as functional, vocational/livelihood and literacy skills better".

This book has also helped the Researcher in the designing and development of Life Skills Programme.

2.7.4 Literature Reviews for understanding and providing Theoretical base to the present Research study

Barth, Caine and Sullo. (April 14, 2011). Brain – based Learning. Retrieved September 2014, from http://www.funderstanding.com/theory/brain-based-learning/brain-based-learning/

"This learning theory is based on the structure and function of the brain. As long as the brain is not prohibited from fulfilling its normal processes, learning will occur.

People often say that everyone **can** learn. Yet the reality is that everyone **does** learn. Every person is born with a brain that functions as an immensely powerful processor. Traditional schooling, however, often inhibits learning by discouraging, ignoring, or punishing the brain is natural learning processes.

The core principles of brain-based learning state that:

1. The brain is a parallel processor, meaning it can perform several activities at once, like tasting and smelling.
2. Learning engages the whole physiology.
3. The search for meaning is innate.
4. The search for meaning comes through patterning.
5. Emotions are critical to patterning.
6. The brain processes wholes and parts simultaneously.
7. Learning involves both focused attention and peripheral perception.
8. Learning involves both conscious and unconscious processes.
9. We have two types of memory: spatial and rote.
10. We understand best when facts are embedded in natural, spatial memory.
11. Learning is enhanced by challenge and inhibited by threat.
12. Each brain is unique.

The three instructional techniques associated with brain-based learning are:

Orchestrated immersion–Creating learning environments that fully immerse students in an educational experience

Relaxed alertness –Trying to eliminate fear in learners, while maintaining a highly challenging environment

Active processing–Allowing the learner to consolidate and internalize information by actively processing it

How Brain-Based Learning Impacts Education?

Curriculum – Teachers must design learning around student interests and make learning contextual.

Instruction – Educators let students learn in teams and use peripheral learning. Teachers structure learning around real problems, encouraging students to also learn in settings outside the classroom and the school building.

Assessment – Since all students are learning, their assessment should allow them to understand their own learning styles and preferences. This way, students monitor and enhance their own learning process".

Teachers must immerse learners in complex, interactive experiences that are both rich and real. Students must have a personally meaningful challenge. Such challenges stimulate a student's mind to the desired state of alertness. In order for a student to gain insight about a problem, there must be intensive analysis of the

different ways to approach it, and about learning in general. This is what is known as the "active processing of experience."

Saul, McLeod. (2009). Piaget's Theory. Retrieved September 2014, from http://www.simplypsychology.org/piaget.html

"Piaget's theory of cognitive development is a comprehensive theory about the nature and development of human intelligence. Piaget believed that one's childhood plays a vital and active role in a person's development. Piaget's idea is primarily known as a developmental stage theory. The theory deals with the nature of knowledge itself and how humans gradually come to acquire, construct, and use it. To Piaget, cognitive development was a progressive reorganization of mental processes resulting from biological maturation and environmental experience. He believed that children construct an understanding of the world around them, experience discrepancies between what they already know and what they discover in their environment, and then adjust their ideas accordingly. Moreover, Piaget claimed that cognitive development is at the center of the human organism, and language is contingent on knowledge and understanding acquired through cognitive development. Piaget's earlier work received the greatest attention. Many parents have been encouraged to provide a rich, supportive environment for their child's natural propensity to grow and learn. Child-centered classrooms and "open education" are direct applications of Piaget's views. Despite its huge success, Piaget's theory has some limitations that Piaget recognized himself: for example, the theory supports sharp stages rather than continuous development (decalage)".

Armstrong. (n.d.). Multiple Intelligence Theory. Retrieved September 2014, from http://www.institute4learning.com/multiple_intelligences.php

Dr. Howard Gardner, professor of education at Harvard University, developed the theory of multiple intelligences in 1983. It suggests that the traditional notion of intelligence, based on I.Q. testing, is far too limited. Instead, Dr. Gardner proposes eight different intelligences / learning styles to account for a broader range of human potential in children and adults. Gardner says that these differences "challenge an educational system that assumes that everyone can learn the same materials in the same way and that a uniform, universal measure suffices to test student learning. Indeed, as currently constituted, our educational system is heavily biased toward linguistic modes of instruction and assessment and, to a somewhat lesser degree, toward logical-quantitative modes as well." Gardner argues, "a contrasting set of assumptions is more likely to be educationally effective. Students learn in ways that are identifiably distinctive. The broad spectrum of students - and perhaps the society as a whole - would be better served if disciplines could be presented in a numbers of ways and learning could be assessed through a variety of means." The learning styles or intelligences are:

1. Linguistic intelligence ("word smart")
2. Logical-mathematical intelligence ("number/reasoning smart")
3. Spatial intelligence ("picture smart")
4. Bodily-Kinesthetic intelligence ("body smart")
5. Musical intelligence ("music smart")
6. Interpersonal intelligence ("people smart")
7. Intrapersonal intelligence ("self-smart")
8. Naturalist intelligence ("nature smart")

Morelli. (n.d.). Child Development Theory. Retrieved June 2016, from http://www.mhmrcv.org/poc/view_doc.php?type=doc&id=41183&cn=1310

"Adolescence is an amazing period of growth spanning the ages of 12-24 years old. Youth enter this developmental stage with the body and mind of a child, and then exit 10-12 years later, with the body and mind of an adult. There is a strong inter-relationship among the various aspects of development - physical, cognitive, emotional, social, moral, and sexual dimensions. In addition, there is a great deal of individual

variation within the normal developmental process. Individual youth may reach developmental milestones at ages that are different from averages, and yet these youth would still be considered "normal."

Physically, adolescents grow to reach their adult height, and their bodies begin to resemble adult bodies in size, shape, and body composition. Moreover, they become capable of sexual reproduction.

Cognitively, adolescent thinking skills rapidly advance as they enter Piaget's stage of formal operations. Youth are now able to think in abstract terms so that they can conceptualize theoretical ideas, moving beyond the limitations of concrete information. Youth begin analyze problems in a more logical and scientific manner. This ability to think abstractly and analytically simultaneously promotes their social, emotional, and moral development. As their brain continues to develop, youths' capacity for memorization expands as the brain develops more sophisticated methods of organizing information, allowing for more rapid and accurate information storage and subsequent retrieval. However, the brain's frontal lobe is not fully developed until the very end of adolescence. The frontal lobe of the brain enables humans to inhibit primitive sexual or emotional impulses by using rationale thought to override these impulses. The incomplete development of the frontal lobe means that adolescents will continue to struggle to make wise and thoughtful decisions in the presence of powerful emotional, social, or sexual pressures.

Emotionally, adolescents encounter many new experiences that challenge their ability to cope with a broad array of intense emotions. Youth must learn how to handle stressful situations that trigger powerful emotions without harming or hurting themselves, or other people. Once youth have learned to identify their emotions, and the source of their emotional reactions, they must then learn healthy ways to cope with situations that cause strong emotional reactions. When this learning is completed, youth will have developed emotional efficacy; a landmark skill that enables them to be successful in their future careers, and to enjoy meaningful relationships with others.

Emotional maturity is closely tied to the knowledge of oneself, and one's values. This self-identity develops and solidifies during adolescence. Erik Erikson and James Marcia both proposed theories of identity development and these theories were reviewed. Despite theoretical differences, both theorists agree some youth will develop a clear set of values and beliefs through experimentation with different identities, and an examination of their values. Other youth will not advance this far. These youth will either continue to question their values; or, they may not examine their values at all. Some youth are so disadvantaged they do not have opportunities to explore values beyond mere survival.

Socially, as youths' need for independence increases, their primary social support shifts away from their families, and toward their peers. Because of the increased importance of peer relationships, youth are especially sensitive to peer pressure (meaning, to conform to the standards of the peer group). By late adolescence youth will ordinarily re-establish close relationships with their families, provided these relationships were positive to begin with. Youth also create more meaningful and productive relationships with other people outside their circle of family and friends; e.g., bosses, coaches, teachers, co-workers, and other acquaintances. Romantic relationships begin to flourish during this developmental phase. In early adolescence these connections may be of a more flirtatious nature, and may bloom and fade rather quickly. However, by late adolescence, many of these relationships become more stable, mature, and emotionally intimate.

Moral development naturally progresses as mental and emotional maturity improves. Youths' understanding of right and wrong becomes more sophisticated and nuanced. Both Piaget's and Kohlberg's theories of moral development were reviewed, but Kohlberg's theory has been more strongly supported by the research. According to Kohlberg's theory, some youth will eventually base their moral decisions on a set of ethical principles that surpass existing laws or rules. Other youth will remain primarily concerned with rules, laws, and fairness.

Sexual development was described as a complex merger of physical, cognitive, emotional, social, and moral development. During this time youth solidify their gender identity as masculine, feminine, or transgendered. Youth will also become aware of their sexual orientation which refers to a pattern of attraction to others, not sexual behavior. Youth will begin to realize they are primarily attracted to the opposite gender (straight), the same gender (gay or lesbian), both genders (bisexual), or still uncertain (questioning). During early

adolescence most teens become curious about sex, but any sexual behavior is usually limited to masturbation. However, by middle to late adolescence, many teens begin to experiment with various sexual behaviors via masturbation, partners, or both. Because of the brain's incomplete development youth are at risk for making poor or risky decisions regarding their sexuality. Ultimately youth must determine what type of sexual behavior is acceptable to them, and under what circumstances. These decisions are best made in advance of the need to make them.

In conclusion, adolescent youth experience monumental changes in every single aspect of their lives as they make the transition from childhood into adulthood. The purpose of this article was to provide parents and other caregivers the foundational information needed to recognize and to appreciate the normal developmental progression of adolescents. Therefore, this article was primarily descriptive in nature. However, the process of adolescent development can become quite challenging and sometime overwhelming for both youth and their families. Our Adolescent Parenting article builds upon this foundation to provide parents and other caregivers' concrete advice and practical solutions to common problems that arise during adolescence. Armed with this information, caregivers will feel more confident and successful as they guide their child through these often confusing and difficult years".

Anonymous. (September 1, 2013). Problem Behaviour Theory. Retrieved June 2016, from http://www.schools-for-all.org/page/Problem+Behaviour+Theory+and+Schools+%28EE%29

"Problem Behaviour Theory (PBT) was developed by Richard Jessor and colleagues during the 1960s to explain problem behaviour in a small, rural tri-ethnic community (Jessor, Groves, Hanson & Jessor, 1968). Jessor recognized that youth was a segment of the lifespan in which change is the predominant characteristic, and that rapid change is not unusual; he also recognized the need for a far-reaching understanding of young people and of youthful development (Jessor & Jessor, 1977). The influence of Rotter's Social Learning Theory (1954) and Merton's (1957) concept of anomie are evident in the theory.

PBT is an intersection of the fields of social psychology, developmental psychology and the psychology of personality (Jessor & Jessor, 1977). It enlarges the boundaries of the typical discipline-confined approach by encompassing factors that lie in the person, as well as those that lie in the social environment, and by examining their joint contribution to variation in human action and experience. It is not a grand theory, but rather a theory of mid-range—a network or concept of modest scope oriented toward a delimited concern—problem behaviour in youth (Donovan, 1996).

Problem behaviour is defined as behaviour that departs from norms—both social and legal—of the larger society; it is behaviour that is socially disapproved of by institutions of authority and tends to elicit some form of social control response, whether mild reproof, social rejection or even incarceration (Jessor, Chase & Donovan, 1980). It is important to note that what is defined as problem behaviour for young adolescents may not be considered as such for a senior in college or an adult, and that problem behaviours may be culturally and historically specific.

Problem behaviour is considered purposive, goal-oriented or functional by the individual and important enough to counter the likelihood of legal or social sanctions (Jessor, Jessor & Finney, 1973). Such behaviours are seen as characterizing the occupancy of a more mature status, engaging in them becomes a way of marking—both for self and others—a developing transition, a transition from less mature 'to more mature', from younger 'to older', from youth 'to adult'. For example, Jessor (1991) states that it is important to recognize that some outcomes or consequences of the behavioural risk of marijuana use can be desirable and positive and sought out by adolescents. Smoking marijuana, for example, can lead to social acceptance by peers and to a subjective sense of autonomy and maturity. A psychosocial reformulation of risk calls for a thorough cost and benefit analysis of risk factors. Behaviours that serve important social and personal functions for adolescents are unlikely to be abandoned in the absence of alternatives unless these alternatives can provide similar satisfactions without the costs. Research shows that adolescent risk behaviours are functional, purposive, instrumental and goal-directed, and that these goals are often central to normal adolescent development. While society may consider these behaviours problematic, there is nothing perverse, irrational or psychopathological about such goals. Jessor (1986) identified eight psychosocial functions of adolescent drinking behaviour, including: signaling commonality with peer group, affirming

independence from parents, coping with feelings of inadequacy, failure and stress, and just having fun and enjoyment. The framework for this theory rests on the social-psychological relationships within and between each of the three systems of psychosocial influence: the personality system, the perceived environment system and the behaviour system. Within each system, the explanatory variables reflect either instigations to engage in problem behaviour or controls against it. Together, these systems generate a dynamic state called ―proneness that specifies the likelihood of occurrence of normative transgression or problem behavior. The framework is both complex and comprehensive, with more than 30 variables in three major systems and nearly 50 variables overall. Each of the three major systems of the theory is organized around structures of variables representing instigations to engage in problem behaviour and controls against engaging in problem behaviour. It is important to note the bidirectional relationship among the variables.

The theory proposes that many problem behaviours are interrelated so that the personal and situational factors influencing one behaviour may be the same as those influencing another. This has led to the suggestion that there exists a syndrome of problem behaviour and that it might be useful to deal with it as part of a lifestyle rather than discrete or separate behaviour".

Zimmerman. (August, 2013). Resilience and Risk Theory. Retrieved June 2016, from http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3966565/

"*Resiliency Theory* provides a conceptual framework for considering a strengths-based approach to understanding child and adolescent development and informing intervention design (Fergus & Zimmerman, 2005; Zimmerman & Brenner, 2010). Resiliency theory supplies the conceptual scaffolding for studying and understanding why some youth grow up to be healthy adults in spite of risks exposure (Garmezy, 1991; Masten, et al., 2007; Rutter, 1987; Werner & Smith, 1982). Resiliency focuses attention on positive contextual, social, and individual variables that interfere or disrupt developmental trajectories from risk to problem behaviors, mental distress, and poor health outcomes. These positive contextual, social, and individual variables are called *promotive factors* (Fergus & Zimmerman, 2005), operate in opposition to risk factors, and help youth overcome negative effects of risk exposure. Fergus & Zimmerman (2005) identified two types of promotive factors: *assets and resources*. Positive factors that reside within individuals such as self-efficacy and self-esteem are defined as assets. Resources refer to factors outside individuals such parental support, adults mentors and youth programs that provide youth with opportunities to learn and practice skills. Assets and resources provide youth with the individual and contextual attributes necessary for healthy development.

Several of the papers in this theme issue on adolescent health, although not intentionally applying a resiliency approach, include attention to promotive factors. Applying a resiliency lens to examine the papers in this issue, however, provides an opportunity to consider how we can study systematically adolescent health using a strengths-based approach. Steele et al.'s (2013) study focuses on an individual asset, self-efficacy, that is associated consistently with positive health related outcomes. Their SE-HEPA scale focuses on confidence in making the correct choices for healthy eating and physical activity can be used to evaluate programs designed to develop a youth asset that may be help youth make healthy behavioral choices. Similarly, the analysis of intrapersonal factors associated with sex risk behavior by Shneyderman & Schwartz (2013) included a measure of birth control self-efficacy. Their study provides empirical evidence of health education programs that focus on enhancing this individual asset, which may be effective for encouraging healthy sexual behavior.

Several of the articles in this theme issue also focus on resources associated with positive youth development outcomes and that can help youth overcome risk. Families are consistently identified as a vital resource for healthy youth development for a variety of health outcomes (Caldwell et al., 2004). The Steering Teens Safe study provides an example of the role parents can play as a key resource for youth learning how to drive (Ramirez et al., 2013). Ramirez et al. exploit the potential of positive influences of parents as a key resource for improving driving skills among their teenage children just learning how to drive. Malcolm et al. (2013) study the positive effects of family functioning on condom use among Latino youth. The study by Shneyderman & Schwartz (2013) also included family factors such as parent-child relationship quality. Promotive resources also include programs that provide youth with opportunities to learn and practice skills. Springer et al. (2013) describe the CATCH program for middle school youth, which can be conceptualized

as a promotive resource for youth because it focuses on helping youth develop the knowledge, confidence, and skills for engaging in the positive behaviors of healthy eating and physical activity.

While many of the studies highlighted in this issue focus on promotive factors, they do not explicitly apply an analytic framework guided by resiliency theory. Resiliency theory includes several models that describe how promotive factors may counteract, protect against or inoculate youth from the negative effects of risks (Masten et al., 2007; Luthar, 2006). These models guide data analytic strategies and can inform the design of intervention by defining strategies to enhance promotive factors. The compensatory and protective models of resiliency are the two most commonly studied in the research literature (Fergus & Zimmerman, 2005; Garmezy et al., 1984; Masten, et al., 2007). A third model has limited empirical support, but also provides an explanation for how youth may overcome the adverse consequences of risks.

In the *compensatory model*, promotive factors neutralize risk exposure in a counteractive fashion. Thus, compensatory factors have an opposite effect on a developmental outcome (e.g., healthy eating, violence) than risks. This is a direct and independent effect from risks. Thus, compensatory factors contribute additively to the prediction of outcomes and are simply entered in a regression analysis after risks are accounted for in the equation. Parental support, for example, was found to compensate for risks associated with fighting and being around violent adults (Zimmerman, et al., 1998). In this study, parent support predicted less violent behavior among their adolescent children and this effect was independent and in the opposite direction of the risks.

The *protective factor model* suggests that promotive assets or resources modify the relationship between a risk promotive factor and outcomes. Two possible protective models are risk-protective and protective-protective. Risk-protective models indicate that promotive factors operate to moderate or reduce the association between risks and negative outcomes. Protective-protective models operate to enhance the effects of either promotive factor alone for predicting an outcome. Protective models are tested using interaction effects in regression or multi-group analysis in structural equation modeling. Hurd and Zimmerman (2010) provide an example of a risk-protective model in their study of adolescent mothers. They found that natural mentors helped protect adolescent mothers from the negative effects of stress on their mental health. A study of self-esteem and cultural identity among Native American youth provides an example of a protective-protective model (Zimmerman et al., 1995). They found that self-esteem increased the negative association between cultural identity and alcohol use in an interaction effect in a regression analysis.

Rutter (1987) also introduced the *challenge model* of resiliency. This model operates as inoculation whereby exposure to modest levels of risk actually help youth overcome subsequent exposures that make them vulnerable to negative outcomes. It is vital; however, that the initial risk exposure must be challenging enough to help youth develop the coping mechanisms to overcome its effects, but not too taxing as to overwhelm any effort to cope. Interpersonal conflict that is resolved amicably, for example, can help youth learn how to overcome social tensions to avoid a violent response in some later more heated social disagreement that may involve others (e.g., a gang fight).

Resiliency theory provides a useful framework for considering how promotive factors may operate for encouraging positive youth development. It is not an adolescent trait that can be measured by a self-report questionnaire (Fergus & Zimmerman, 2005). Rather, resiliency models posit relationships and processes, and concomitant analytic strategies for testing them. Although many researchers study resiliency by examining single risks and promotive factors, a burgeoning area of research focuses on the cumulative effects of multiple promotive factors across ecological domains (e.g., individual, family, community) to more accurately reflect the complex nature of influences on adolescent development (Ostaszewski & Zimmerman, 2006; Stoddard et al., 2012).

Researchers often study positive factors in youths' lives and evaluate interventions designed to enhance promotive factors for health adolescent development, as many of the papers in this theme issue illustrate. Application of resiliency theory, however, provides a conceptual framework and a unifying theme that can guide researchers and practitioners interested in studying and enhancing assets and resources. A unifying theme like resiliency theory is useful for public health education because it helps to develop a common language and analytic approach that cuts across the specific issue or domain being studied to build

knowledge and inform practice using a strength-based paradigm. Research that applies a resilience framework will have common characteristics that can be replicated across populations and contexts, and contribute more broadly to our understanding of the processes by which youth overcome adversity and develop into healthy adults despite risk exposure".

2.7.5 Literature Reviews for understanding and deciding Research Methodology

Best and Kahn (2009) has provided detailed information about the meaning of Research, Characteristics of Research, types of Research, purpose of Research, Hypotheses, Data collection tools, Statistical tools, Population, Sampling etc. which helped the Researcher in deciding the Research Methodology – Research Method, Experimental Design, Sampling methods and data collection and statistical tools.

Mangal (2005) has provided detailed information about statistical tools – meaning, concept, purpose, calculations, finding values etc. which helped the Researcher in deciding about the statistical treatment to be given to the data collected. It guided the Researcher in the selection of the statistical tools and the steps to be followed while treating the data statistically.

2.7.6 Literature Reviews for deciding the Title, Need, Importance / Significance Objectives, Scope of the present Research study.

thou dkS'kY;s f'k{k.k & izf'k{k.k lap ¼ekpZ 2013½ Life Skills is defined as – "thou dkS'kY;s Eg.kts nSuanhu thoukP;k vis{kk vkf.k vkOgkus ;kauk izHkkoh jhrhus gkrkG.;klkBh O;Drhe/;s ldkjkRed orZukpk fodkl gks;- thuo dkS'kY;s gk ekul'kkL=h; vusd {kerk rlsp vkarjO;fDrd dkS'kY;s ;kapk lewg gks;"- The book elaborates 45 Life Skills Education: Learning Outcomes. It also emphasizes on the advantages of Life Skills Education.

This book helped the Researcher in understanding the importance of developing / enhancing Life Skills among the students and thus the need and importance/significance of the Research study undertaken by the Researcher.

Mohanrao (2008) It is revealed from this book that, "Life – Skills also known as Soft Skills, are the skills necessary for successful living. To get the best out of life, and to become the best you can be, it is necessary to have Life-Skills. This term Life-Skills refers to the psychological, sociological and interpersonal skills. These skills can help people in all respects particularly in making right decisions, communicate effectively and develop self-management talents to lead a healthy and productive life. A Skill is learned ability to do something well. Life skills are the abilities individuals can learn, which will help them to be successful in living. There is no unanimous opinion on the set of life skills needed or desired behaviors that ensure success life. By reviewing a number of research studies, certain consistent categories of competencies emerged. These competencies can be used as the basis of life skill development. Life skills often must be practiced repeatedly before mastery is achieved. For example, to get a job, a person must know how to write an application, resume and how to face the interview and satisfy the required job skills. To keep a job, the person must also need a number of social and other authorities and provide timely, responsible and consistent work performance". "Life–Skills : Problem solving, Critical thinking, Creative thinking, Decision making, Communication skills, Interpersonal relationship skills, Self- awareness, Empathy, Coping with stress, : Decision Making is a mental process which helps us to deal constructively with decisions of our lives. Problem solving is active psychological process enabling us to deal effectively and efficiently with the problem face in any field of action. Creative thinking is a kind of divergent thinking enables us to explore the available alternatives and to look beyond our direct experiences. Critical thinking is the ability to analyze information and experiences in an objective manner".

This book helped the Researcher in understanding the Need of the Research to be conducted in the area of Life Skills, rather the need of developing / enhancing the Life Skills amongst the adolescents.

National Council for Educational Research and Training (2005) emphasized, "Secondary Education is an important stage of education, which links primary education to the higher education. In fact, secondary stage is the backbone of education. At this stage, students are more active, ready to learn new things and they take interest in learning. Their habits and attitudes are developing at this stage and remain permanent".

The Science Policy Resolution (1958) recognized “science and technology as a key factor for economic development, and emphasizes the importance of the study of science and its application not only as a means of providing material and cultural amenities and services to every member of community but as a method of influencing basic human values. According to the recommendations of Science Policy Resolution National Government took several steps to establish institutions for governmental guidance and created conditions which could promote science and technology”.

This book helped the Researcher in finalizing the title of the Research study and deciding the scope of the Research study.

National Curriculum for Primary and Secondary Education (1985) stated that, "The influence of Science and Technology is so pervasive that knowledge of science, scientific thinking and related skills has become indispensable for leading a meaningful life in the modern world. Education should help the individual not only in acquiring knowledge and application but also in developing a scientific temper and rational world view."

This book helped the Researcher in finalizing the title of the Research study and deciding the scope of the Research study.

The National Policy on Education (1986) of India emphasizes, "Science Education should develop in the child well defined abilities and values such as the spirit of inquiry, creativity, objectivity, courage to question and aesthetic sensibility. Scientific knowledge and skills should help an individual to question the existing beliefs, prejudices and practices, and act as a liberating force. It should also help the child to search for truth, harmony and order.

Science and mathematics are compulsory up to class X. Science education programs will be strengthened to enable the learner to acquire problem solving and decision making skills and to discover the relationship of science with health, agriculture, industry and other aspects of his daily life.

Science education promoted the values of honesty, objectivity, cooperation and freedom from fear and prejudice and inculcates in the learner a concern for life and preservation of the environment.

Science education in different measures is indispensable for all sections of the population. The cultivation of a scientific temper requires that the benefits of the scientific way of thinking and of evaluation facts and situations as also the positive orientation of science towards change and development should reach the vast numbers who have remained outside the pale of formal education.

Science education engages the learner in acquiring the method and processes that lead to the generation and validation of scientific knowledge and nurtures the natural curiosity and creativity of the child in science. Thus, it helps the student in 'learning to learn' science”.

This book helped the Researcher in finalizing the title of the Research study and deciding the scope of the Research study.

Rai (1963) in his report on school science Teaching stated the following objectives for teaching science -

1. “To arouse the curiosity of the student about the world we live in and to encourage him to understand the various natural phenomena.
2. To train to acquire that habit of observing in planned way.
3. To develop scientific attitude.
4. To give an idea how a scientist works”.

This book helped the Researcher in finalizing the title of the Research study and deciding the scope of the Research study.

Wilbur (1932) has stated the objectives of science teaching at secondary schools, which helped the Researcher to finalize the title of the Research study and direction for conducting the Research study.

Gandhi and Kudlu (Nov. 2004) in their Compendium of Research Papers presented at the National Workshop on Life Skills Education in non – formal settings, Life – Skills Education: What, Why and How discusses about – Need for Life Skills Education, Operational Definitions of Life Skills and Components of Life Skills, which helped the Researcher in writing the Chapter I – Introduction, of the thesis.

Nair and Ranjan (2012) has discussed about the Impact of Life Skills Education: Evidences from the field.

This book has helped the Researcher in defining the operational terms in her Research study as well as for understanding the sub – skills or parameters of each Life Skill.

Sharma (n.d.) conducted a Research study "Measuring life skills of adolescents in a secondary school of Kathmandu: An experience". The objective of this study was to develop a scale to measure life skills and to assess the levels of life skills in adolescents of a secondary school at Kathmandu. A descriptive, cross sectional survey of adolescents from class VIII, IX, and X of a public co-educational secondary school of Kathmandu was done with the help of self-administered questionnaires prepared in English and translated into Nepali. Focus Group Discussions consisting of boys only, girls only and a mixed group comprising of one student from each section of each class were conducted to confirm the results of the study. All the data obtained from the questionnaire survey were edited, coded and entered into EPI info Version 6. A total of 347 adolescents participated in the study. It was found that, 176 adolescents (51%) had life skill scores above the mean, and was termed as having "high level" of life skills and 171(49%), had "low level" of life skills scores. Mother's education was significantly associated with increased level of life skills in adolescents (P=.001). Conclusion: Most of the teachers were not aware of the concept of life skills. Maternal education was significantly associated with higher life skill levels in adolescents. Connectedness and family support were other important factors influencing the level of life skills in the adolescents.

This article of the journal helped the Researcher in understanding the parameters of the Life Skills to be assessed while finding out the extent to which the students possess the Life Skills.

Sengupta, Sinha and Mukhopadhyay (n.d.) conducted a Research study "Life skill Education: A Means for Promoting Human Rights". According to them, the skills learnt in the school may be considered from two points of views. One is learning of livelihood skill, which means vocational education. This type of education is development of skill with the intention of capacity building. This type of skill training will help an individual to earn his livelihood and ultimately the person will be able to contribute in the economic development of the country. However, education for the development of livelihood skill is narrowly conceived. Along with it a person needs psychosocial competencies and interpersonal skills which are the essence of life skills. WHO had defined life skills as abilities for adaptive and positive behaviour that enable individual to deal effectively with the demands of challenges of everyday life? The psychosocial competencies are instrumental in developing physical, mental and social well-being and as such, it is imperative that school system should strive to develop theses competencies among the students. These competencies are also referred as life skills, which are considered essential components of educational objectives. In fact, life skills are objectives of holistic education.

The purpose of the study - Life skill education as a part of secondary education curriculum has been undertaken in India as an innovative policy. Life skill education is imperative in developing healthy personality. The acquisition of these skills may further help the students understand the concept of human rights and upholding of them. This small empirical study will seek to find out more about life skill education and its impact on human rights education. A small random sample of students of class XI belonging to the average age 16+ was selected. The sample comprised both boys and girls. The sample size was 100 selected randomly from four secondary schools situated in the outskirt of the city of Kolkata, India. To assess the life style skills of the students a questionnaire was framed based on the components of life skills. The components of life skills included in the questionnaire were decision making skill, self-awareness, emotional control, and time and stress management, interpersonal relationship with peers and persuading peers to do social work. There were twenty items in the questionnaire. It was a Likert type questionnaire with five response categories namely, always, often, occasionally rarely, never.

The two sample items were "When I need to decide something the first thing I do is to gather information about it" and ". I persuade my friends to engage in social work."

Another part of the questionnaire contained an open-ended question on the concept of human rights. This part of the findings was qualitatively analyzed.

The study revealed that human rights education and life skill education could be successfully integrated in the school curriculum. Actually, human rights education in isolated form is less likely to be effective but when the whole school approach is adopted, there is the possibility of encouraging the students to get rid of their prejudices built on the traditional and narrow concept of sex, religion, caste and other real or imaginary issues. The findings from this study highlights the issue that perceptions related to high level life skill are positively associated with perceptions about the essence of human rights. Thus, it may be postulated that the students who possess life skills will be able to

 Use their ability for critical thinking in identifying injustice and unfairness in society

 Prevent human right abuse in the society by using communication skill and ability for problem solving

 Advocate and spread awareness about rights by means of self-awareness, interpersonal skill and other social skills.

 Resist peer pressure and influence peers from indulging in unhealthy practices.

However, it is to be noted that positive attitude towards human right issues or declaring to possess life skills do not ensure that students would actually be motivated to stand up for protecting their and others' rights. The psychological factors like inherent value system, locus of control and relevant belief system motivate a person to act. The external socio –cultural factors too mould an individual's behaviour. The teaching methodology adopted in school has much to do in this respect. Human rights education and life skill education can never be acquired from traditional class lecture method where the load of bookish curriculum is often an obstacle. It must be based on participatory field based activity methods, which are of course difficult if not impossible to carry out in schools. Moreover, the orientation and proper training of the teachers are needed to adopt this new methodology.

Lastly, to improve education related problems which are numerous the help of empirical research is needed. This research has shown that education, health system, are inadequate, social malpractices are rampant. Domestic violence, child abuses are daily occurrences. Researches on life skill education and human rights education can help us in many ways.

 It can help us to understand more about related issues and problems, their complexities intricacies and significance in social life.

 Most importantly workable solutions may be found

 The solutions may be implemented and evaluated

 Continuous research in this regard will further improvise the system.

This article of the journal helped the Researcher in preparing the data collection tool – Questionnaire, used during the Survey of the students, for the Research study.

2.8 Review Matrices

Sources								
Research Review				**Conceptual Review**			**Journal /Articles /Reports**	**Internet**
Ph.D. thesis	PG Dissertations	Minor Research	Research Project	Books	Manuals	Magazines		
18	01	01	01	40	03	01	34	10
Total – 109								

Table-2.1: Review Matrix according to the sources

Variables	Sources									
	Research Review					Conceptual Review				
	Ph.D. thesis	PG Dissertation	Minor Re - search	Re - search Project	Journals /Articles /Reports	Books	Journals /Articles /Reports	Manual	Magazine	Internet
Life Skills	01	-	-	-	11	07	01	01	01	04
Science	-	-	-	-		12	-	-	-	-
Life Skills Programme	07	01	-	-	11	11	03	02	-	-
Theoretical base	01	-	-	-	-	-	-	-	-	06
Research Methodology	02	-	-	-	02	02	-	-	-	-
Data Documentation	06	-	01	-		-	-	-	-	-
Title, Need, Importance / Significance Objectives, Scope	01	-	-	01	03	08	03	-	-	-

Table-2.2: Review Matrix according to the variables

2.9 Use of previous Research studies to the Researcher

The Review has helped the Researcher to plan her study in the following manner:

1) The review has helped the Researcher to make her work comprehensive by carrying out theoretical review as well as research review.

2) The review has helped the Researcher to plan the steps of her research study.

3) The review has helped the Researcher to select her line of action that is Multi – Method Research and Mixed – Method Research, which seems to be the need of the hour.

4) The review has helped the Researcher to determine the Research Design and the Sampling.

5) The review has helped the Researcher to know the importance of the use of standardized test in the Research study.

6) The review has helped the Researcher to determine the tools and techniques of data collection, analysis and interpretation.

7) It has helped the Researcher to plan the Life Skills Programme (product).

It has further helped the Researcher in the understanding of:

1) Developing of Life Skills is an area of immense concern that requires to be immediately attended to. A teacher has to take many efforts to develop / enhance the Life Skills in an interesting way for the students.

2) It is a challenge for the Science teacher to make classroom teaching lively and interactive for the students.

3) Research on developing of Life Skills suggests that there is much scope for the Researchers to develop these Life Skills through textbook teaching through interactive and activity based teaching practices.

4) The acuteness of the problem has been understood and there is need to make use of innovative methods of developing Life Skills through teaching of Science.

5) Review of Related Literature points out that emphasis has been laid on conducting researches on areas like

a. Curriculum

b. To evaluate quality of Science textbooks

c. Teaching methods

d. Evaluation and Models of Teaching

However today's needs are different and there is need to carry out experimental research which can develop Life Skills through the teaching of Science in a more interesting manner and in an appealing way to the students.

2.10 Similarities and differences between the present Research and the previous Researches

In most of the previous Researches reviewed by the Researcher, Life Skills Programme / Module is been prepared either for the children (normal or special) or the teachers or teacher educators, and later its effectiveness is been tested. The intention of the development of the Life Skills programme was to develop / enhance the Life Skills directly or indirectly for a happy, prospective and successful future. Almost all the Researches reviewed adopted Experimental method.

The similarity between the present Research and the previous Researches is development of Life Skills Programme and use of Experimental Method.

The difference between the present Research and the previous Researches is that though the Researcher had also developed a Life Skills Programme similar to the other Research studies, the content, which was selected, was specifically from Std. VIII, Science subject, S.S.C. Board. Whereas, in other cases it was not subject specific but was general content. Another difference is of Research Method used – Multi – Method Research – Mixed Method Procedures for Survey and Experiment (Quan + qual).

2.11 Conclusion

In this chapter the Review of Related Literature studied from various sources is been discussed elaborately. In the next chapter, Research Methodology will be discussed in detail.

CHAPTER - III

PLAN AND PROCEDURE OF RESEARCH

3.1 Introduction

In the previous chapters, we were introduced to the Research topic and took the review of the researches that took place related to the topic. A design is initially required, for every work or activity to be done. Similarly, for making research successful, planning is required, regarding which methods and tools are to be used. In this chapter, information regarding the methods and tools used along with the methodology is provided.

3.2 Title

Developing Life Skills through Science content at Higher Primary level

3.3 Objectives of the Research

1. To identify suitable topics from eighth standard Science textbook to be included in the Life Skill programme.
2. To assess the current status of all the 10 Life Skills possessed by the students.
3. To develop a Life Skills Programme and test its effectiveness.
4. To test the usability of the developed programme.

3.4 Meaning and definition of Research

In simple terms, research means to search again and again.

Research is considered to be the most formal, systematic, and intensive process of carrying on a scientific method of analysis. It is directed towards discovery and the development of an organized body of knowledge.

Definition: - "Research may be defined as the systematic and objective analysis and recording of controlled observations that may lead to the development of generalizations, principles, or theories, resulting in prediction and possibly ultimate control of events."

(Best, John W. and James 10^{th} edition) defines Research as "Research is the typical process by which scientific knowledge is advanced in an orderly manner by unitary quanta of sufficient size on the basic of previous knowledge and necessary assumptions regarding the nature of filed."

3.4.1 Characteristics of Research

Research is a systematic process for developing a theory by applying scientific methods. It is an impartial, objective, empirical and logical analysis and recording of controlled observation that will finally lead to the development of a theory, principles, laws etc. and will help us to predict about the phenomenon in future.

(Best and Kahn 1992 p. 18 - 20) have summarized the main characteristics of research as under.

1. Research is directed towards the solution of a problem. It may attempt to answer a question or to determine the relation between two or more variables.
2. Research emphasizes the development of generalizations, principles, or theories that will be helpful in predicting future occurrence. Research usually goes beyond the specific objects, groups or situations investigated and infers characteristics of a target population from the sample observed.
3. Research is based upon observable experience or empirical evidence. Research rejects revelation and dogma as methods of establishing knowledge and accepts only what can be verified by observation.
4. Research demands accurate observation and description. The researcher uses quantitative, numerical measuring devices, the most precise means of description. The researcher selects or devises valid data gathering instruments or procedures and employs appropriate mechanical, electronic, or psychometric devices to refine human observation, recording, computation and analysis of data.
5. Research involves gathering new data from primary or first-hand sources or using existing data for a new purpose.
6. It is more often characterized by carefully designed procedure, always applying rigorous analysis.
7. Research requires expertise. The researcher knows what is already known about the problem and how others have investigated it.

8. Researcher strives to be objective and logical, applying every possible test to validate the procedure employed, the data collected, and the conclusions reached. The emphasis is on testing rather than on proving the hypothesis.
9. Research involves the quest for answer to unsolved problems pushing back the frontiers of ignorance is its goal, and originality is frequently the quality of a good research project.
10. Research is characterized by patient and unhurried activity. It is rarely spectacular and the researcher must accept disappointment and discouragement as he pursues the answers to difficult questions.
11. Research is carefully recorded. Each important term is defined, limiting factors are recognized, procedures are described in detail, references are recorded, and conclusions are presented with scholarly caution and restraint.

3.4.2 Educational Research:
Educational research refers to a systematic attempt to gain a better understanding of educational process, generally for improving its efficiency. It is actually an application of scientific method to the study of educational problems. The main concerns of educational researches are to understand, explain, predict and control human behaviour in individual and social situations so that events or situations can be improved further.

Purpose of Educational Research:
(Rajput and Dudhade 2013) states that, "Researches in education are conducted for fulfilling the following purposes:

1. To solve the immediate local problems in education.
2. To ascertain principles and develop procedures for use in the field of education to determine to what extent we should go in educating children and adults.
3. To answer the questions related to education through reflective thinking to determine what should be based on what is as presents, and what was in the past.
4. To discover new application of principles and laws in the field of education".

3.4.3 Steps in Educational Research:
(Rajput and Dudhade 2013) put forth steps in Educational Research as follows -

1. **"Identification and definition of the problem:** Research problem is selected either by surveying the literature or by the experience when the researcher comes across a problem in actual situation. This problem is actually a question that is to be answered by using scientific enquiry and procedure. After defining various concepts, problem is stated in definite and clear terms. The problem is stated in such a manner that it becomes clear what data or evidence will be required to solve this problem.
2. **Formulation of hypothesis:** Hypothesis is formulated in the second step. Hypothesis is nothing but tentative solution of the problem. The relationship between various variables is understood by these hypotheses. They determine the direction of collecting data.
3. **Clarification of research procedure:** Procedure and method of research are clarified here. It refers to the general strategy to be followed in collecting and analyzing the data. The research method depends on the nature of problem under study and type of data required.
4. **Collection of data:** The method or technique to be used for collecting data is clarified here. Here, first, sample is chosen and then research tools such as questionnaire, testy, interview etc. are used on the sample.
5. **Analysis and interpretation of data**: At this step, data are first arranged in systematic form, and then they are analyzed and interpreted in the context of hypothesis. Appropriate quantitative as well as qualitative techniques are used for processing the data. This step helps in testing the hypothesis.

6. **Drawing conclusions and development of theory and principles:** This is the final step where conclusions are drawn on the basis of results and laws or principles (generalizations) are developed for wide use of the result".

After doing all this things the research report is now written in sequential form.

3.4.4 Characteristics of a Good Research

(Rajput and Dudhade 2013) gives characteristics of a Good Research -

1. "The research should contribute to human knowledge and human welfare
2. A research should never be an ending process. It must open the new avenues of research.
3. It is a deliberate effort not a flash of intuition, though it starts with sudden sparks of ideas.
4. A research is a specialized process rather than a generalized one
5. It must be able to solve local or national problems.
6. A research is more than compiling or analyzing the data. It must be able to develop theories or principles.
7. A research is a creative process that can question the authority.
8. It must be objective and free from bias".

3.5 Types / Nature of Research

(Best, John W. and James, V. 9th Edition) - There are mainly three types or purposes of research -

- ∂ Fundamental or Pure or Basic Research
- ∂ Applied Research
- ∂ Action Research

3.5.1 Fundamental or Pure or Basic Research

The goal of research is the development of theories by the discovery of broad generalizations or principles. Careful sampling procedures are employed to extend the findings beyond the group or situation studied. So far, little concern is shown for the application of the findings to the actual problems in areas considered to be the concern of people other than the investigator. Such an approach, which often leads to knowledge for knowledge's sake, is the approach of fundamental research.

Fundamental research is usually carried on in a laboratory or some other sterile environment, sometimes with animals. This type of research, which generally has no immediate or planned application, may later result in further research of an applied nature. Fundamental research in the behavioral sciences may be concerned with the development and testing of theories of behavior.

3.5.2 Applied Research

Applied research has most of the characteristics of fundamental research, including the use of sampling techniques and the subsequent inferences about the target population. However, its purpose is improving a product or a process – testing theoretical concepts in actual problem situations. Most educational research is applied research, for it attempts to develop generalizations about teaching-learning processes, instructional materials, the behavior of children and ways to modify it, and so on.

3.5.3 Action Research

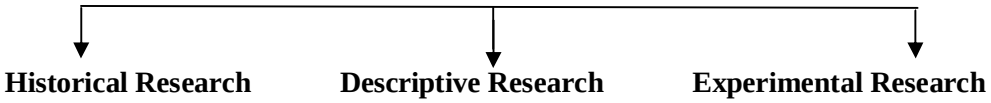
Action research is focused on immediate application, not on the development of theory or on generalization of applications. It has placed its emphasis on a problem here and now in a local setting. Its findings are to be evaluated in terms of local applicability, not universal validity. Its purpose is to improve school practices and at the same time to improve those who try to improve the practices: to combine the research processes, habits of thinking, ability to work harmoniously with others, and professional spirit.

3.6 Methods of Research

The Researcher has to think of the method of Research for achieving the Research objectives, while deciding the title and objectives of the research.

(Best and James, V. 7th Edition) classifies methods of Research. The classification is based on areas of Research, objectives of Research, data collecting tools, statistical tools etc.

Methods of research



3.6.1 Historical Research

History is a meaningful record of human achievement. It is not merely a list of chronological events but a truthful integrated account of the relationships between persons, events, times and places. History is used to understand the past and to try to understand the present in light of past events and developments. History is also used to prevent "reinventing the wheel" every few years. Historical analysis may be directed toward an individual, an idea, a movement, or an institution. However, none of these objects of historical observation can be considered in isolation. The focus merely determines the points of emphasis toward which historians direct their attention.

Historical research can be qualitative or quantitative or a combination. The issue addressed and the data available should determine the type of approach.

3.6.2 Descriptive Research

Descriptive Research deals with the relationships between variables, the testing of hypotheses, and the development of generalizations, principles, or theories that have universal validity. The expectation is that, if variable A is systematically associated with variable B, prediction of future phenomena may be possible, and the results may suggest additional or competing hypotheses to test. Descriptive research is sometimes divided into correlational research, causal-comparative research, and other descriptive research that is neither correlational nor designed to find causation but describes existing conditions. All of these types of descriptive research are included here because they have the same basic components. They all are attempting to find generalizable attributes, and they all deal with present conditions.

In carrying out descriptive research project, the researcher does not manipulate the variable, decide who receives the treatment, or arrange for events to happen. In fact, the events that are observed and described would have happened even if there had been no observation or analysis. Descriptive research also involves events that have already taken place and may be related to a present condition.

3.6.3 Experimental Research

Experimental Research provides a systematic and logical method for answering the question, "If this is done under carefully controlled conditions, what will happen?" Experimenters manipulate certain stimuli, treatments, or environmental conditions and observe how the condition or behavior of the subject is affected or changed. Their manipulation is deliberate and systematic. They must be aware of other factors that could influence the outcome and remove or control them so that they can establish a logical association between manipulated factors and observed effects.

Experimentation provides a method of hypothesis testing. After experimenters define a problem, they propose a tentative answer or hypothesis. They test the hypothesis and confirm or refute it in the light of the controlled variable relationship that they have observed. It is important to note that confirmation or rejection of the hypothesis is stated in terms of probability rather than certainty.

Experimentation is the classic method of the science laboratory where elements manipulated and effects observed can be controlled. It is the most sophisticated, exacting, and powerful method for discovering and developing an organized body of knowledge.

Although the experimental method finds its greatest utility in the laboratory, it has been effectively applied in the non-laboratory settings such as the classroom, where significant factors or variables can be controlled to

some degree. The immediate purpose of experimentation is to predict events in the experimental setting. The ultimate purpose is to generalize the variable relationships so that they may be applied outside the laboratory to a wider population of interest.

3.6.3.1 Steps of Experimental Research

Step I – Selection of the problem and limitation

The Researcher selects an educational problem, which he/she experiences while working in the "field". The Researcher then selects the area of research. It is necessary to be clear about the limitations of the problem. In addition, the area of study should be appropriately decided. The statement of the problem should be precise and clear. Even, the hypotheses should be well stated.

Step II – Survey of the related literature

It is necessary to analyze the literature related to the experiment. Studying the scientific books, research articles, etc. helps to make the nature of the research problem, further helping to decide whether experiment can be conducted or not.

Step III – Deciding the experimental design

Which tools are to be used? How and what to discuss with the group(s)? How to select the sample? etc. have to be thought of while deciding about the experimental design.

Step IV – Selecting the sample

The sample selected should be representative and adequate. From the characteristics of the sample, one should be able to infer it to be those of the population from which it is drawn.

Step V – Implementation or actually conducting the experiment

The purpose of the experiment should be achieved through the experimental design selected. The technique of controlling extraneous variables should be utilized properly. The time for conducting experiment should be enough. Care should be taken to maintain the homogeneity amongst the group.

Step VI – Testing of Hypothesis

The criteria, based on which the Hypothesis testing is to be done, should be selected carefully.

Step VII – Analysis of the experiment and interpretation of the meaning

Educational researches make more use of statistical tools as compared to the other fields of researches, due to which it is necessary for the Researcher to have adequate knowledge of statistics. The analysis of the information collected is done based on statistical principles.

Step VIII – Drawing inferences or conclusions

It is necessary to remember that, the conditions or circumstances under which the experiment have been conducted, the conclusions that have been derived or drawn will be limited to that experiment only.

Step IX – Preparing a report on the experiment conducted

The report prepared should be precise, meaningful and complete. It should not be too precise or exaggerated. The reader should be able to get a clear idea about the experiment after reading the report.

3.6.4 Survey

(Belapurkar. Mar. 2014) in her thesis simplifies about Survey as the method gathers data from a relatively large number of cases at a particular time. It is not concerned with characteristics of individuals as individuals. It is concerned with the statistics that result when data are abstracted from a number of individual cases. It is essentially cross – sectional.

In analyzing political, social, or economic conditions, one of the first steps is to get the facts about the situation or a picture of conditions that prevail or that are developing. These data may be gathered from surveys of the entire population. Others are inferred from a study of a sample group carefully selected from the total population. At times, the survey may describe a limited population that is the only group under consideration.

The survey is an important type of study. It must not be confused with the mere clerical routine of gathering and tabulating figures. It involves a clearly defined problem and definite objectives. It requires expert and

imaginative planning, careful analysis and interpretation of the data gathered, and logical and skillful reporting of the findings.

Surveys in Education are usually concerned with collecting information about school facilities, practices, problems, students, teachers or instructions. Survey data are usually collected using interviews, questionnaires and observations.

3.7 Type and Method of research

The present Research study falls under - Applied Research.

The Researcher had selected, 'Multi - method Research and Mixed – Method Procedures for Survey and Experiment (Quan + qual)', for conducting the research.

In the present research;

1. During the survey, a questionnaire and a checklist was administered on science teachers for deciding the content to be selected for the Life Skills Programme and preparation/development of Life Skills Programme i.e. Product. Besides, the Researcher followed the Content Analysis Method to achieve the same.
2. During another survey, 5 points Rating Scale for the students was conducted, to know the status of the level or extent to which the students possess the 10 Life Skills.
3. The Researcher developed a product – Life Skills programme based on Science content of Std. VIII, English Medium, S.S.C. Board, for developing five Life Skills (Self – awareness, Effective Communication, Critical Thinking, Problem Solving, Decision Making).
4. Experimental Method tested effectiveness of the Programme.
5. Finally, the usability of the Life Skills Programme i.e. the product was tested.

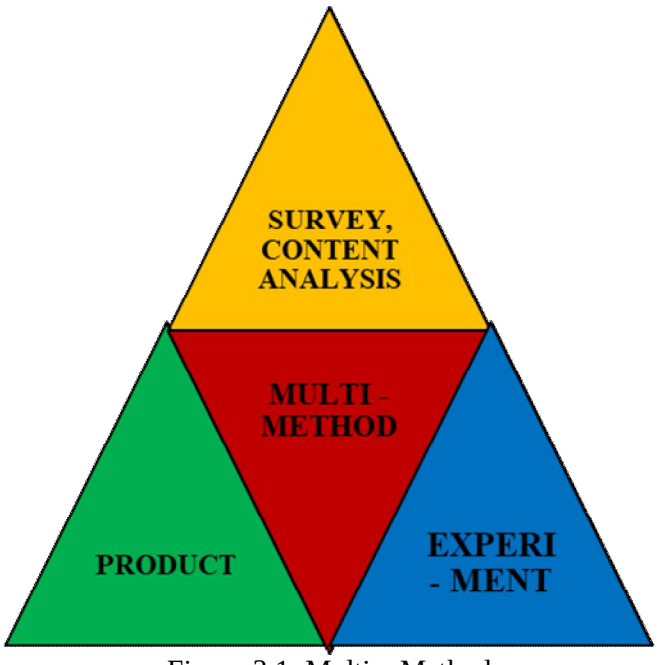


Figure-3.1: Multi – Method

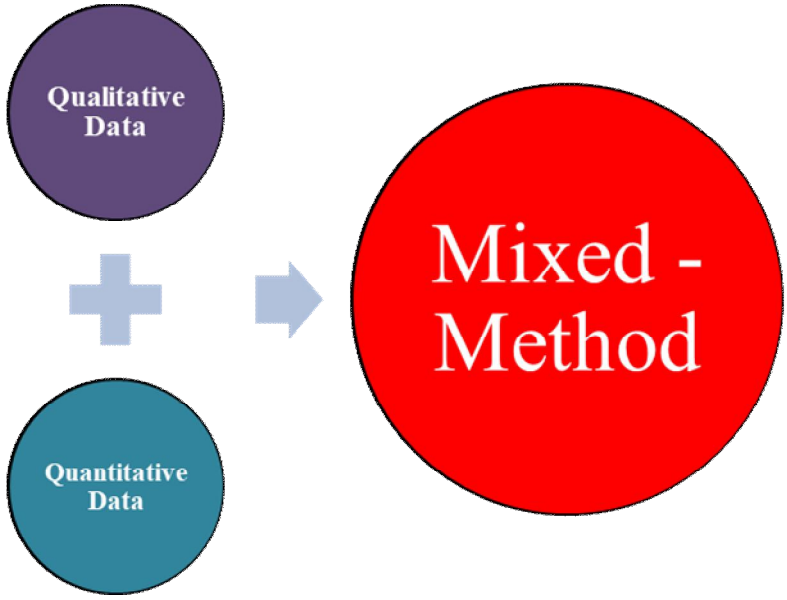


Figure-3.2: Mixed - Method

3.8 Experimental Design

(Best and James 10th Edition) explains that, the experimental design plays the role of a guide in research. This is because; finding out the answers to the questions and to carry out the research work in a particular and planned way is what is called as 'Experimental Design'.

Before conducting the research, it is necessary to decide the experimental design. There are different types of experimental design. It is also necessary to think about the advantages and disadvantages of various types of experimental designs. Which experimental design is to be selected is the work of the Researcher, depending upon the experiment, conditions and variables.

Depending upon the features of the research, available resources, the nature of the problem etc., and the experimental design has to be selected.

Types of experimental design are as follows -

Experimental Design

Pre-Experimental Designs | **True Experimental Designs** | **Quasi-Experimental Designs**

3.8.1 Pre-Experimental Designs

- The One-Shot Case Study
- The One-Group, Pretest-Posttest Design
- The Static-Group Comparison Design

3.8.2 True-Experimental Designs

- The Pretest-Posttest, Equivalent Groups Design
- Solomon Four-Group Design
- The Posttest-Only, Equivalent Groups Design

3.8.3 Quasi-Experimental Designs

- The Pretest-Posttest, non-equivalent Groups Design
- The Time-Series Design

- The Equivalent Time-Samples Design
- The Equivalent Materials, Pretest, Posttest Design
- Counterbalanced Design

3.8.4 Characteristics of the One/Single Group, Pretest-Posttest Design

- Only one group is selected. There is no experimental group and controlled group.
- Only one test is given but at two different times. Depending upon the differences in the scores, conclusions about the experiment are drawn.
- As the Researcher, requires only one group for experimentation, the experiment can be conducted without anybody's help.
- The work can be done properly, as only one-person works with one group or only one classroom, in similar conditions.
- As only one group exists, class control can be easily achieved.

In the experimental design, the purpose of the experiment is to study the effectiveness on the dependent variable of independent variable.

For the research undertaken, the Researcher had selected, **Pre-Experimental Design - The One/Single Group, Pretest-Posttest Design**. Here, a standardized rating scale with necessary modifications was given to the students based on, 'The existing level of Life Skills amongst the students', called as the pretest. The scores of the students were recorded. The Researcher then implemented the Researcher made Life Skills Programme for a period of approximately 3 months. The same standardized rating scale with necessary modifications was given to the students, as a posttest. The scores of students were recorded, based on which the effectiveness of the Life Skills Programme was decided.

3.8.5 Variables in the study

Variables are the conditions or characteristics that the experimenter manipulates, controls, or observes. (Best and Kahn, 2006, p. 176)

Independent variables

Independent variables are the conditions or characteristics that the experimenter manipulates or controls in his/her attempt to ascertain their relationship to observed phenomena. (Best and Kahn, 2006). It is often called the treatment or experiment variable. It may be a particular teaching method or a treatment strategy, a type of teaching aid or material to a particular condition.

In the present Research study, Life Skills Programme / Product developed by the Researcher, was used as an independent / treatment variable for the students of Std. VIII.

Dependent variables

That factor is observed and measured to determine the effects of independent variables. The value of dependent variables changes according to the changes in the independent variables. It may be a test score. Thus, the dependent variables are the measured changes in pupils' performance attributable to the influence of the independent variables.

In the present Research study, to measure the effectiveness of the Life Skills Programme, the dependent variable was the Achievement (scores achieved in the pre – test and post – test) of the students related to the five Life Skills (Self – awareness, Effective Communication, Critical Thinking, Decision Making and Problem Solving). It was measured with the help of the 5 points rating scale.

Extraneous variables

Extraneous variables are those, which cannot be controlled or manipulated by the experimenter. Socio – economic status of the students, age of the students and working capacity of the teacher, are few examples. While conducting the experiment; timetable**,** age of the students, topics, medium of instruction, IQ of the students, absentee of the students, self – motivation, attitude, interest, span of attention, fatigue etc. were some factors on which the experimenter had no control.

Controlled variables

The control variable (or scientific constant) in scientific experimentation is the experimental element which is constant and unchanged throughout the course of the investigation. The control variable strongly influences experimental results, and it is held constant during the experiment in order to test the relative relationship of the dependent and independent variables. The control variable itself is not of primary interest to the experimenter.

In the present Research study, Students of Std. VIII were kept constant and unchanged throughout the experiment.

3.9 Population and Sampling

Most of the researches are based on sample rather than population. The reason is that it is impracticable to observe the total population or to apply a questionnaire or any other tool on the total population under controlled condition. Shortage of time or money is another problem. Study of the total population is neither possible nor needed because if sample is representative to the population, it will give the same result.

Though the population comprises of science teachers and students of all the Std. VIII, English Medium, S.S.C. Board, of Maharashtra, conducting experiment for the entire population is too much time consuming, expensive and effort taking. Thus, it is not feasible to conduct an experiment for such a large population. To draw generalization about the entire population, few persons are selected for conducting the experiment. This small representative but adequate group is called as 'sample'.

3.9.1 Meaning of sampling

Sampling is the process by which a relative small number of individuals, objects or events is selected and analyzed to find out something about the total population from which the sample was drawn. It helps to reduce expenditure, time and energy of the researcher and can produce greater precision and accuracy due to better controlling.

"Sampling is the process of selecting a number of individuals for a study in such a way that individuals represent the largest group from which they were selected."

3.9.2 Meaning of the sample

Representative proportion of the population is called sample. This proportion is not fixed sometimes. Less than 1% proportion of the population may provide a representative sample but sometimes a bit larger sample is needed.

3.9.3 Steps of sampling

(a) Defining the population

(b) listing the population

(c) Selecting a representative sample

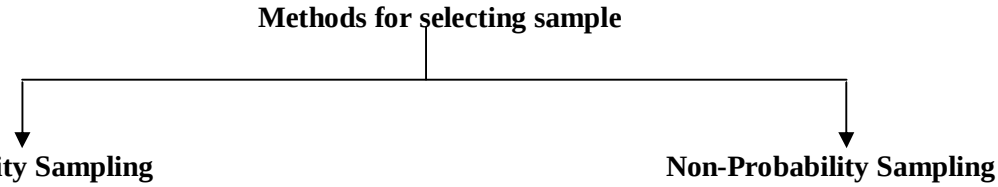
(d) obtaining an adequate good sample(Proper size of the sample)

3.9.4 Need for selecting the sample

- If sampling is done on scientific basis, time, money and energy are saved. In addition, it does not create any obstacles while conducting the research.
- Population has a much wider scope. Studying such a large population is not practically feasible. Therefore, the Researcher has to depend upon the sample.
- Quantitatively, based on many researches, it has been proved that the conclusions drawn from the population and those drawn from the sample are similar.
- In sampling, the study group is limited and hence the level of study increases qualitatively.
- The available resources and facilities are limited. Due to which appropriate conclusions can be drawn quantitatively, from the sample, for which it has been utilized.
- Due to sampling, administration and management of the sample becomes easy due to which, research becomes exact and desirable.

Two methods are mainly used for selecting sample –

3.9.5 Methods for selecting the sample



a. Randomness
b. Lottery method
c. Random Numbers
d. The Simple Random Sample
e. The Systematic Sample
f. The Stratified Random Sample
g. The Area or Cluster Sample

a. Incidental sampling
b. Quota Sampling
c. Purposive Sampling

3.9.5.1 Probability Sampling

Probability sampling is that sampling in which the probability of selecting the sample from the population can be stated. The Researcher can state the probability of selecting the sample from every component of the field of study.

In this method of sampling, each unit of the population has equal chance of being selected. That is why they are also called random samples.

According to Good (1966, p. 217) probability samples have the following characteristics:

1. Each unit in the sample has some known probability of entering the sample.
2. Weights appropriate to the probabilities are used in the analysis of the sample.
3. The process of sampling is automatic in one or more steps of selection of units in the sample.

In probability sampling, a Researcher designs the sample in a way that ensures that each unit in the population has a fair chance of being selected and numerical value of that chance can be calculated. These methods can help the researcher in the following ways:

The researcher can know the size of the sample, which is needed for a desire level of accuracy.

I. S/he can tell the chance of each unit being selected.
II. S/he can calculate sampling error.
III. S/he can determine the level of confidence.

3.9.5.2 Non-Probability Sampling

In non-probability sampling, the Researcher takes the decision on his/her own, regarding the selection of the representative and adequate sample from the population. Here the Researcher cannot state the probability of selecting the sample from every component of the field of study.

Here, personal decision of the researcher is important. Convenience and economy are the two main advantages. Adequate sample is necessary for the study selected.

In this method, sample is selected by the discretion of the researcher and no theoretical basis is taken into consideration here. While selecting the sample, the researcher only thinks where selecting the sample, the researcher only thinks where he will get the required data to serve his purpose. That is why it is also called purposive sample. For example, if a researcher wants to study the relationship between socio-economic

status and achievement, he will select those schools purposefully where rich and poor students study. This selection will be done based on personal experience.

Advantages of non-probability sample
These methods are very useful in the situation when,

i) The sample is to be selected is small and researcher wants to get some idea about the population characteristics in a very short period.

ii) The researcher wants to understand the problem by contacting with only informed people.

iii) Different units of the populations have total characteristics of their respective units, and then selection of few units out of so many is considered sufficient.

Limitations of non-probability methods
1. Such sample can be biased and hence generalization of results for the entire population may be misleading.
2. Sampling errors in these samples cannot be determined because they can affect variance within the group as well as between groups.
3. Such samples depend on uncontrolled factors and researcher's insight, which cannot be relied on all the time.
4. Such sampling frame does not adequately cover the population.

For **Objective 1**, the Researcher used **Non - Probability Sampling Method, Purposive Sampling Method** for selecting 17 Science teachers, for administering the questionnaire and check – list (both were validated from six subject experts and one research expert), for selecting the content from Std. VIII, Science textbook to be included in the Life Skills programme as well as for the development of the Life Skills programme/product.

List of experts is been annexed.
For **Objective 2**, the Researcher used **Probability Sampling Method, Random sampling Method** for selecting 16 English Medium Schools (1528 students), from Pune Corporation area for conducting the **Survey**.

List of schools and students is been annexed.
For **Objective 3**, the Researcher used **Non - Probability Sampling Method, Purposive Sampling Method** for selecting a school for conducting the Experiment on 33 students.

List of students is been annexed.
For **Objective 4**, the Researcher used **Non - Probability Sampling Method, Purposive Sampling Method** for selecting 10 Science teachers, teaching to Std. VIII, English Medium School, S.S.C. Board, for administering the Researcher made Rating Scale to test the usability of the Life Skills Programme i.e. the product.

List of Science teachers is been annexed.
3.10 Data collection Tools
Data collection tools are nothing but data gathering devices that serve the Researcher in the acquisition of data.

Depending upon the type of the data required and the nature of the information required by the Researcher, for his/her research, data collection tools are selected. Use of data collection tools is essential for conducting research. More are the data collection tools flawless; greater will be the research flawless. No tool is of superior quality than the other every time. Therefore depending upon the necessity of the study, data collection tools are selected.

“Like tools in the carpenter’s box, each research tool is appropriate in a given situation to accomplish a particular purpose each data gathering device has merits or limitations.”

Examples of Data collection tools are as follows –

- ♥ Observation
- ♥ Interview
- ♥ Questionnaire
- ♥ Inventory
- ♥ Attitude scale
- ♥ Rating scale
- ♥ Projective techniques
- ♥ Standardized tests
- ♥ Sociometric techniques
- ♥ Check – list

Data collection tools used for the research undertaken

The research topic selected by the researcher, requires various types of information or data to be collected. For collecting the data, various tools are available. From these various available tools, the Researcher selects the tool appropriate for his/her research, taking into consideration its advantages and disadvantages.

Tools and Techniques for data collection

After careful study about the tools and techniques, suitability and appropriateness, the Researcher selected following suitable tools for data collection.

Questionnaire

Questionnaire is one of the tools used for data collection and comes under the category of Inquiry forms. It is a Research instrument consisting of a series of questions and other prompts asked to individuals to obtain statistically useful information about a given topic. In the words of (Best and Kahn 10th edition) "It is used when factual information is desired" and the Researcher has used it to do the same. There are two types of Questionnaire, Closed form or the Restricted form and Open form or the Unrestricted form. In the words of (Best and Kahn 10th edition), "Questionnaires that call for short, check-mark responses are known as Closed or Restricted form, type. Here mark a yes or no, write a short response, or check an item from a list of suggested responses. Whereas the Open or Unrestricted, questionnaire calls for a free response in the respondent's own words". The Researcher had used both the types i.e. Open or Unrestricted form, type and Closed or Unrestricted form, type of Questionnaire, for collecting the data, as any one type would not had been sufficient to solve the purpose.

In the present Research study, a Questionnaire was prepared for the teachers to help in the designing and development of the Life Skills Programme. While preparing the Questionnaire the Researcher attempted to put forth the questions in such a way that the subjects were able to provide the required information. The topics and issues to be covered were prepared in advance, checked, and verified by the experts.

The reasons for using Questionnaire as a tool were

- ➢ It deals with a significant topic, once the respondent will recognize as important enough to warrant spending one's time on.
- ➢ It only seeks information that cannot be obtained from other sources such as school reports or census data.
- ➢ It is as short as possible and only long enough to get the essential data.
- ➢ It is attractive, neatly arranged and clearly duplicated or printed. Directions are given, important terms are defined, and each question deals with a single idea and is worded as simply and clearly as possible.
- ➢ The questions are objective with no leading questions.
- ➢ The questions are presented in a good psychological order, proceeding from general to responses that are more specific.

- It is simple to tabulate and interpret.

Check - List

(Rajput and Dudhade 2013) opines, the check - list to be the simplest of the devices and is a prepared list of behaviors or items. The presence or absence of the behavior may be indicated by checking yes or no, the type or number of items may be indicated by inserting the appropriate word or number, or a mark may be made each time a behavior is observed in the space for that behavior (these marks are counted later for the total number of times each behavior occurred.) This simple "laundry-list" device systematizes and facilitates the recording of observations and helps to ensure the consideration of the important aspects of the object or act observed. Readers are familiar with check - lists prepared to help buyers purchase a used car, choose a home site, or buy an insurance policy, which indicate characteristics or features that one should bear in mind before making a decision.

In the present Research study, Check – List was prepared for the teachers to help in the designing and development of the Life Skills Programme. The topics and issues to be covered were prepared in advance, checked, and verified by the experts.

Rating Scale

The rating scale involves qualitative description of a limited number of aspects of a thing or of traits of a person. The classifications may be set up in five to seven categories in such terms as:

1.	Superior	Above average	Average	Fair	Inferior
2.	Excellent	Good	Average	Below average	Poor
3.	Always	Frequently	Occasionally	Rarely	Never

Table-3.1: Categories of Rating Scale

One of the problems of constructing a rating scale is conveying to the rater exactly which quality one wishes to evaluate. It is likely that a brief behavioral statement is more objective than an adjective that may have no universal meaning in the abstract. For this, the traits and categories must be very carefully defined in observable (behavioral) terms.

In addition, the halo effect causes raters to carry qualitative judgment from one aspect to another. Thus, there is a tendency to rate a person who has a pleasing personality high on other traits such as intelligence or professional interest. This halo effect is likely to appear when the rater is asked to rate many factors on a number of which he has no evidence for judgment. This suggests the advisability of keeping at a minimum the number of characteristics to be rated.

Another limitation of rating is a raters' tendency to be too generous. A number of studies have verified the tendency to rate 60% to 80% of an unselected group above average in all traits. Rating scales should carry the suggestion that raters omit the rating of characteristics that they have had no opportunity to observe.

In the present Research study, **the Researcher used Standardized Rating Scale developed by Rajiv Gandhi Institute of Youth Development**.

For Objective 1 - Questionnaire and **Check - List** were administered on 17 science teachers for selecting the content from Science textbook of Std. VIII affiliated to S.S.C. Board, to be included in the Life Skills Programme and the development of the Product. In addition, the Researcher herself followed the Content Analysis Method to achieve the same.

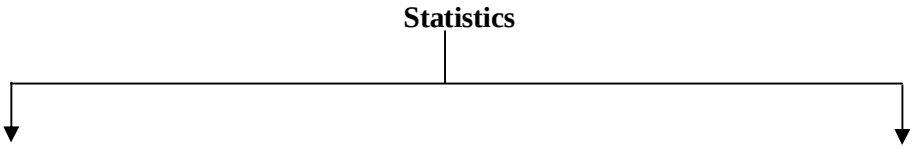
For Objective 2 - Standardized Rating Scale was used by the Researcher for collecting factual information under Survey method, to know the extent or level of 10 Life Skills that 1528 students possess.

For Objective 3 - Standardized Rating Scale with necessary modifications, was used as a pre-test and post-test on 33 students, under Experimental method.

For Objective 4 - Researcher made Rating Scale was used to test the usability of the Life Skills Programme i.e. the product.

3.11 Statistical Tools

Increasing, statistical knowledge is been used in research study, as scientific analysis of research data is specifically important. After collecting the data, its analysis and interpretation has to be done using appropriate tools. For this, plotting the graph, deciding the central tendency, variability, what is the relation between the two variables etc. are the questions to be solved and for all these use of statistical terms, rules, principles, formulae becomes necessary. In addition, statistical analysis and interpretation is essential for deciding whether to accept or reject the Null Hypothesis and drawing conclusions.



Descriptive Statistics	Inferential Statistics
a. Measures of central tendency	a. Frequency
(Mean, Median and Mode)	b. Sample distribution
b. Measures of variability	c. Standard error
(Range, Quartile deviation, Standard	d. t - test
deviation and Mean deviation)	e. chi – square
c. Co-efficient of correlation	f. f – test

For the research undertaken, Data collected was analyzed by using following statistical tools.

For Objective 1 - Coding and Grouping (Qualitative tools of analysis of data)

For Objective 2 - Tabular and Graphical representation

For Objective 3 - Tabular and Graphical representation

Q – Q plot

- Descriptive Statistics

Mean

Standard Deviation

- Repeated Measures MANOVA

Standard Error

Effect size - Partial Eta Squared values

Bartlett's Test of Sphericity

Pillai's Trace

Greenhouse - Geisser

For Objective 4 - Coding and Grouping

- Percentage

- Tabular and Graphical representation

3.12 Usability of the Life Skills Programme/Product

To study the usability of the Life Skills Programme i.e. the product was one of the objectives of the present study. Usability is a type of testing in which testing the application of the Life Skills Programme in order to check whether it was user friendly or not. This is one of the techniques of system testing that ensures that the end user uses the programme/product efficiently and satisfactorily.

Usability testing of Life Skills Programme

- **Goal -** Usability is the art and science of making documents and product usable, useful and most of all satisfying. Usability testing is carried out in experiments to find out specific information about a programme/product.
- **Purpose** -The usability testing of the Life Skills Programme/product evaluated the potential for errors and difficulties involved in using the programme/product.
- **Concern -** The following concerns are identified as being relevant to the testing process.

a. Is the programme/product, suitable for use to develop/enhance/improve Life Skills through Science content?

b. Are the strategies/techniques/activites included in the programme/product feasible to conduct to the user and do they facilitate learning as well as develop/enhance/improve Life Skills.

c. Does the user agree, if the programme/product is suitable to the students of Std. VIII?

Target Audience

The selection of participants was based on the background and abilities that is representative of the end user. There are two approaches of the usability testing, one is experts group and second is user group.

Although the data collected was subjective, it provides valuable information on what the user wants.

3.12.1 Selection criteria for the expert group and user group are –

Expert group – Knowledge about Life Skills and the content of Science textbook of Std. VIII, S.S.C. board.

List of the experts is been annexed.

User Group (Focus Group) – Science teachers of Std. VIII students, English Medium Schools, S.S.C. Board, was the focus group taken into consideration to study the usability of the Life Skills Programme/product. The focus group is a focused discussion where a moderator leads a group of participants through a set of questions on a particular topic. A group of 10 users was gathered to discuss what they desire in the product.

List of the user group is been annexed.

Size of sample for user group

To study the usability of the Life Skills Programme/product, the researcher selected six experts in Science subject and who had the knowledge of Life Skills. Ten experienced Science teachers, each teaching in a different English Medium School to the students of Std. VIII, were selected as the focus group.

(http://www.usability.sereco.com/trump) In the present Research study, the usability of the Life Skills Programme/product was studied using the following steps –

3.12.2 Steps to study the usability of the Life Skills Programme/product

Usability is a quality attribute that assess how easy user interfaces are to be used. Usability is defined by quality components.

Selection of Usability Quality Components

Usability of the Life Skills Programme/product was studied based on the following Usability Quality Components.

1. **Understandability –** Attributes of the programme/product that bear on the users' efforts for recognizing the logical concepts and its applicability, for instance – How easy is it for the users to develop/enhance/improve the Life Skills – Self – awareness, Effective Communication, Critical Thinking, Decision Making and Problem Solving with respect to the Science content and students of Std. VIII?
2. **Learnability –** Attributes of the programme/product that bear on the users' efforts for learning the application, for instance – How easy it is for the users to accomplish the tasks the first time they encounter in the programme/product?

3. **Operatibility –** Attributes of the programme/product that bear on the users' efforts for operations, for instance – How easy it is to conduct the Fish – bone method for understanding the causes of Energy crisis, included in the programme/product.
4. **Utility** – This refers to the programme /product's functionality. It means what users used and what the users want.
5. **Objectivity** – This refers to the capability of the programme/product to achieve the objectives of the programme/product.
6. **Attractiveness** – This refers to the capability of the programme/product to be liked by the user.
7. **Satisfaction** – This refers to the users' feelings about the programme/product. Users express their suggestions and comments.
8. **Applicability** – Attributes of the programme/product which are applicable to the users i.e. students of Std. VIII.

Selection of Usability Method

There are many methods for studying usability. However, the most basic and useful is user testing, which has three components.

- ✓ Find some representative users.
- ✓ Ask the users to perform representative tasks with the design.
- ✓ Take feedback and conduct interview, to find out the user's reaction, about the merits and demerits with the user interface.

(Nelsen, J. 1993) and (Reeves, Hedberg, 2001) have discussed several methods for collecting usability data. A combination of methods is often useful for improved usability testing. Usability testing includes –

- Observation
- Think aloud
- Questionnaires
- Interviews
- Focus Groups
- Rating Scale
- Check List
- Logging actual use
- User feedback
- Heuristic Evaluation
- Pluralistic walkthrough
- Formal usability inspection
- Empirical methods
- Cognitive walkthroughs
- Formal design analysis

Out of these methods, the Researcher selected the following method to study the usability of the programme/product.

Methods of Usability

I. Focus Group, Interview, Rating Scale and User feedback

II. Logging actual use

I - Focus Group, Interview, Rating Scale and User feedback

Information about the usability of a product can be obtained through Focus Group, Interview, Rating Scale and User feedback Questionnaires, from real users who do not necessarily take part in a usability observation. Groups of authentic users can be gathered to provide feedback on usability or the feedback can be gathered via a web - based survey, email or through a paper based rating scale.

In this method immediately after a usability testing discussion the user was interviewed, given a rating scale, and/or asked for feedback about their experience with the resource. This was often a good time to clarify the user's thought processes. The user discussed whether they had difficulty interacting with the instructional resource and many other such points. The Researcher obtained their suggestions to know whether there is any scope for ways to increase the effectiveness and efficiency of the programme/product.

II - Logging actual use

This method is used to learn how users interact with the programme/product. It helps to collect an overwhelming amount of data. With this method, it may be wise to focus only on collecting actual use data that can be directly analyzed to study the usability. The large amount of data gathered must be organized to be of use.

Usability testing documents

The Researcher prepared the following documents for studying the usability of the programme/product.

Preparation of the DVD and hard copy for Life Skills Programme

Life Skills Programme was prepared for user group and experts to provide detail guidelines about the programme/product. A DVD and hard copy of the programme/product was given to the experts to obtain their suggestions and comments about the Life Skills Programme. Experts had experience and knowledge of the Life Skills and the Science content of Std. VIII, Science textbook, and S.S.C. Board. This provided useful feedback about the Life Skills Programme.

DVD and hard copy is provided separately.

Preparation of the Rating Scale

The Rating Scale was prepared based on quality components of Usability. As requirement of the programme/product, seven usability quality components were selected. The statements were framed according to the components. The Rating Scale was given to the user group to obtain feedback about the programme/product. The details of Rating Scale is given in the following table –

Sr. No.	Usability quality components	No. of questions
1	Understandability	04
2	Learnability	04
3	Operatability	04
4	Utility	04
5	Objectivity	01
6	Attractiveness	01
7	Applicability	02
Total		**20**

Table No-3.2: Description of the Rating scale of Usability

Procedure to study the Usability of Life Skills Programme/Product

The Researcher adopted the following procedure to study the usability of the programme/product

For the expert group

- The Researcher identified the expert group.
- Distributed the DVD and the hard copy and explained about the Life Skills Programme/Product.
- Experts' suggestions and comments about the programme/product were obtained.

- Revised the programme/product as per the experts' suggestions.

(This procedure was carried out before implementing the Life Skills Programme in the experimental school)

For the user group

- The researcher identified the user group.
- A brief introduction and orientation about the Life Skills programme/product was given to the users.
- Explained the purpose and the objectives of the usability of the programme/product.
- Distributed the DVD and the hard copy of the Life Skills programme/product. Explained the procedure and method of implementation of the programme/product to the user group.

Data analysis of Usability

Data analysis was done by using Percentage. The users' responses were analyzed. This analysis is been provided in Chapter IV.

Experts' suggestions and comments have been provided in Chapter IV.

3.13 Methodology and Procedure of Research

Objective No.	Research Method	Sampling procedure – Method - Technique	Sample size	Tools and techniques for Data collection	Tools for Data analysis
1	Survey and Content Analysis	Non – Probability, Purposive Sampling Method	17 Science teachers	Researcher made Questionnaire and Check - List	Coding and Grouping (Qualitative tools of analysis of data)
2	Survey	Probability, Random Sampling Method	1528 students of std. VIII	Standardized Rating Scale	Tabular and Graphical representation
3	Product Development and Experiment	Non – Probability, Purposive Sampling Method (Exp.)	33 students of std. VIII (Exp.)	Standardized Rating Scale with relevant editions (Exp.)	a. Tabular and Graphical representation (Q – Q plot) b. Descriptive Statistics (Mean, Standard Deviation) c. Repeated Measures MANOVA (Standard Error, Effect size – Partial Eta Squared values, Bartlett's Test of Sphericity, Pillai's Trace, Greenhouse – Geisser)
4	Survey	Non – Probability, Purposive Sampling Method	10 Science teachers	Researcher made Rating Scale	Coding and Grouping, Percentage, Tabular and Graphical representation

Table No. 3.3 Research Method, Sampling procedure, method, technique and Tools

Objective 1 - To identify the topics from eighth standard Science textbook to be included in the Life Skills Programme.

A questionnaire and a check - list was administered on 17 experienced, Science teachers, teaching Science subject to students of Std. VIII, S.S.C. Board. The questionnaire consisted of 18 open ended questions and

the Check - List consisted of 18 items. In addition, the Researcher herself followed the Content Analysis Method.

Validation of the Questionnaire and Check - List was done from six Subject experts and one Research expert). List of expert is been annexed.

Objective 2 - To assess the current extent to which the students possess the Life Skills – Empathy, Self-awareness, Interpersonal Relationships, Effective Communication, Critical Thinking, Creative Thinking, Problem Solving, Decision Making, Coping with emotions and Coping with stress.

A survey of 1528 students (16 schools) of Std. VIII, English Medium, S.S.C. Board, was conducted. A standardized five points Rating Scale (developed by Rajiv Gandhi Institute of Youth Development) consisting of 100 statements was administered.

Objective 3 - To develop a Life Skills Programme and test its effectiveness.

Before conducting the experiment, a pilot study was conducted on students of Std. VIII, English Medium, S.S.C. Board (Huzurpaga Girls' School, Katraj, Pune). The objective was to check the problems regarding time, instructions, content of the Life Skills Programme etc. After conducting the pilot study, responses given by the students were studied and few changes / modifications were made. These are as follows:

a. More detailed and extra information on the topics from Science textbook of Std. VIII.

b. Certain topics were removed as were of not much relevance.

c. Number of activities were increased, to have more participation of the students.

d. Lecture based sessions were completely replaced by interactive lectures supported by power point presentations with audio.

e. The period of implementation and execution of the Life Skills Programme was extended from 60 days to 80 days.

List of students is been annexed.

Final product in the form of Life Skills Programme was thus prepared.

An experiment was conducted on 33 students of Std. VIII, English Medium, S.S.C. Board (Modern English School, Warje, and Pune). A pre-test in the form of Standardized 5 points Rating Scale (developed by Rajiv Gandhi Institute of Youth Development), with some modifications, consisting of 51 statements was conducted. Then Researcher made Life Skills Programme (Product) was implemented for 3 months and then post – test was conducted. (the same Rating Scale which was used for pre – test).

Objective 4 - To test the usability of the developed programme.

Usability is a type of testing in which testing the application of the Life Skills Programme in order to check whether it was user friendly or not. This is one of the techniques of system testing that ensures that the end user uses the programme/product efficiently and satisfactorily.

The Researcher gave the Life Skills Programme to 10 Science teachers of Std. VIII, S.S.C. Board and collected information by discussing, administering rating scale and acquiring feedback.

Selection criteria for the expert group and user group are –
Expert group – Knowledge about Life Skills and the content of Science textbook of Std. VIII, S.S.C. board.

User Group (Focus Group) – Science teachers of Std. VIII students, English Medium Schools, S.S.C. Board, was the focus group taken into consideration to study the usability of the Life Skills Programme/product. The focus group is a focused discussion where a moderator leads a group of participants through a set of questions on a particular topic. A group of 10 users was gathered to discuss what they desire in the product.

Size of sample for user group

The researcher selected six experts in Science subject and who had the knowledge of Life Skills. Ten experienced Science teachers, each teaching in a different English Medium School to the students of Std. VIII, were selected as the focus group.

Methods of Usability

III. Focus Group, Interview, Rating Scale and User feedback

In this method immediately after a usability testing discussion the user was interviewed, given a rating scale, and/or asked for feedback about their experience with the resource. This was often a good time to clarify the user's thought processes. The user discussed whether they had difficulty interacting with the instructional resource and many other such points. The Researcher obtained their suggestions to know whether there is any scope for ways to increase the effectiveness and efficiency of the programme/product.

IV. Logging actual use

This method is used to learn how users interact with the programme/product. It helps to collect an overwhelming amount of data. With this method, it may be wise to focus only on collecting actual use data that can be directly analyzed to study the usability. The large amount of data gathered must be organized to be of use.

Procedure – Life Skills Programme was prepared for user group and experts to provide detail guidelines about the programme/product. A DVD and hard copy of the programme/product was given to the experts to obtain their suggestions and comments about the Life Skills Programme. Experts had experience and knowledge of the Life Skills and the Science content of Std. VIII, Science textbook, S.S.C. Board. This provided useful feedback about the Life Skills Programme.

The Rating Scale was prepared based on quality components of Usability. As requirement of the programme/product, seven usability quality components were selected (Understability, Learnability, Opertability, Utility, Objectivity, Attractiveness and Applicability). The statements were framed according to the components. The Rating Scale was given to the user group to obtain feedback about the programme/product.

Data analysis was done by using Percentage. The users' responses were analyzed.

3.13.1 Development of Life Skills Programme

Following steps of Product Development, which were given by YCMOU (Sanshodhan Margadarshak Malika, Pushpa – 15, p. 27) were followed for the development of the Life Skills Programme.

Step 1 – Initial scoping of developing a programme based on the Life Skills and contents of Science textbook of Std. VIII.

The main aim of developing the programme was to develop / enhance the selected five Life Skills of the students of Std. VIII.

Step 2 – Objectives of the Life Skills Programme.

Step 3 – Nature and planning of Life Skills Programme, developing an outline of Life Skills Programme for instruction.

Step 4 – Developing a Life Skills programme based on the Life Skills and contents of Science textbook of Std. VIII.

Step 5 – Description of the Life Skills Programme.

Step 6 – The tryout of the Life Skills Programme.

Step 7 – Validation of the Life Skills Programme.

Step 8 – Changes and modifications in the Life Skills Programme as per the suggestions of the experts.

Step 9 – Final draft of the Life Skills Programme.

Step 10 – Conducting the experiment i.e. actual implementation of the Life Skills Programme.

Step 11 –Co – relation of objectives and findings.

Step 12 – Findings and recommendations.

Step 13 – Report writing

3.13.2 Validity of the Life Skills Programme

(Campbell and Stanley 1966) mentions that the validity of the experiment or programme is of two types i.e. internal validity and external validity. The internal validity deals with the authenticity of cause and effect relationship and deals with the question of whether or not treatment actually caused and observed outcomes in an experiment.

Threats to internal validity and external validity of the Life Skills Programme was controlled as follows:

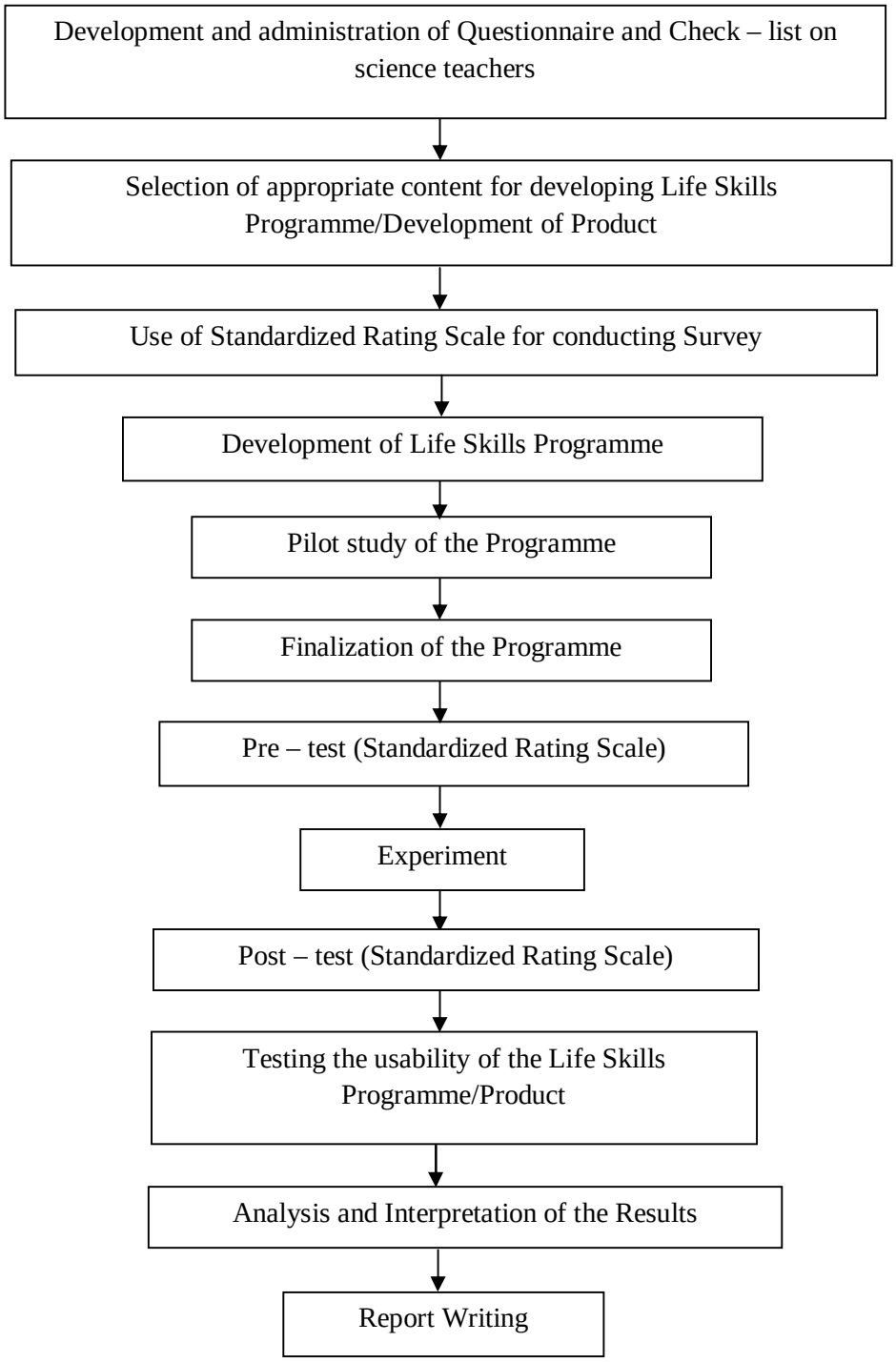
Internal Validity – In the present study, the threats in internal validity have been controlled by the techniques as shown in the table below:

Sr. No.	Threat	Description	Controlled in the final draft of the Life Skills Programme
1.	History	Unexpected events occur between pre – test and post –test of the Life Skills Programme affecting the dependent variable	Nothing happened In between pre – test and post – test
2.	Maturation	Changes occur in the participants from growing older, wiser, more experienced etc. during the study	The Life Skills Programme was implemented for the duration of three months only
3.	Testing	Taking pre – tests alters the results of the post – test	Duration of the study was 90 days
4.	Mortality	Different participants drop out of the study in different numbers	There were no significant drop outs
5.	Differential selection	Participants have different characteristics that affect the dependent variables differently	Not applicable. Single group pre – test post – test design was used
6.	Selection of Maturation	The participants selected into treatment groups have different maturation rates. Selection interactions also occur with history and instrumentation	Not applicable. Single group pre – test post – test design was used

Table No. 3.4 Threats to Internal validity

External Validity – The threat of interaction between the two groups or the students of the same standard / class, who were not a part of the experiment, did not arise, as a single group comprising of all students of Std. VIII, was the experimental group. The Researcher brought the content of the experiment and timetable under control. The artificiality of the experimental setting was not applicable as the experiment was carried out in real life situation. The treatment verification was out of question as the Researcher herself gave the experimental treatment.

3.13.3 Flow – chart of the Procedure of the Research conducted



3.14 Life Skills Programme at a Glance

(SA - Self awareness, E - Empathy, IR - Interpersonal relationships, EC - Effective communication, CT - Creative thinking, CCT - Critical thinking, PS - Problem solving, DM - Decision making, CS - Copying with stress, CE - Copying with emotions)

Sr. No	Time Period	Life Skill Promoted	Supplementary LS promoted	Content	Method/ Technique/ Strategy	Material Used	Educational/ Psychological/ Theoretical base
1.	Day one, two and three (1 ½ hrs.)	All 10 Life Skills	-	Introduction to 10 Life Skills	Interactive Lecture supported by power point presentation	Power point slides with audio	Social emotional learning, Experiential learning, Situated learning and community of practice, Social learning, Constructivism, Social constructivism, Brain based Learning, Cognitive Development, Multiple Intelligence, Cooperative Learning, Collaborative Learning
2.	Day four, five, six, seven (2 hrs.)	Self - awareness	EC, IR, CcT, DM	Information about Self – awareness, Nutritional needs, Importance of sports and recreational activities for healthy body	Interactive Lecture supported by power point presentation Brain storming, Individual and Group Activities,	Power point slides with audio, Audio visual presentation, Blank sheets, Work sheets	Social Emotional Learning, Constructivism, Social Constructivism, Brain based Learning, Social Learning, Situated Learning, Cooperative Learning, Collaborative Learning
3.	Day eight, nine, ten, eleven, twelve (2 ½ hrs.)	Self - awareness	E, EC, IR, CcT, PS	Typhoid and Cholera – Mode of infection, Symptoms, Preventive Measures, Treatment	Interactive Lecture supported by power point presentation Situation based analysis, Group Discussion, Group presentation	Power point slides with audio, Printed material, Audio visual presentation	Social constructivism, Cognitive Development, Social Learning, Situated Learning, Cooperative Learning
4.	Day thirteen, fourteen, fifteen (1 ½ hrs.)	Self - awareness	E, EC, IR, CcT, PS	Enteritis and Diarrhea – Mode of infection, Symptoms, Preventive Measures, Treatment	Interactive Lecture supported by power point presentation Group Discussion	Power point slides with audio, Audio visual presentation	Social Constructivism, Social Learning, Cooperative Learning
5.	Day sixteen, seventeen, eighteen, nineteen (2 hrs.)	Effective Communication	IR, CT	Information about Effective Communication	Interactive Lecture supported by power point presentation Group Activities	Power point slides, Clippings, Message	Social Constructivism, Cooperative learning, Collaborative learning, Social Learning, Multiple Intelligence

Sr. No	Time Period	Life Skill Promoted	Supplementary LS promoted	Content	Method/ Technique/ Strategy	Material Used	Educational/ Psychological/ Theoretical base
6.	Day twenty, twenty one, twenty two, twenty three, twenty four (2 ½ hrs.)	Effective Communication	E, SA, IR, CT	Polio - Mode of infection, Symptoms, Preventive Measures, Treatment, Pulse Polio Campaign	Interactive Lecture supported by power point presentation Poster Making, Group presentation Skit, Group Discussion	Power point slides with audio, Charts, Pictures, Sketch pens, Markers etc., Audio visual presentation	Social Constructivism, Social Learning, Social Emotional Learning, Cooperative learning, Collaborative learning, Multiple Intelligence, Experiential Learning
7.	Day twenty five, twenty six, twenty seven, twenty eight, twenty nine (2½hrs.)	Critical Thinking Problem Solving	EC, IR	Information about Critical Thinking and Problem Solving, Nine Dots Game, Media's Effect, Problem Situations	Interactive Lecture supported by power point presentation Brain storming, Group Discussion, Group Activities, Situation Analysis	Power point slides with audio, Newspaper cuttings, Pictures, Printed material (Write ups)	Experiential Learning, Constructivism, Cooperative learning, Collaborative learning, Social Learning, Situated Learning, Social Constructivism, Cognitive Development
8.	Day thirty, thirty one, thirty two (1½hrs.)	Critical Thinking, Problem Solving	EC	Moon, Concept of revolution and rotation, Phases of Moon	Interactive Lecture supported by power point presentation Demonstrat-ion, Quiz	Power point slides with audio, Model and Chart of phases of Moon, Flash cards, Audio visual presentation	Cognitive Development, Multiple Intelligence
9.	Day thirty three, thirty four, thirty five, thirty six (2 hrs.)	Critical Thinking, Problem Solving	EC, IR	Solar System	Interactive Lecture supported by power point presentation Demonstrat-ion, Active and participatory learning, Activities	Power point slides with audio, Model and Chart of phases of Moon, Flash cards, Audio visual presentation	Constructivism, Social Constructivism, Social learning, Cognitive Development, Multiple Intelligence, Experiential Learning, Collaborative learning, Cooperative learning
10.	Day thirty seven, thirty eight, thirty nine, forty, forty one (2½hrs.)	Critical Thinking, Problem Solving	SA, E, PS	Importance of conservation of biodiversity, Importance of environment Reasons for decline in biodiversity	Interactive Lecture supported by power point presentation Brain storming, Group Discussion, Group Activity	Power point slides with audio, Audio visual presentation	Constructivism, Social constructivism, Social Learning, Experiential Learning, Brain based Learning, Collaborative learning, Cooperative learning, Cognitive Development
11.	Day forty two, forty three, forty four, forty five (2 hrs.)	Critical Thinking, Problem Solving	EC	Properties of Magnet, Simple Electro magnet	Interactive Lecture supported by power point presentation Demonstrat-ion, Group Activity	Power point slides with audio, Audio visual presentation, Stand, Thread, Bar magnets, Iron filings, Dish, Clip, Large iron nail, Copper wire, D cell battery, Wire strippers, Masking tape, Wooden / Plastic bowl etc.	Constructivism, Social constructivism, Social Learning, Experiential Learning, Cooperative learning, Cognitive Development

Sr. No	Time Period	Life Skill Promoted	Supplementary LS promoted	Content	Method/ Technique/ Strategy	Material Used	Educational/ Psychological/ Theoretical base
12.	Day forty six, forty seven, forty eight, forty nine, fifty (2½ hrs.)	Critical Thinking, Problem Solving	EC, DM	Incident Ray, Reflected Ray, Angle of incidence, Angle of reflection, Laws of reflection, Types of reflection, Reflection of reflected light	Interactive Lecture supported by power point presentation Demonstrat-ion, Activities, Group Discussion, Quiz	Power point slides with audio, Audio visual presentation, Sheet of white paper, Plane mirror, Black paper, Torch, Plastic bottle, Cutter, Glass, Thick books, Candle etc.	Constructivism, Social constructivism, Social Learning, Experiential Learning, Cognitive Development, Cooperative learning, Collaborative learning
13.	Day fifty one, fifty two, fifty three, fifty four (2hrs.)	Critical Thinking, Problem Solving	EC	Construction of a Simple cell, Voltas cell, Construction of a Dry cell, Generation of electric current in the dry	Interactive Lecture supported by power point presentation Demonstrat-ion, Active and participat - ory learning, Group Discussion, Quiz	Power point slides with audio, Audio visual presentation, Glass trough, Dil. H2SO4, Zn plate, Cu plate, A bulb, A key, Electro chemic-al cell / Dry cell	Social constructivism, Constructivism, Cognitive Development Experiential Learning, Social Learning, Cooperative Learning
14.	Day fifty five, fifty six, fifty seven, fifty eight (2 hrs.)	Critical Thinking, Problem Solving	EC	Concept of Metals and Non – metals, Physical properties of metals and non – metals, Chemical properties of metals	Interactive Lecture supported by power point presentation Laboratory method, Group Discussion, Group Activity	Power point slides with audio, Audio visual presentation, Copper vessel, Sulphur powder, Aluminium object, Coal powder, Silver object, Iron object, Lab. App., Chemicals, Baking soda, Common salt, Steel pan, Burner, Water etc.	Social constructivism, Constructivism, Cognitive Development, Experiential Learning, Social Learning, Cooperative Learning
15.	Day fifty nine, sixty, sixty one, sixty two (2 hrs.)	Decision Making	EC, CT, PS	Information about Decision Making, Examples, Problem Situations	Interactive Lecture supported by power point presentation Activities	Power point slides with audio, Audio visual presentation, Printed Material (Write – ups)	Constructivism, Situated Learning
16.	Day sixty three, sixty four, sixty five, sixty six, sixty seven (2½ hrs.)	Decision Making	EC, CT, PS	Protection of rare species, Reserved biodiversity zones	Interactive Lecture supported by power point presentation Action maze, Brain storming, Group Discussion, Activities	Power point slides with audio, Audio visual presentation, Printed Material (Write – ups)	Constructivism, Cooperative Learning, Experiential Learning, Brain based Learning

17.	Day sixty eight, sixty nine, seventy (1½ hrs.)	Decision Making	EC, CT, PS	Ways of overcoming energy crisis	Interactive Lecture supported by power point presentation, Fish bone method - Brain storming and Group Discussion	Power point slides with audio, Audio visual presentation	Constructivism, Social Constructivism, Social Learning, Cooperative Learning, Collaborative Learning, Brain based Learning
18.	Day seventy one, seventy two, seventy three, seventy four, seventy five (2½ hrs.)	Decision Making	EC, CT, PS	Air Pollution – Concept, Reasons or causes, Consequenc-es, Remedies or Measures, Acid Rain - Concept, Reasons or causes, Consequenc-es, Remedies or Measures	Interactive Lecture supported by power point presentation Fish bone method - Brain storming and Group Discussion, Collage	Power point slides with audio, Audio visual presentation, Chart papers, Pictures, Newspaper cuttings, Sketch pens, Markers etc.	Constructivism, Social Constructivism, Social Learning, Experiential Learning, Cooperative Learning, Collaborative Learning, Brain based Learning
19.	Day seventy six, seventy seven, seventy eight, seventy nine, eighty (2½ hrs.)	Decision Making	EC, CT, PS	Erosion of soil – concept and causes, Soil Pollution – concept and preventive measures	Interactive Lecture supported by power point presentation Poster making and presentation Study assignment	Power point slides with audio, Audio visual presentation, Chart papers, Pictures, Newspaper cuttings, Sketch pens, Markers etc., Internet resource	Constructivism, Social Constructivism, Social Learning, Experiential Learning, Cooperative Learning, Collaborative Learning
Total	80 days (40 hrs.)						

Table No. 3.5 Life Skills Programme at a glance

3.15 Conclusion

In the present chapter, the Researcher has given details about the Research Methods, Experimental Design, Sample, Variables, Tools of Data collection, Development of Life Skills Programme and Procedure for carrying out the Research. The analysis and interpretation of the data is discussed in the next chapter.

CHAPTER - IV

DATA PRESENTATION, ANALYSIS AND INTERPRETATION

4.1 Introduction

In the previous chapter, we discussed about Research methodology, data collection tools, and statistical tools. In this chapter, in order to draw conclusions or inferences, qualitative, quantitative and statistical analysis of the collected data, is done.

The utility and the importance of any study depends upon the findings, which in turn depends upon the collected information and the instrument through which the data is collected. A great variety of Research tools helps the Researcher to describe and qualify the data. These tools identify the presence or absence of certain aspect or depict the quantitative and qualitative descriptions. (Dr. Jha, A. S. 2011, p. 249). Hence, this chapter is the heart of the thesis.

The data collected during Research has to be processed, analyzed and presented in tabular form as laid down in Research plan. The processing of data means classification and the tabulation of the collected data. To make it meaningful for discussion, interpretation, to draw the conclusions and find solutions to the problem/s posed to Research, efforts have been taken by the Researcher to put forth the details in this chapter.

Classification of the Data

(B.L. Arjun 2014) summarizes that in Research studies, voluminous raw data collected through a survey need to be reduced in to homogeneous groups for meaningful analysis. The classification of data is the process of arranging data in groups or classes based on some characteristics and common features. Classification helps in making comparisons and reaching to a meaningful conclusion.

Statistical data can be presented in the form of tables and graphs. In the tabular form, the classification of data is made with reference to attributes or some other variables. The graphs are used for illustration of data. The tabulation technique is applied for summarization of the data. It helps in analysis of relationships, trends and other related summarizations of the given data.

Analysis of the Data

Analysis means the categorization, ordering, manipulating, summarizing the data to obtain answers to Research questions. The data collected from various sources using different tools and techniques generally comprises of numerical figures, response to open – ended questions. In Research, data analysis is done by – Quantitative data analysis and Qualitative data analysis.

For the present Research study, for statistical analysis, statistical tools like Percentage, Mean, Standard Deviation, Repeated measures of MANOVA are used. In this chapter, interpretation of the statistical responses is done along with the discussion regarding the responses.

4.2 Data Collection, Analysis and Interpretation

For the Research undertaken,

4.2.1 For Objective 1: The data was collected during Survey using Researcher made Open ended Questionnaire and Researcher made Check - List,

4.2.1.1 Analysis and Interpretation of the data collected from Open-ended Questionnaire

Life Skills

Observations

1. “Life Skills are abilities for adaptive and positive behavior that enable individuals to deal effectively with the demands and challenges of everyday life”.
2. Life Skills are innate skills for living efficient and effective life.
3. Life Skills are factors essential to lead a smooth, happy and satisfied life.
4. Life Skills are essential for following the principle of, “Live and let live’. They are essential to set high goals and work hard to achieve it. They are abilities that encourage and facilitate positive behavior.
5. Life Skills provide practical knowledge and information to lead prosperous life with dignity.
6. Life Skills are those skills necessary to tackle everyday problems.

7. Life Skills are those skills, which enrich our life, help oneself as well as others and helps to lead independent life.
8. Life Skills are those skills, which are helpful to survive, lead independent life and face challenges of world.

	Coding (Number of Respondents)	Grouping
Life Skills	02	Life Skills are abilities for adaptive and positive behavior that enable individuals to deal effectively with the demands and challenges of everyday life.
	03	Life Skills are those skills, which are helpful to survive, lead independent life and face challenges of world.
	05	Life Skills are innate skills for living efficient and effective life.

Table 4.1 – Life Skills

Conclusion
Out of 17 teachers, only 02 teachers knew exactly what Life Skills are, 14 teachers were able to give partly correct answer and one teacher left the question unanswered.

Interpretation
Most of the teachers are not aware of Life Skills.

Awareness about NSDC with respect to Life Skills Education and Developments.

Observations
1. It is an organization working to impart basic Life Skills and it works on a national level.

2. It conducts training and workshops for teachers to strengthen the academic performance of the students.

3. Expected learning outcomes – Includes a combination of knowledge, skills, values and attitude and self - management.

Conclusion
Out of 17 teachers, 07 teachers left the question unanswered, 05 teachers were completely unaware and the remaining 05 teachers gave irrelevant answer.

Thus, none of the teachers out of 17 was aware of NSDC (National Skill Development Center)

Interpretation
None of the teachers is aware of NSDC.

Need and importance of Life Skills in our life.

Observations
1. It helps to develop our personality, it equips us to face the world and overcome obstacles.

2. It is required to lead a better and stress free life.

3. It is essential to deal with day-to-day life problems.

4. It helps to correlate with nature, increases curiosity and improve divergent thinking.

5. It is needed to lead practical life well.

6. It helps us to enjoy our work and responsibilities.

7. It is essential for overall development; make us economically independent, emotionally strong, empathetic and socially responsible.

8. It is required to deal with people, be creative, make decisions and solve problems.

9. It is essential for building relationships.

10. It is required to lead a successful life.

11. It is needed to think, exhibit and explore.

	Coding (Number of Respondents)	Grouping
Need and importance of Life Skills in our life	03	Life Skills are required to lead a successful life.
	03	Life Skills are those skills which are helpful to develop our personality

Table 4.2 – Need and importance of Life Skills

Conclusion

Out of 17 teachers, one teacher left the question unanswered and the remaining 16 teachers were able to give partly correct answer.

Interpretation

Most of the teachers are not aware of the need and importance of Life Skills in one's life.

Need of developing Life Skills in the students through school curriculum.

Observations

1. To improve the quality and standard of living.
2. For all round development, leading a prosperous life and shaping the personality in a constructive way.
3. To lead a better life.
4. To provide opportunities to students to be utilized properly.
5. For correlating life with school subjects and making right decisions at right time.
6. The need has been felt since students have poor/weak basic knowledge i.e. foundation is not strong. There is lack of guidance, absence of suitable role models, inadequate opportunities for social development, adverse effect of mass media and insufficient motivation.
7. To apply the gained knowledge to real life situations and to tackle the problems of life.
8. To meet the challenges of life and to prepare for life.
9. To develop the willingness to learn and excel in academics.
10. To facilitate clarity in thought process.

	Coding (Number of Respondents)	Grouping
Need of developing Life Skills in the students through school curriculum	05	To meet the challenges of life and to prepare for life.
	05	For all round development.

Table – 4.3 Need of developing Life Skills

Conclusion

Out of 17 teachers, one teacher left the question unanswered and the remaining 16 teachers were able to give partly correct answer.

Interpretation

Most of the teachers are not aware as to why the need has been felt to develop Life Skills in students through school curriculum.

Development of Life Skills in the students through the Science subject of std. VIII of SSC board.

Observations

2. WHO has recommended development of Life Skills for the physical and mental fitness.
3. For the development of scientific attitude, correlating living and non-living things, to develop the ability of recognizing one's competencies and limitations, sharing feelings and experiences etc.

4. For mental, psychological and physical improvements.
5. WHO has recommended 10 Life Skills to be taught in school.
6. Some topics from the textbook are helpful to develop Life Skills.
7. Almost all the chapters of the textbook include Life Skills.
8. It leads to critical thinking, develops curiosity, become aware of things around, deal with the concepts of everyday life.
9. Students should acquire skills of observation, classification, comparison, correlation, cause and effect relationships, scientific temper.
10. Inculcation of all 10 Life Skills are very important.

	Coding (Number of Respondents)	**Grouping**
Development of Life Skills in the students through the Science subject of std. VIII of SSC board	03	For inculcating scientific temper.
	03	WHO has recommended 10 Life Skills to be taught in school.

Table 4.4 – Development of Life Skills in the students

Conclusion

Out of the 17 teachers, 05 teachers left the question unanswered and from the remaining 12 teachers, none of the teacher could give satisfactory answer.

Interpretation

Most of the teachers do not know about the development of Life Skills in the students through the Science subject of std. VIII of SSC board.

Role of Science teacher in the development of Life Skills in the students through the Science subject of std. VIII of SSC board.

Observations

2. Giving practice and relating to the objectives of teaching Science.
3. Asking multiple questions, take students' opinions, giving real life applications.
4. By conducting activities.
5. Through Science, subject rational thinking, objectivity, scientific attitude.
6. By conducting group discussions.
7. Through questioning to develop creativity, by providing practical knowledge to utilize in day-to-day life.
8. For correlating chapters of science textbook to day-to-day life, by questioning while teaching content, conducting activities.
9. By discussing skills associated with each topic.
10. By conducting Group discussions, experiments, projects, field trips.
11. By developing questioning skill, increase curiosity, making inquisitive about the science subject, provide practical knowledge and experiences.
12. By conducting activities for individual and social development.
13. By creating conducive atmosphere and creating interest.

	Coding (Number of Respondents)	Grouping
Role of Science teacher in the development of Life Skills in the students through the Science subject of std. VIII of SSC board	02	By conducting Group discussions.
	02	By creating conducive atmosphere and creating interest.
	03	For correlating chapters of science textbook to day-to-day life.
	05	By conducting activities.

Table 4.5 - Role of Science teacher in the development of Life Skills

Conclusion

Out of the 17 teachers, 01 teacher left the question unanswered and the remaining 16 teachers have suggested quite a few useful techniques/strategies/methods for developing Life Skills in students.

Interpretation

Most of the teachers suggested quite a few useful techniques/strategies/methods for developing Life Skills in students through the content of Science textbook of Std. VIII.

Lessons/chapters/activities/practical etc. helpful for developing Life Skills of Science textbook of Std. VIII.

Observations

- Biodiversity – Empathy, Problem Solving, Decision Making
- Electric current, Atmospheric pressure, Chemical reactions – Creative Thinking, Problem Solving
- Diseases – Self – awareness
- Stars and solar System – Critical Thinking, Problem solving
- Atmospheric pressure - Creative Thinking
- The structure of an atom – Decision Making
- Chemical reactions and their types - Critical Thinking
- Sources of energy - Critical Thinking, Problem Solving, Decision Making, Self - awareness
- Air - Critical Thinking, Self – awareness, Problem Solving
- Metals and non – metals, carbon and carbon compounds – Critical Thinking, Decision Making
- Soil, Agriculture – Self – awareness, Problem solving
- Animal husbandry – Empathy
- Electric current – Critical Thinking
- Magnetism - Critical Thinking, Problem solving

Conclusion

Out of the 17 teachers, 01 teacher left the question unanswered, 05 teachers gave irrelevant answers and the answers given by remaining 11 teachers provided valuable information, essential for the development of the Life Skills Programme. (Product)

Interpretation:

Most of the teachers provided valuable information regarding the lessons/chapters/activities/practicals etc. from Science textbook of Std. VIII which are helpful for Life Skills development.

Specific topics/sub-topics or units/sub-units useful/helpful for developing all the 10 Life Skills through Science textbook of Std. VIII.

Observations

- ✓ **Sources of energy**

Use of energy – Self – awareness, Problem Solving

Non – conventional sources – Empathy, Critical Thinking

✓ **Biological Diversity**

Ecosystem/Food chain – Self – awareness, Interpersonal Relationships

Decline in biodiversity – Problem Solving

Protection of biodiversity – Decision Making

Reasons of decline in biodiversity – Critical Thinking

Conservation of ecosystem –Creative Thinking

✓ **Reflection of light**

Making periscope / kaleidoscope – Critical Thinking

Conclusion

Out of the 17 teachers, 04 teachers left the question unanswered, 10 teachers gave irrelevant or not up to the mark answers and the answers given by remaining 03 teachers provided valuable information, essential for the development of the Life Skills Programme. (Product)

Interpretation

Very few teachers provided valuable information about topics/sub-topics or units/sub-units from Science textbook of Std. VIII that are useful/helpful for developing all the 10 Life Skills.

Methods/techniques/strategies/models of teaching/approaches etc. to be adopted for developing the Life Skills effectively through the Science textbook of Std. VIII.

Observations

1. Interactive sessions
2. Activities
3. Audio – visual method
4. Demonstration
5. Cooperative learning
6. Project
7. Self – doing
8. Brainstorming
9. Group Discussion
10. Debate
11. Field visit
12. Peer learning

Yes, it will solve the purpose, as now – a – days children have enough exposure and just guidance from the teacher is required. Teacher's role should be of a facilitator.

	Coding (Number of Respondents)	**Grouping**
Methods/techniques/strategies/models of teaching/approaches etc. to be adopted for developing the Life Skills effectively through the Science textbook of Std. VIII	02	Demonstration
	03	Field visits
	04	Group Discussion
	04	Activities

Table 4.6 - Methods/techniques/strategies/models of teaching/approaches etc. to be adopted for developing the Life Skills

Conclusion

Out of the 17 teachers, 03 teachers left the question unanswered, 03 teachers gave irrelevant answers and the answers given by remaining 11 teachers provided valuable information, essential for the development of the Life Skills Programme. (Product). Also, only 01 teacher gave a complete answer.

Interpretation

Most of the teachers provided valuable information about methods / techniques/ strategies / models of teaching / approaches etc. to be adopted for developing the Life Skills through Science textbook of Std. VIII.

Views about watertight compartments be made for each Life Skill while developing all the 10 Life Skills through the content of Science textbook of Std. VIII.

Observations

No watertight compartments can be made for each Life Skill.

Conclusion

Out of the 17 teachers, 09 teachers left the question unanswered and the remaining 08 teachers stated "No".

Interpretation

None of the teacher who answered the question were of the view that watertight compartments can be made in between all the 10 Life Skills.

Difficulties faced while developing/inculcating the Life Skills through the Science textbook.

Observations

1. Certain topics may not have the required life skills, so cannot abide to a certain life skill and teach the lesson.
2. Over - crowded classes restricts the use of activity based teaching methodology due to insufficient time.
3. Urban children finds least interesting lessons like Animal husbandry and Soil.
4. Emphasis on rote learning and marks oriented education system.
5. Lack of teaching aids and insufficient time for teaching learning process.
6. Unnecessary pressure of useless work – clerical job, due to some flaws in education system.
7. Lack of detailed information and enough examples in textbook.
8. Activities like field trip or study tour becomes difficult.
9. Teaching aids cannot be prepared for all the topics.
10. More scope should be given to teaching outside the classroom and should be based on students' experiences.

	Coding (Number of Respondents)	**Grouping**
Difficulties faced while developing / inculcating the Life Skills through the Science textbook	02	Over - crowded classes restricts the use of activity based teaching methodology due to insufficient time.
	03	Lack of teaching aids and insufficient time for teaching learning process.
	03	Activities like field trip or study tour becomes difficult.

Table 4.7 - Difficulties faced while developing/inculcating the Life Skills

Conclusion

Out of the 17 teachers, 04 teachers left the question unanswered and the answers given by the remaining 13 teachers gave a satisfactory answer about the difficulties faced by the teacher while developing/inculcating the Life Skills through the Science textbook.

Interpretation
The teacher while developing/inculcating the Life Skills through the Science textbook of Std. VIII faces various difficulties.

Views about effective development of all the 10 Life Skills in the students through the Science textbook.

Observations
1. No. Not all the lessons/topics from the science textbook are useful in developing/inculcating the Life Skills.
2. No. Because of individual differences and time constraint.
3. Yes.
4. No. It is possible only if the teacher conducts experiments, plays a role of facilitator and create conducive atmosphere.
5. No. Because activities given in the textbook are not enough.
6. No. Because limited concepts are given in the textbook.

Conclusion
Out of the 17 teachers, 02 teachers left the question unanswered, 02 teachers gave irrelevant answers and the remaining 13 teachers gave satisfactory answer. Also, only 04 teachers gave complete answer.

Interpretation
Most of the teachers were of the view that it is not possible to have effective development of all the 10 Life Skills in the students through the Science textbook of Std. VIII.

Remedies for effective development of all the 10 Life Skills.

Observations
1. Correlate the syllabus with the 10 Life Skills, make use of teaching aids and latest technology.
2. Reduce the class strength, modification in syllabus and exam pattern and activity based learning.
3. Conduct field visits, group activities and seminars.
4. Conduct group discussions, debates workshops and competitions. Also, motivate the children and appreciate them whenever and wherever possible.
5. Conduct surveys.
6. More concepts and more relevant topics should be included in the textbook.
7. Projects should be given to the students and SWOT should be practiced.

	Coding (Number of Respondents)	**Grouping**
Remedies for effective development of all the 10 Life Skills	02	Conduct group discussions.
	03	Conduct field visits, group activities.
	03	Projects should be given to the students and SWOT should be practiced.

Table 4.8 - Remedies for effective development of all the 10 Life Skills

Conclusion
Out of the 17 teachers, 06 teachers left the question unanswered and the remaining 11 teachers provided valuable information, essential for the development of the Life Skills Programme. (Product).

Interpretation
Most of the teachers suggested remedies for effective development of all the 10 Life Skills through Science textbook of Std. VIII.

Co-operation from colleagues, Principal, Management etc. for developing the Life skills in the students.

Observations

1. To some extent – Principal and colleagues
2. Yes. From management.
3. Co-operation is in the form of providing Science laboratory, teaching aids, guidance and timely instructions.
4. Yes. From colleagues in the form of exchange of ideas and discussions.
5. No.
6. Not much.
7. Yes. Students are encouraged to participate in various competitions.
8. Principal and management grants permission to attend workshops.
9. Yes. By organizing study tours and guest lectures.
10. Yes. By organizing seminars, science exhibition and science quiz.
11. Yes. By giving opportunities to visit places like NCL, ISSER and Nehru Tarangana. Also, by participating in inter – school competitions.

Conclusion

Out of the 17 teachers, 02 teachers left the question unanswered, 08 teachers gave complete answer and remaining 07 teachers gave incomplete answer. Also, only 01 teacher replied that she does not receive any cooperation. However, none of the teachers gave relevant answer.

Interpretation

Most of the teachers do not receive much cooperation from colleagues, Principal, Management etc. for developing the Life skills in the students

Seminars/workshops/conferences/refresher courses etc. attended for developing the Life Skills in the students.

Observations

1. No.
2. Almamater Seminar for personality development, developing thinking, attitude and aptitude.
3. IUCAA seminars for developing Creative Thinking, Critical Thinking, Decision Making and Problem Solving, and lectures and programmes.
4. Science Workshops.
5. Workshops on service learning.
6. Master trainer's programme organized by Socrates Foundation.

Conclusion

Out of the 17 teachers, 05 teachers left the question unanswered, 08 teachers have not attended any seminars/workshops/conferences etc. and 04 teachers gave incomplete or irrelevant answer.

Interpretation

None of the teachers has attended any seminars/workshops/conferences etc. related to Life Skills Education and Development.

Collaboration with any other school/institute/organization etc. with respect to Life Skills Education and Development.

Observations

1. No

2. Yes. Socrates Foundation, British Council, I Earn India.

Conclusion

Out of the 17 teachers, 06 teachers left the question unanswered, 10 teachers answered as "No" and only one teacher gave positive but incomplete answer.

Interpretation

None of the teachers works in collaboration with any other school / institute / organization etc. with respect to Life Skills Education and Development.

Seminars/workshops/conferences/refresher courses etc. organized in school with respect to Life Skills Education and Development.

Observations

1. No.
2. Not directly related to it. However, workshops on Personality development, Career guidance, Health and Hygiene.
3. Yes. NIE sessions.
4. Cleanliness and health related workshops for developing Critical Thinking and Scientific Temper.

Conclusion

Out of the 17 teachers, 02 teachers left the question unanswered, 07 teachers answered as "No" and the remaining 08 teachers gave incomplete and/or irrelevant answer.

Interpretation

None of the schools, in which the teachers work, organized Seminars / workshops / conferences / refresher courses etc. in school with respect to Life Skills Education and Development.

Suggestions to make Life Skills Education and Development more effective for the students.

Observations

1. Activities and situation based teaching learning process.
2. Reduce class strength, use laboratory method and make change in examination pattern.
3. Practical based teaching learning process.
4. Create favourable atmosphere and encourage self – learning.
5. Conduct group discussions, loud reading and conducting projects.
6. Conduct exercises on Personality development skills.
7. Organize field trips.
8. Organize teachers' training programmes, exchange programmes for teachers, seek co-operation from parents.
9. Make students more responsible for setting study goals, help students identify their weaknesses and strengths and provide opportunities for progress.
10. Develop the skills of planning, analytical thinking and execution of the students.
11. Provide hands on experiences to the students.
12. Provide well – equipped Science laboratory.

	Coding (Number of Respondents)	**Grouping**
Suggestions to make Life Skills Education and Development more effective for the students	02	Conduct group discussions.
	02	Conduct projects.
	02	Provide hands on experiences to the students.
	03	Conduct activities
	03	Develop the skills of planning, analytical thinking and execution of the students.

4.9 - Suggestions to make Life Skills Education and Development more effective

Conclusion
Out of the 17 teachers, 03 teachers left the question unanswered and the remaining 14 teachers provided valuable information, essential for the development of the Life Skills Programme. (Product).

Interpretation
Most of the teachers gave suggestions to make Life Skills Education and Development more effective.

4.2.1.2 Analysis of the data collected from Checklist

Observations
The table of Data Presentation of Check – List is been annexed.

Conclusion:
Thus, as per the survey conducted for the teachers, the scope for developing Life Skills priority wise, through the contents of Science textbook of Std. VIII, is as follows:

1. Creative Thinking
2. Self – awareness
3. Critical Thinking
4. Problem Solving
5. Effective Communication
6. Interpersonal Relationship
7. Decision Making
8. Empathy
9. Coping with Emotions
10. Coping with Stress

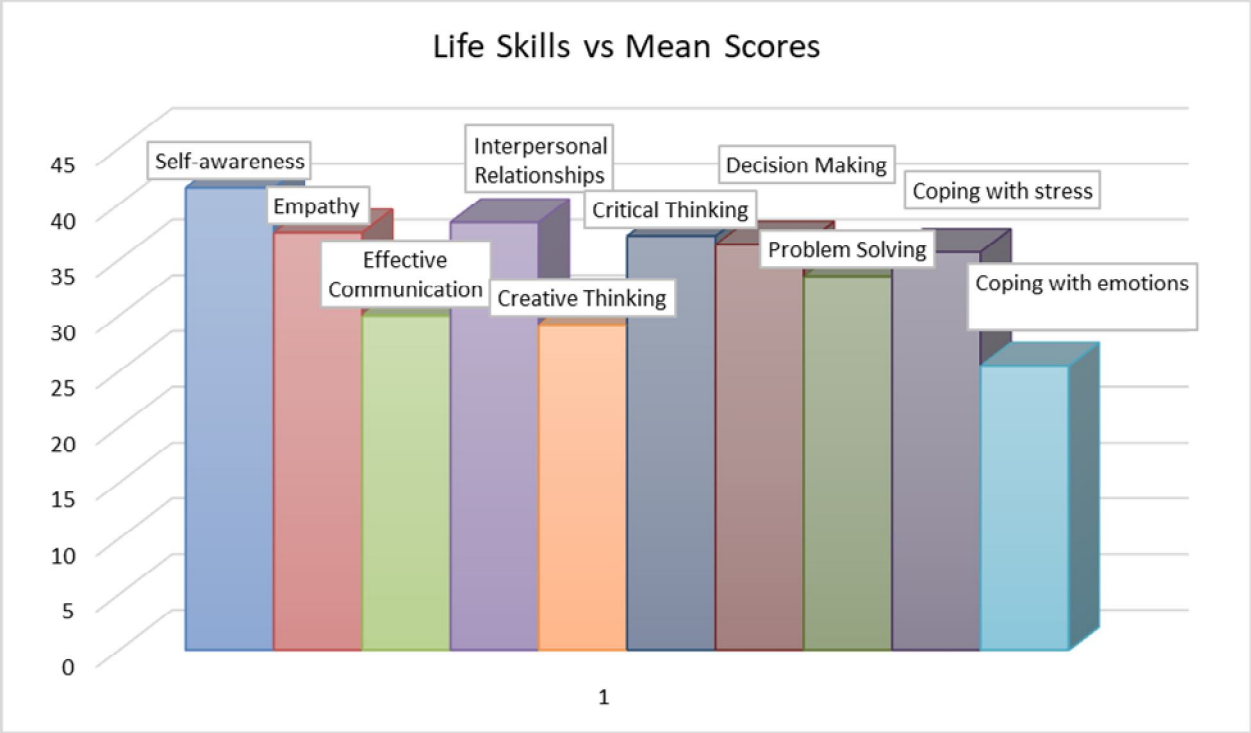
Interpretation
The filled Check – List provided by all the 17 teachers helped the Researcher to select appropriate content from the Science textbook of Std. VIII, for preparing the Life Skills Programme (Self – awareness, Critical Thinking, Problem Solving, Effective Communication and Decision Making) i.e. the Product.

4.2.2 Analysis of the data collected for Objective 2 – Standardized Rating Scale

The data was collected during Survey, using a standardized 5 points Rating Scale consisting of 100 statements for 500 marks. Out of these 100 statements, 11 statements assessed Self-awareness carrying 55 marks, 11 statements assessed Empathy carrying 55 marks, 09 statements assessed Effective Communication carrying 45 marks, 11 statements assessed Interpersonal Relationships carrying 55 marks, 08 statements assessed Creative thinking carrying 40 marks, 11 statements assessed Critical Thinking carrying 55 marks, 11 statements assessed Decision Making carrying 55 marks, 09 statements assessed Problem Solving carrying 45 marks, 11 statements assessed Coping with emotions carrying 55 marks, 08 statements assessed Coping with stress carrying 40 marks.

The table of scores, bar graph and the classification table, gives a clear picture of the data collected.

The table of Mean Scores of 1528 students acquired from 16 schools, through survey and the Life Skills scores' classification table is been annexed.



Graph No. 4.1 - Bar Graph of Life Skills vs Mean Scores

The table of Categorization of Life Skills according to the range of scores is been annexed.

Data Analysis and Interpretation
From the table of scores, bar graph and the classification table, it can be stated that,

The extent/level to which the students possess all the 10 Life Skills – Self-awareness, Empathy, Effective Communication, Interpersonal Relationships, Creative Thinking, Critical Thinking, Decision Making, Problem Solving, Coping with emotions and Coping with stress, fall under the category of **'AVERAGE'**.

4.2.3 Analysis of the data collected for Objective 3 – Standardized Rating Scale
The data was collected during Experiment, using a standardized 5 points Rating Scale, (with few modifications) consisting of 51 statements for 255 marks. Since the Researcher selected 05 Life Skills (Self-awareness, Effective Communication, Critical Thinking, Decision Making and Problem Solving) out of 10, obviously, the Researcher had to select only those 51 statements out of 100, which were related to those 05 Life Skills, which were selected for Research by the Researcher under study. Out of these 51 statements, 11 statements assessed Self-awareness carrying 55 marks, 09 statements assessed Effective Communication carrying 45 marks, 11 statements assessed Critical Thinking carrying 55 marks, 11 statements assessed Decision Making carrying 55 marks and 09 statements assessed Problem Solving carrying 45 marks.

The tables of scores of pre-test and post-test respectively, gives a clear picture of the data collected.

Data Analysis and Interpretation
From the table of Pre – test scores, it can be stated that, the level/extent/status to which the students possess the 05 Life Skills – Self-awareness, Effective Communication, Critical Thinking, Decision Making and Problem Solving, fall under the category of **'AVERAGE'**.

Data Analysis and Interpretation:
From the table of Post – test scores, it can be stated that, the status to which the students possess Life Skills – Self-awareness, Effective Communication and Decision Making, fall under the category of **'HIGH'**.

Calculating Mean for the Pre - test and Post – test scores

For Self – awareness (Pre – test scores)

Mean = Sum of all the scores / Number of scores

$$M = \frac{\sum X}{N}$$

= 1356/33

= 41.09

Sr. No.	Dimensions	Mean	
		Pre – test	Post – test
1.	Self – Awareness	41.09	45.79
2.	Effective Communication	30.36	38.15
3.	Critical Thinking	39.18	39.18
4.	Decision Making	37.03	46.51
5.	Problem Solving	33.21	33.21

Table No. 4.10 - Comparison of Mean of Pre –test and Post – test

Data Analysis and Interpretation

From the table no.4.10, it can be stated that there is a significant difference in the mean scores of the pre – test and post – test for the three Life Skills – Self – awareness, Effective communication and Decision Making. While it is interesting to know that for the remaining two Life Skills - Critical Thinking and Problem Solving, the mean scores of the posttest is exactly the same, indicating that the Life Skill Programme was useful in enhancing/improving the Life Skills – Self – awareness, Effective Communication and Decision Making.

Standard Deviation = Square root of the average of the squares of the deviations of each score from the mean

$$= \sqrt{\frac{\sum (x - M)^2}{N - 1}}$$

Calculating Standard Deviation for the Pre - test and Post – test scores

For Self – awareness (Pre – test scores)

Scores X	Deviation (X – M)	x^2
32	-9.09	82.6281
38	-3.09	9.5481
46	4.91	24.1081
41	-0.09	0.0081
44	2.91	8.4681
42	0.91	0.8281
39	-2.09	4.3681
36	-5.09	25.9081
46	4.91	24.1081
38	-3.09	9.5481
38	-3.09	9.5481
43	1.91	3.6481
47	5.91	34.9281
38	-3.09	9.5481
40	-1.09	1.1881
38	-3.09	9.5481
43	1.91	3.6481

46	4.91	24.1081
51	9.91	98.2081
48	6.91	47.7481
38	-3.09	9.5481
39	-2.09	4.3681
39	-2.09	4.3681
45	3.91	15.2881
47	5.91	34.9281
43	1.91	3.6481
44	2.91	8.4681
36	-5.09	25.9081
37	-4.09	16.7281
33	-8.09	65.4481
38	-3.09	9.5481
41	-0.09	0.0081
42	0.91	0.8281
M = 41.09	$\sum \mathbf{x}^2$	630.7273

Table No. 4.11 – Pre – test scores of Self - awareness

$$S = \sqrt{\frac{\sum (x- M)^2}{N- 1}}$$

= 4. 43962

Hence, Standard Deviation of Pre-test scores for Self – awareness is **4.43962**

Similarly,

Standard Deviation of Pre-test scores for Effective Communication is **4.82713**

Standard Deviation of Pre-test scores for Critical Thinking is **3.94061**

Standard Deviation of Pre-test scores for Decision Making is **3.89298**

Standard Deviation of Pre-test scores for Problem Solving is **3.48889**

For Self – awareness (Post – test scores)

Scores X	**Deviation (X – M)**	$\mathbf{x}^2$
45	-0.79	0.6241
44	-1.79	3.2041
46	0.21	0.0441
44	-1.79	3.2041
48	2.21	4.8841
44	-1.79	3.2041
45	-0.79	0.6241
48	2.21	4.8841
47	1.21	1.4641
45	-0.79	0.6241
44	-1.79	3.2041
44	-1.79	3.2041
47	1.21	1.4641
46	0.21	0.0441
48	2.21	4.8841
45	-0.79	0.6241
47	1.21	1.4641

46	0.21	0.0441
47	1.21	1.4641
48	2.21	4.8841
47	1.21	1.4641
44	-1.79	3.2041
46	0.21	0.0441
48	2.21	4.8841
45	-0.79	0.6241
44	-1.79	3.2041
44	-1.79	3.2041
47	1.21	1.4641
46	0.21	0.0441
46	0.21	0.0441
44	-1.79	3.2041
47	1.21	1.4641
45	-0.79	0.6241
M = 45.79	$\sum \mathbf{x}^2$	67.5153

Table No. 4.12 – Post – test scores of Self - awareness

$$S = \sqrt{\frac{\sum (x - M)^2}{N - 1}}$$

= 1.45253

Hence, Standard Deviation of Post-test scores for Self – awareness is **1.45253**

Similarly,

Standard Deviation of Post-test scores for Effective Communication is **1.56367**

Standard Deviation of Post-test scores for Critical Thinking is **3.94061**

Standard Deviation of Post-test scores for Decision Making is **1.39466**

Standard Deviation of Post-test scores for Problem Solving is **3.48889**

Sr. No.	**Dimensions**	**Standard Deviation**	
		Pre – test	**Post – test**
1.	Self – Awareness	4.43962	1.45253
2.	Effective Communication	4.82713	1.56367
3.	Critical Thinking	3.94061	3.94061
4.	Decision Making	3.89298	1.39466
5.	Problem Solving	3.48889	3.48889

Table No. 4.13 – Comparison of Standard Deviation of Pre –test and Post – test

Data Analysis and Interpretation

From the table no.4.13, it can be stated that there is a significant difference in the standard deviation of the pre – test and post – test for the three Life Skills – Self – awareness, Effective communication and Decision Making. While it is interesting to know that for the remaining two Life Skills - Critical Thinking and Problem Solving, the standard deviation of the posttest is exactly the same, indicating that the Life Skill Programme was useful in enhancing/improving the Life Skills – Self – awareness, Effective Communication and Decision Making.

.Dimension	**Mean**		**Standard Deviation**	
	Pre - test	**Post - test**	**Pre - test**	**Post - test**
Self – awareness	41.09	45.79	4.43962	1.45253

Effective Communication	30.36	38.15	4.82713	1.56367
Critical Thinking	39.18	39.18	3.94061	3.94061
Decision Making	37.03	46.51	3.89298	1.39466
Problem Solving	33.21	33.21	3.48889	3.48889

Table No. 4.14-Comparison of Mean and Standard Deviation of Pre–test Posttest

Data Analysis and Interpretation

From the table no.4.14, it can be stated that there is a significant difference in the mean scores and standard deviation of the posttest for the three Life Skills – Self–awareness, Effective communication and Decision Making. While it is interesting to know that for the remaining two Life Skills - Critical Thinking and Problem Solving, the mean scores and standard deviation of the posttest is exactly the same.

4.2.3.1 Test of Normality

In statistics, normality tests are used to determine if a data set is well-modeled by a normal distribution and to compute how likely it is for a random variable underlying the data set to be normally distributed.

More precisely, the tests are a form of model selection, and can be interpreted several ways, depending on one's interpretations of probability. In descriptive statistics terms, one measures a goodness of fit of a normal model to the data – if the fit is poor then the data are not well modeled in that respect by a normal distribution, without making a judgment on any underlying variable.

For the present Research study, Normality was tested using the criteria suggested by **George and Mallery** 2010.

According to George and Mallery, variables with Skewness and Kurtosis values between +1 and -1, indicating Normality.

Normality is an important condition for parametric statistical test.

Parametric tests requires the data to have a bell shaped distribution.

	Skewness	**Kurtosis**
	Statistic	
Self-Awareness Pre - test	.134	-.396
Effective Communication Pre - test	.002	-1.217
Critical Thinking Pre - test	-.633	1.552
Decision Making Pre - test	-.376	-.670
Problem Solving Pre - test	-.518	.888
Self-Awareness Post test	.133	-1.363
Effective Communication Post test	-.110	-1.538
Critical Thinking Post test	-.633	1.552
Decision Making Post test	-.511	-.956
Problem Solving Post test	-.518	.888
Valid N (list wise)		

Table No. 4.15 – Descriptive Statistics (Skewness and Kurtosis)

Data Analysis and Interpretation

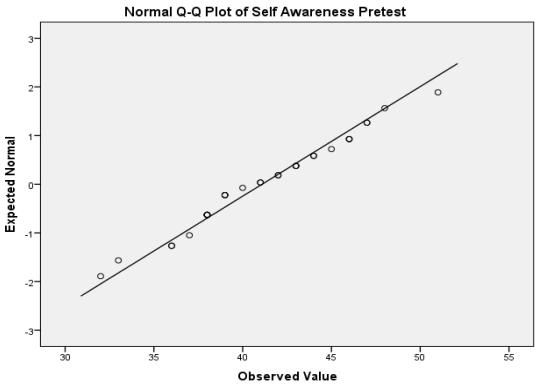
From the above Descriptive Statistics table it can be seen that all the variables have skewness value within the threshold range between +1 and -1. Also all the variables have kurtosis value between +1 and -1, except for Effective Communication – pre – test, Critical Thinking – pre – test, Self – awareness – post – test, Effective Communication – post – test and Critical Thinking – post – test. In all these cases, the kurtosis value is slightly above the threshold range of +1 and -1. Hence, **Normality is supported**.

Graphical representation for the test of Normality

A graphical representation for test of Normality is given below. These graphs are Q – Q (Quantile – Quantile) plots. Q – Q plot is a probability plot for comparing two probability distributions. By plotting the quantiles against each other, the Q – Q plot includes a straight line with an upward movement indicating Normality. The co-ordinates indicating a wiggly snake is an indicator of data deviating from Normality.

From the following Q – Q plots for all the variables, it can be seen that the co-ordinates falls almost close to the line, suggesting that the data for **all the variables are normally distributed**.

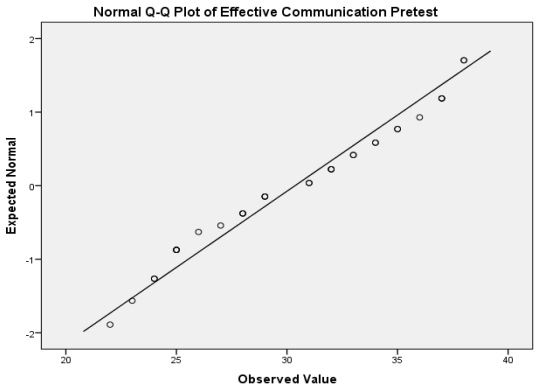
Self - awareness Pre - test



Graph No. 4.2 – Self – awareness Pre-test

Data Analysis and Interpretation:
From the Graph 4.2, it can be seen that the co-ordinates falls almost close to the line, suggesting that the data for Self – awareness is normally distributed.

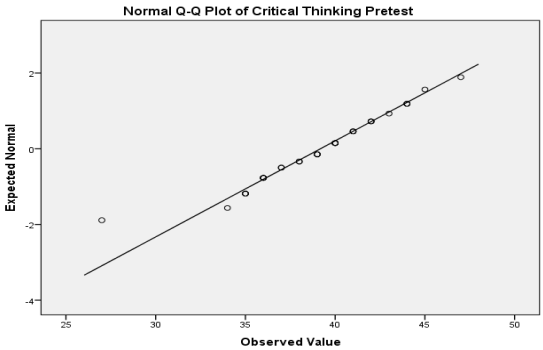
Effective Communication Pre - test



Graph No. 4.3 – Effective Communication Pre-test

Data Analysis and Interpretation
From the Graph 4.3, it can be seen that the co-ordinates falls almost close to the line, suggesting that the data for Effective Communication is normally distributed.

Critical Thinking Pre – test

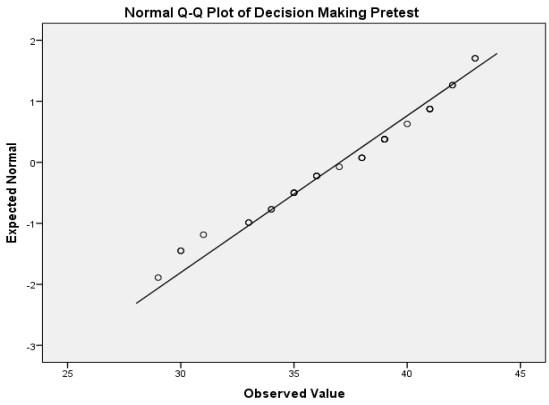


Graph No. 4.4 – Critical Thinking Pre – test

Data Analysis and Interpretation

From the Graph 4.4, it can be seen that the co-ordinates falls almost close to the line, suggesting that the data for Critical Thinking is normally distributed.

Decision Making Pre – test

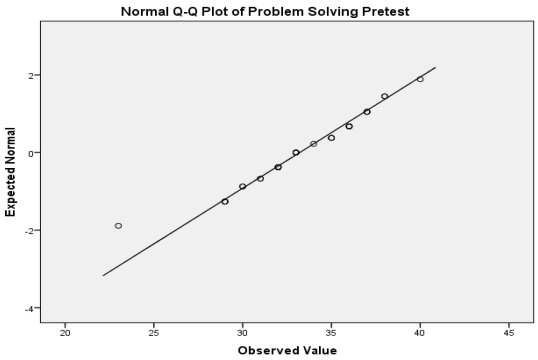


Graph No. 4.5 - Decision Making Pre - test

Data Analysis and Interpretation

From the Graph 4.5, it can be seen that the co-ordinates falls almost close to the line, suggesting that the data for Decision Making is normally distributed.

Problem Solving Pre – test

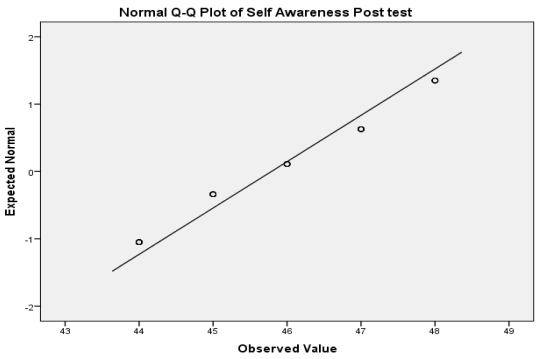


Graph No. 4.6 - Problem Solving Pre – test

Data Analysis and Interpretation:

From the Graph 4.6, it can be seen that the co-ordinates falls almost close to the line, suggesting that the data for Problem Solving is normally distributed.

Self - awareness Post test

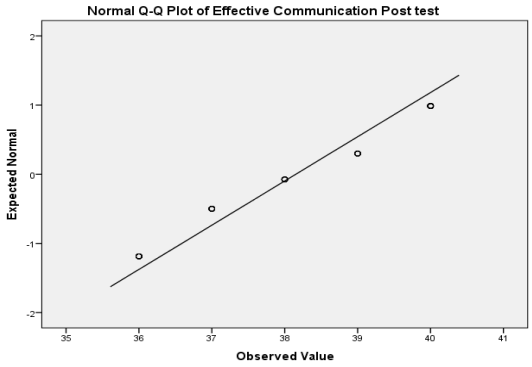


Graph No. 4.7 – Self – awareness Post – test

Data Analysis and Interpretation

From the Graph 4.7, it can be seen that the co-ordinates falls almost close to the line, suggesting that the data for Self - awareness is normally distributed.

Effective Communication Post – test

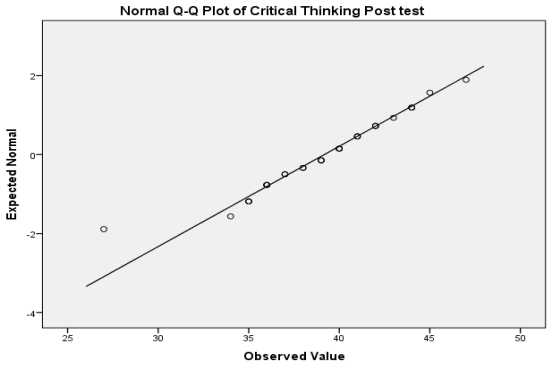


Graph No. 4.8 - Effective Communication Posttest

Data Analysis and Interpretation

From the Graph 4.8, it can be seen that the co-ordinates falls almost close to the line, suggesting that the data for Effective Communication is normally distributed.

Critical Thinking Post - test

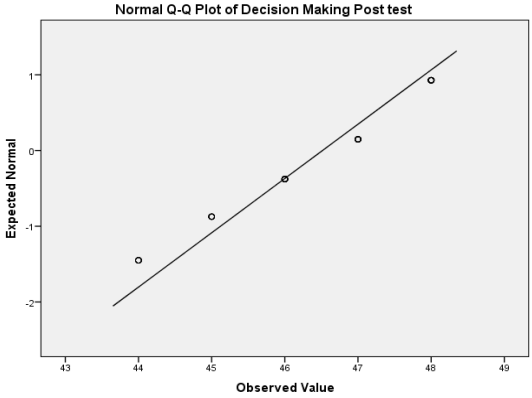


Graph No. 4.9 - Critical Thinking Posttest

Data Analysis and Interpretation

From the Graph 4.9, it can be seen that the co-ordinates falls almost close to the line, suggesting that the data for Critical Thinking is normally distributed.

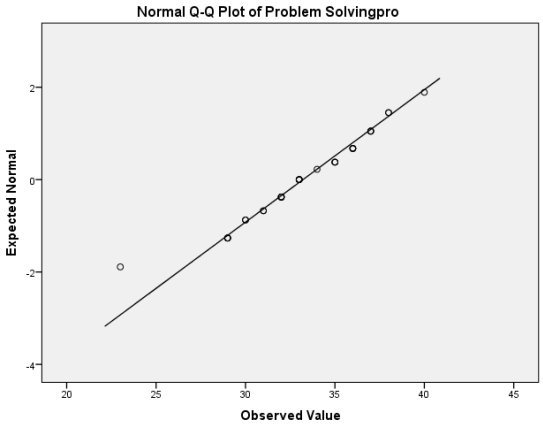
Decision Making Post – test



Graph No. 4.10 – Decision Making Post – test

Data Analysis and Interpretation
From the Graph 4.10, it can be seen that the co-ordinates falls almost close to the line, suggesting that the data for Decision Making is normally distributed.

Problem Solving Post - test



Graph no. 4.11 – Problem Solving Post - test

Data Analysis and Interpretation
From the Graph 4.11, it can be seen that the co-ordinates falls almost close to the line, suggesting that the data for Problem Solving is normally distributed.

4.2.3.2 Repeated Measures of MANOVA
Repeated measures multivariate analysis of variance is a commonly used statistical approach to repeated measure designs. With such designs, the repeated-measure factor (the categorical independent variable) is the within-subjects factor, while the dependent quantitative variable on which each participant is measured is the dependent variable.

As with any ANOVA, repeated measures ANOVA tests the equality of means. However, repeated measures ANOVA is used when all members of a random sample are measured under a number of different conditions. As the sample is exposed to each condition in turn, the measurement of the dependent variable is repeated. Using a standard ANOVA in this case is not appropriate because it fails to model the correlation between the repeated measures: the data violate the ANOVA assumption of independence.

Purpose
To study whether pre – test scores and post – test scores differs across the five dependent variables - Self – awareness, Effective Communication, Critical Thinking, Decision Making and Problem Solving.

Research Question
Whether Life Skills Programme has an impact on the five Life Skills? (Self – awareness, Effective Communication, Critical Thinking, Decision Making and Problem Solving)

Statistical Test

Repeated Measures MANOVA
It is used to study the impact of categorical independent variable on a set of continuous dependent variables within a repeated measures design. In the present study, the Researcher wanted to examine whether the five Life Skills' pre – test and post – test scores differ across the five Life Skills. In the present study, independent variable was pre – test post – test situation and dependent variables were - Self – awareness, Effective Communication, Critical Thinking, Decision Making and Problem Solving. In other words, the Researcher aimed to study the impact of Life Skills Programme on the selected five Life Skills.

Variables and Measurement
Independent Variable – Life Skills Programme with two experimental conditions (1. Pre – test 2. Post – test)

Dependent Variable – Five Life Skills (Self – awareness, Effective Communication, Critical Thinking, Decision Making and Problem Solving)

An experiment was conducted on 33 students of Std. VIII, English Medium, S.S.C. Board (Modern English School, Warje, and Pune). A pre-test in the form of Standardized 5 points Rating Scale (developed by Rajiv Gandhi Institute of Youth Development), with some modifications, consisting of 51 statements was conducted. Then Researcher made Life Skills Programme (Product) was implemented for 3 months and then post – test was conducted. (The same Rating Scale which was used for pre – test).

H0; Life Skills Programme does not influence the five Life Skills (pre – test scores and post – test scores do not differ across the five Life Skills - Self – awareness, Effective Communication, Critical Thinking, Decision Making and Problem Solving)

H1; Life Skills Programme has a significant impact on the Life Skills (pre – test scores and post – test scores significantly differ across the Life Skills - Self – awareness, Effective Communication and Decision Making)

Level of Significance: α = 0.05

	N	Mean	Std. Deviation
Self-Awareness Pre - test	33	41.0909	4.43962
Effective Communication Pre - test	33	30.3636	4.82713
Critical Thinking Pre - test	33	39.1818	3.94061
Decision Making Pre - test	33	37.0303	3.89298
Problem Solving Pre - test	33	33.2121	3.48889
Self-Awareness Post test	33	45.7879	1.45253
Effective Communication Post test	33	38.1515	1.56367
Critical Thinking Post test	33	39.1818	3.94061
Decision Making Post test	33	46.5152	1.39466
Problem Solving Post test	33	33.2121	3.48889

Table No. 4.16 – Descriptive Statistics (MANOVA)

Data Analysis and Interpretation

Descriptive Statistics table highlights Mean and Standard Deviation values for the five dependent variables (Self – awareness, Effective Communication, Critical Thinking, Decision Making and Problem Solving) across pre – test and post – test situations.

For Self – awareness Mean pre – test value = 41.09 and

Mean post – test value = 45.78

This shows that there is an improvement in the Self – awareness amongst the students after the implementation of Life Skills Programme.

Similarly, for Effective Communication and Decision Making, post – test scores are better as compared to the pre – test scores.

Further, tests are carried out to study whether the difference between these scores are statistically significant.

It is interesting to note that pre – test scores and post – test scores of Critical Thinking and Problem Solving do not differ in Mean values.

4.2.3.3 Bartlett's Test of Sphericity

Bartlett's Test of Sphericity[a]					
Effect		**Likelihood Ratio**	**Approx. Chi-Square**	**df**	**Sig.**
Between Subjects		.000	27.260	14	.018
Within Subjects	Pre - test Post - test	.000	4324.859	14	.000

Table No. 4.17 – Bartlett's Test of Sphericity

The Bartlett's Test of Sphericity is statistically significant

In statistics, Bartlett's test is used to test if k samples are from populations with equal variances. Equal variances across samples is called homoscedasticity or homogeneity of variances. Some statistical tests, for example the analysis of variance, assume that variances are equal across groups or samples. The Bartlett test can be used to verify that assumption.

Bartlett's test is used to test the null hypothesis, H0 that all k population variances are equal against the alternative that at least two are different.

Bartlett's test is sensitive to departures from normality. That is, if the samples come from non-normal distributions, then Bartlett's test may simply be testing for non-normality.

In the present Research study, the significance value for within subjects (pre – test and post – test) is less than 0.001 ($p < 0.001$), indicating **sufficient correlation** between the dependent variables to proceed with analysis.

4.2.3.4 Multivariate Tests[a]

Multivariate Tests[a]								
Effect			Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Within Subjects	Life Skills Pro - gramme	Pillai's Trace	.895	85.092[b]	3.000	30.000	.000	.895
		Wilks' Lambda	.105	85.092[b]	3.000	30.000	.000	.895
		Hotelling's Trace	8.509	85.092[b]	3.000	30.000	.000	.895
		Roy's Largest Root	8.509	85.092[b]	3.000	30.000	.000	.895
a. Design: Intercept Within Subjects Design: Life Skills Programme								
b. Exact statistic								
c. Computed using alpha = .05								

Table No. 4.18 –Multivariate Tests[a]

The Pillai's Trace is statistically significant at 5% level of significance.

Pillai's Trace = 0.895; F (3, 30) = 85.092, P = 0.000

Since the P value (0.000) is less than level of significance (0.05), the **Null Hypothesis is rejected. Hence, it is concluded that Life Skills Programme has a significant impact on aggregate outcome of the five Life Skills. (Self – awareness, Effective Communication, Critical Thinking, Decision Making and Problem Solving)** i.e. the Life Skills scores differ across pre – test and post – test situations.

Since, Pillai's Trace was statistically significant, Univariate ANOVA was conducted on each dependent variable separately, to determine the locus of statistically significant Multivariate effect. Since, the impact of Life Skills Programme is examined on each dependent variable separately we use Bonferroni Corrected Alpha Level to avoid alpha inflation. We therefore divide the alpha by the number of dependent variables.

Hence the new alpha, $\alpha = 0.05 / 5 = 0.01$

4.2.3.5 Univariate Tests[a]

Source	Measure		Type III Sum of Squares	df	F	Sig.	Partial Eta Squared
Life Skills Programme							
	Self-awareness	Sphericity Assumed	364.015	1	38.637	0.000	0.547
		Greenhouse-Geisser	364.015	1	38.637	0.000	0.547
Error (Life Skills	Self-awareness	Sphericity	301.485	32			

Programme)		Assumed					
		Greenhouse-Geisser	301.485	32			
	Effective Communication	Sphericity Assumed	1000.742	1	98.305	0.000	0.754
		Greenhouse-Geisser	1000.742	1	98.305	0.000	0.754
Error (Life Skills Programme)	Effective Communication	Sphericity Assumed	325.758	32			
		Greenhouse-Geisser	325.758	32			
	Critical Thinking	Sphericity Assumed	0.000	1	.	.	.
		Greenhouse-Geisser	0.000	.	.	.	.
Error (Life Skills Programme)	Critical Thinking	Sphericity Assumed	0.000	32			
		Greenhouse-Geisser	0.000	.			
	Decision Making	Sphericity Assumed	1484.379	1	168.97	0.000	0.841
		Greenhouse-Geisser	1484.379	1	168.97	0.000	0.841
Error (Life Skills Programme)	Decision Making	Sphericity Assumed	281.121	32			
		Greenhouse-Geisser	281.121	32			
	Problem Solving	Sphericity Assumed	0.000	1	.	.	.
		Greenhouse-Geisser	0.000	.	.	.	.
Error (Life Skills Programme)	Problem Solving	Sphericity Assumed	0.000	32			
		Greenhouse-Geisser	0.000	.			
a Computed using alpha = .05							

Table No. 4.19 – Univariate Tests

Data Analysis and Interpretation

Self - awareness

From the Univariate table it can be seen that **Greenhouse - Geisser is statistically significant.**

Greenhouse – Geisser = 364.015, F (1, 32) = 38.637, P value = 0.000

This shows that Life Skills Programme has a significant impact on Self – awareness.

From Descriptive Statistics table it can be seen that the Self – awareness Mean scores for pre – test = 41.09 and for post – test = 45.78

Hence, **the Life Skills Programme has improved the Life Skill, Self – awareness,** amongst the students of Std. VIII, English Medium, S.S.C. Board.

Effective Communication
Greenhouse – Geisser is statistically significant suggesting statistical difference between Effective Communication Mean scores for pre – test and post – test.

Greenhouse – Geisser = 1000.742, F (1, 32) = 98.305, P value = 0.000

This shows that **the Life Skills Programme has a significant impact on Effective Communication**.

From Descriptive Statistics table it can be seen that the Effective Communication Mean scores for pre – test = 30.36 and for post – test = 38.15

Hence, there is a considerable improvement in the Life Skill, Effective Communication, in post – test situation.

Decision Making
Greenhouse – Geisser is statistically significant for Decision Making. This shows that the Life Skills Programme has a significant impact on Decision Making.

From Descriptive Statistics table it can be seen that the Decision Making Mean scores for pre – test = 37.03 and for post – test = 46.51

Hence, the **Life Skills Programme has improved the Life Skill, Decision Making**, amongst the students of Std. VIII, English Medium, and S.S.C. Board.

Critical Thinking and Problem Solving
Greenhouse – Geisser results for Critical Thinking and Problem Solving have not been produced by SPSS since the pre – test and post – test Mean values for these two variables are same.

4.2.3.6 Effect size
Effect size in the current experiment is assessed using Partial Eta Squared values. The Partial Eta Squared for,

Self – awareness = 0.547s
This indicates that Life Skills Programme can explain 54.7% of the variance of the dependent variable Self – awareness.

Similarly,

Effective Communication = 0.754
This indicates that Life Skills Programme can explain 75.4% of the variance of the dependent variable Effective Communication.

Decision Making = 0.84
This indicates that Life Skills Programme can explain 84% of the variance of the dependent variable Decision Making.

All Partial Eta Squared values are above 0.4 indicating a large effect.
Effect size for Critical Thinking and Problem Solving have not been produced by SPSS since the pre – test and post – test Mean values for these two variables are same.

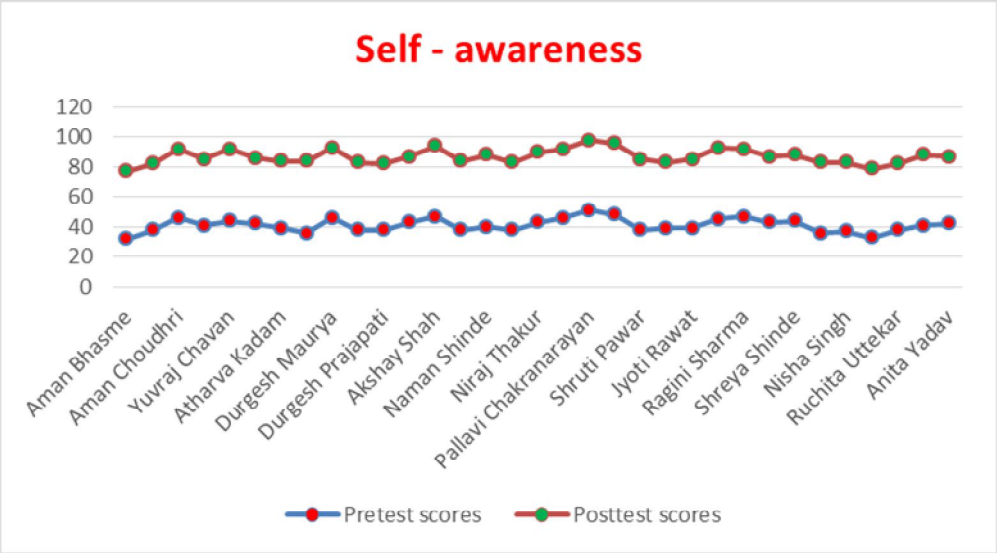
Discussion
The Life Skills Programme was not found significantly effective for the development / enhancement of the two Life Skills – Critical Thinking and Problem Solving (the mean scores of the pre – test and post – test for Critical Thinking and Problem Solving are same). This could be because of the following factors –

1. The content of Science textbook needs to be modified and improvised.
2. Aspects like attitude, interest, span of attention, self-motivation, fatigue etc.
3. Some Loopholes in the Life Skills Programme

4.2.4 Graphs

4.2.4.1 Graphs of comparison of Pre - test and Post - test scores

Graph of comparison of Pre - test and Post - test scores for the Life Skill – Self - awareness

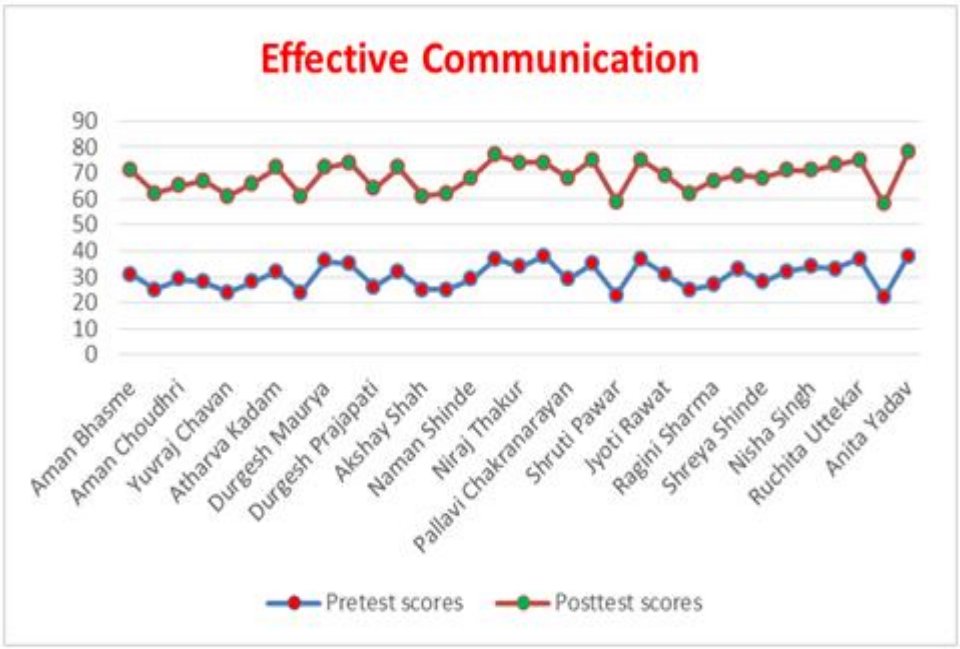


Graph No. 4.12 – Comparison of Pre - test and Post - test scores for Self – awareness

Data Analysis and Interpretation:

From the graph 4.12, it is seen that there is a significant difference in the individual scores of the pre – test and post – test indicating that the Life Skills Programme was successful in enhancing/improving the Life Skill – Self – awareness after implementing the Life Skills Programme.

Graph of comparison of Pre - test and Post - test scores for the Life Skill – Effective Communication

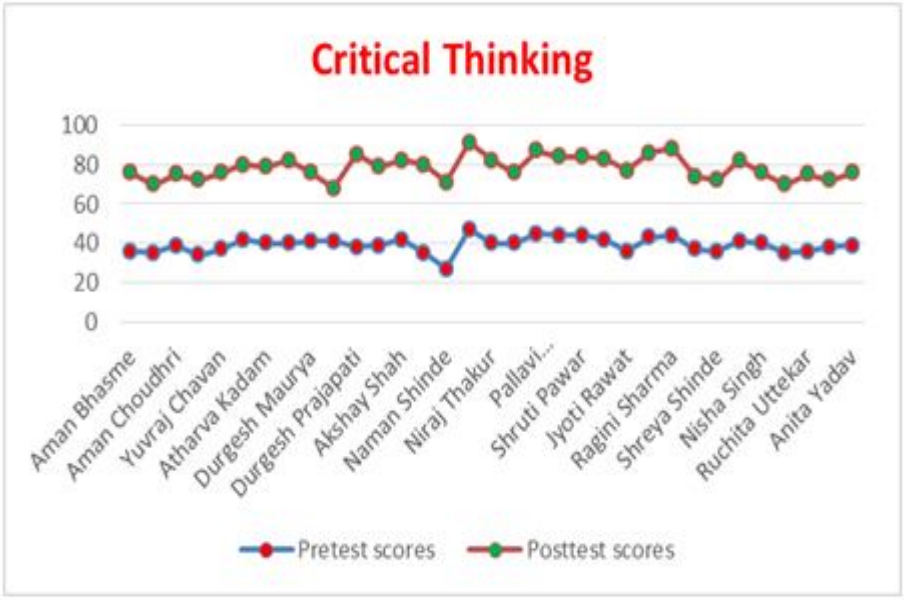


Graph No. 4.13 – Comparison of Pre-test and Post-test scores for Effective Communication

Data Analysis and Interpretation

From the graph 4.13, it is seen that there is a significant difference in the individual scores of the pre – test and post – test indicating that the Life Skills Programme was successful in enhancing/improving the Life Skill – Effective Communication after implementing the Life Skills Programme.

Graph of comparison of Pre - test and Post - test scores for the Life Skill – Critical Thinking

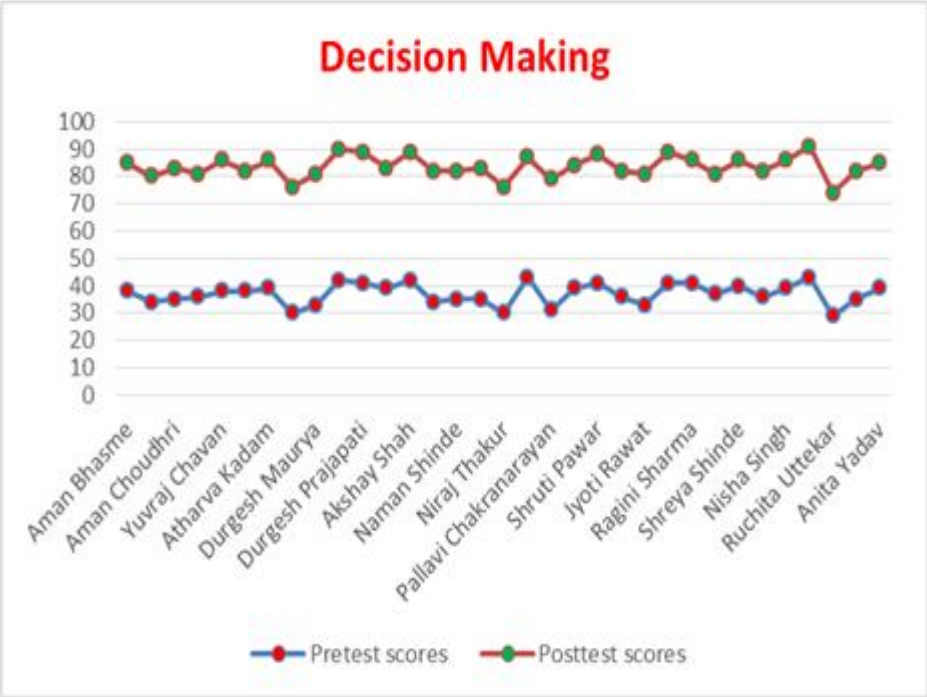


Graph No. 4.14 – Comparison of Pre - test and Post - test scores for Critical Thinking

Data Analysis and Interpretation

From the graph 4.14, it is seen that there is not a significant difference in the individual scores of the pre – test and post – test but the mean scores are exactly the same indicating that the Life Skills Programme was not useful in enhancing/improving the Life Skill – Critical Thinking after implementing the Life Skills Programme.

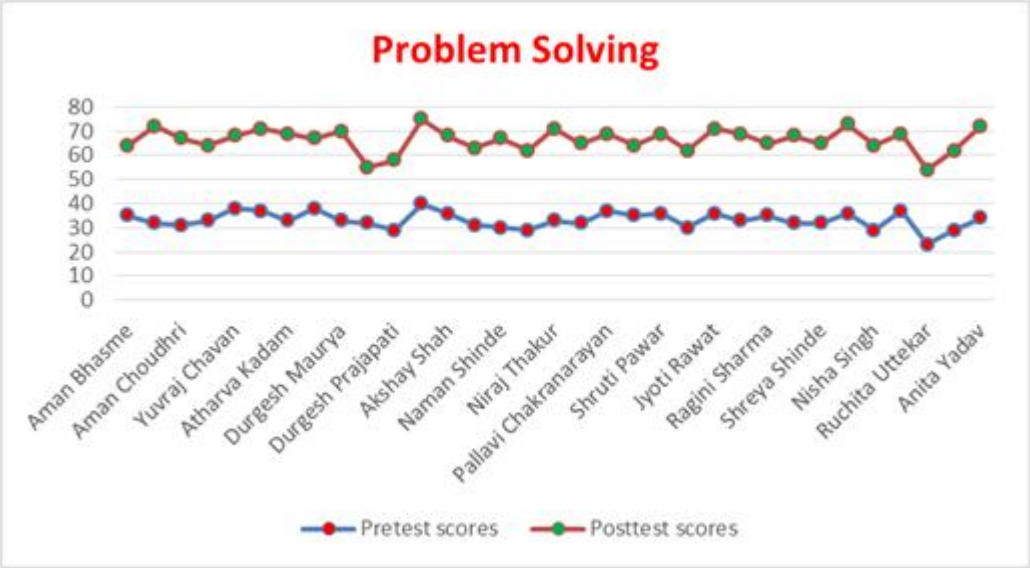
Graph of comparison of Pre - test and Post - test scores for the Life Skill – Decision Making



Graph No. 4.15 – Comparison of Pre - test and Post - test scores for Decision Making

From the graph 4.15, it is seen that there is a significant difference in the individual scores of the pre – test and post – test indicating that the Life Skills Programme was successful in enhancing/improving the Life Skill – Decision Making after implementing the Life Skills Programme.

Graph of comparison of Pre - test and Post - test scores for the Life Skill – Problem Solving

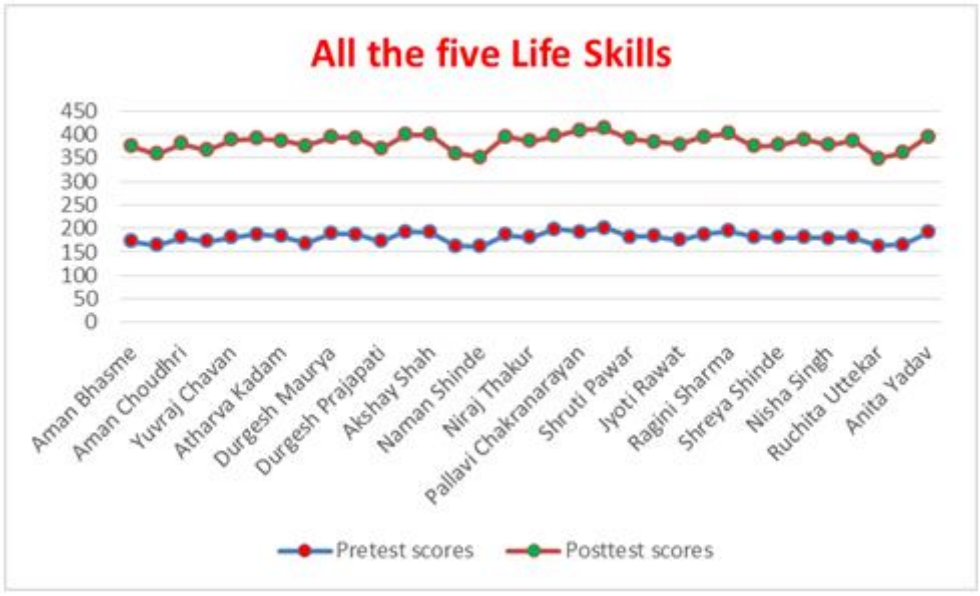


Graph No. 4.16 – Comparison of Pre - test and Post - test scores for Problem Solving

Data Analysis and Interpretation

From the graph 4.16, it is seen that there is not a significant difference in the individual scores of the pre – test and post – test but the mean scores are exactly the same indicating that the Life Skills Programme was not useful in enhancing/improving the Life Skill – Problem Solving after implementing the Life Skills Programme.

Graph of Comparison of the total/consolidated Pre - test and Post - test scores of all the five Life Skills (Self – awareness, Effective Communication, Critical Thinking, Decision Making, Problem Solving)



Graph No. 4.17 – Comparison of the total/consolidated Pre - test and Post - test scores of all the five Life Skills (Self – awareness, Effective Communication, Critical Thinking, Decision Making, Problem Solving)

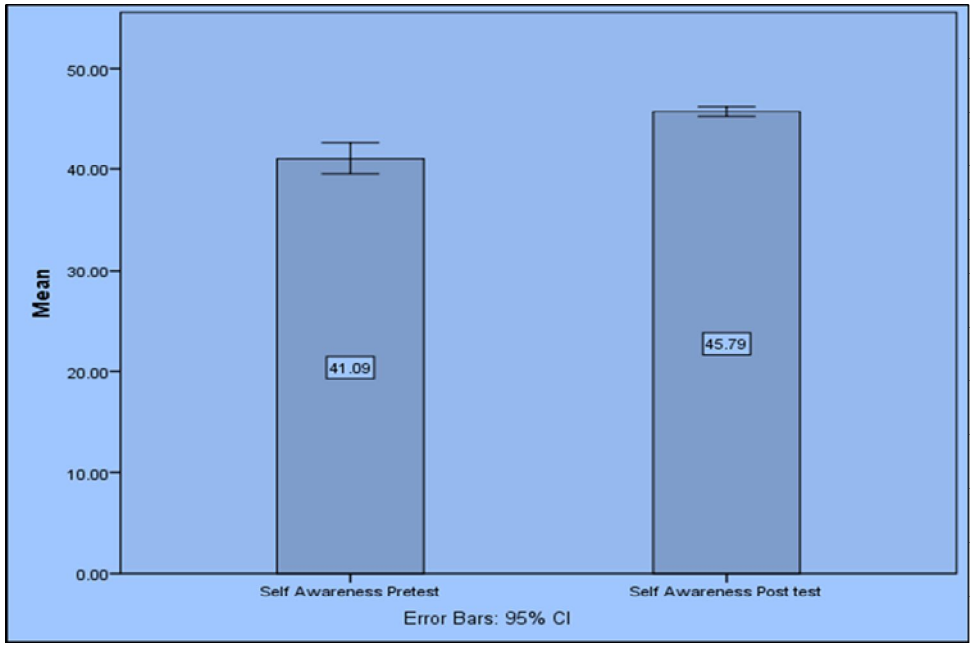
Data Analysis and Interpretation

From the graph 4.17, it is seen that there is a significant difference in the total scores of all the five Life Skills of the pre – test and post – test indicating that the Life Skills Programme was successful in aggregate in enhancing/improving the Life Skills after implementing the Life Skills Programme.

4.2.4.2 Error Bar Graphs

4.2.4.2.1 Error Bar Graph – Self - awareness

The Error Bar Graphs shows comparison between Mean values of pre – test and post – test for Self – awareness. Mean values – Pre – test = 41.09 and Post – test = 45.79



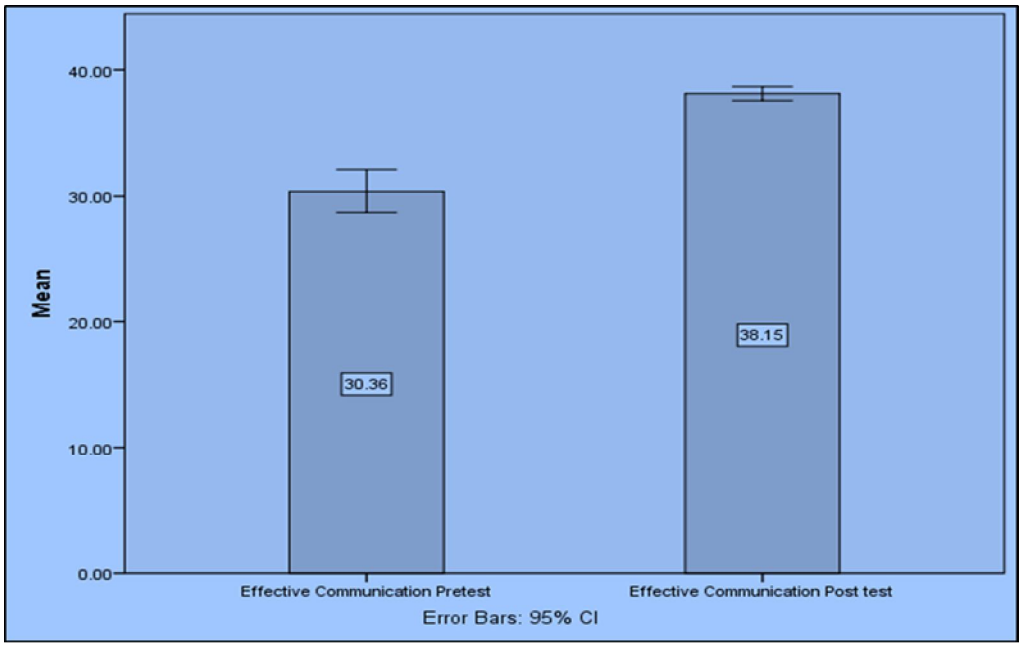
Graph No. 4.18 – Error Bar Graph for Self – awareness

Data Analysis and Interpretation

From the graph 4.18, it can be seen that there is a significant difference in the mean scores of the pre-test and post-test indicating enhancement/improvement in the Life Skill – Self – awareness after the implementation of the Life Skill Programme.

4.2.4.2.2 Error Bar Graph – Effective Communication

The Error Bar Graphs shows comparison between Mean values of pre – test and post – test for Effective Communication. Mean values – Pre – test = 30.36 and Post – test = 38.15



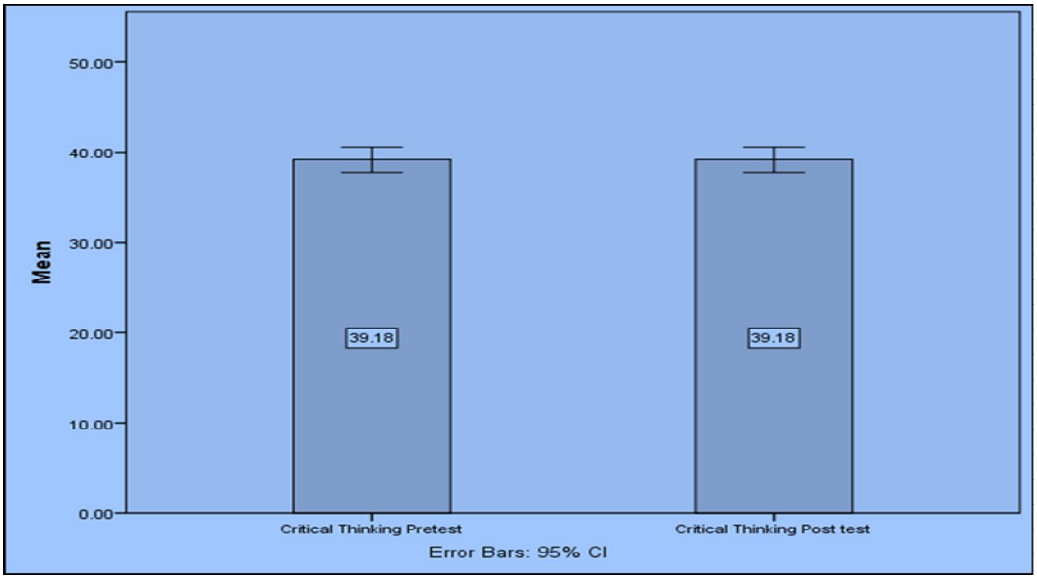
Graph No. 4.19 – Error Bar Graph for Effective Communication

Data Analysis and Interpretation

From the graph 4.19, it can be seen that there is a significant difference in the mean scores of the pre-test and post-test indicating enhancement/improvement in the Life Skill – Effective Communication after the implementation of the Life Skill Programme.

4.2.4.2.3 Error Bar Graph – Critical Thinking

The Error Bar Graphs shows comparison between Mean values of pre – test and post – test for Critical Thinking. Mean values – Pre – test = 39.18 and Post – test = 39.18



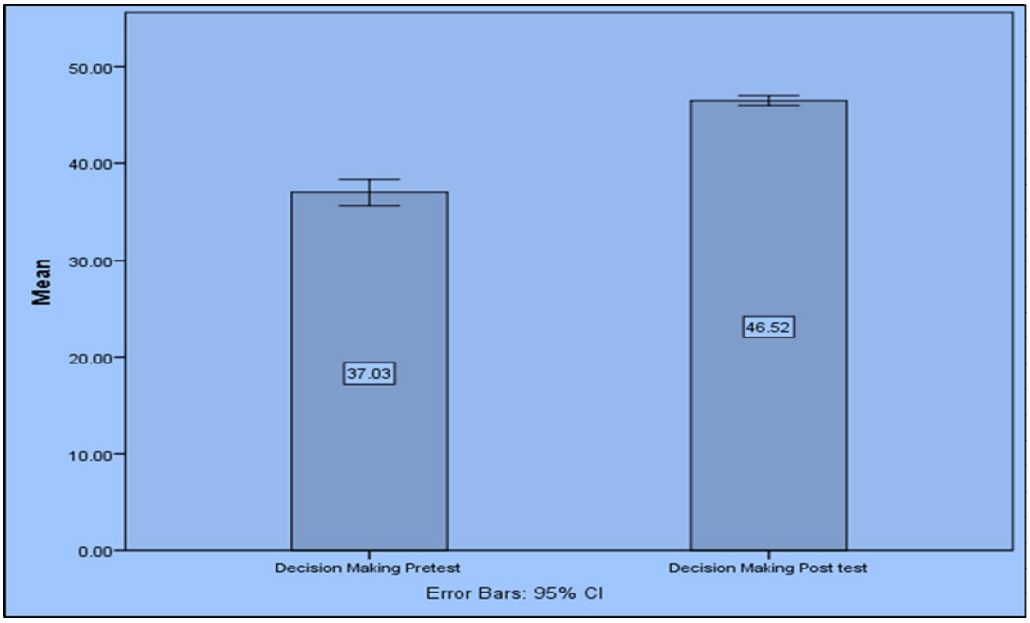
Graph No. 4.20 – Error Bar Graph for Critical Thinking

Data Analysis and Interpretation

From the graph 4.20, it can be seen that there is no significant difference in the mean scores of the pre-test and post-test indicating no enhancement/improvement in the Life Skill – Critical Thinking after the implementation of the Life Skill Programme.

4.2.4.2.4 Error Bar Graph – Decision Making

The Error Bar Graphs shows comparison between Mean values of pre – test and post – test for Decision Making. Mean values – Pre – test = 37.03 and Post – test = 46.52



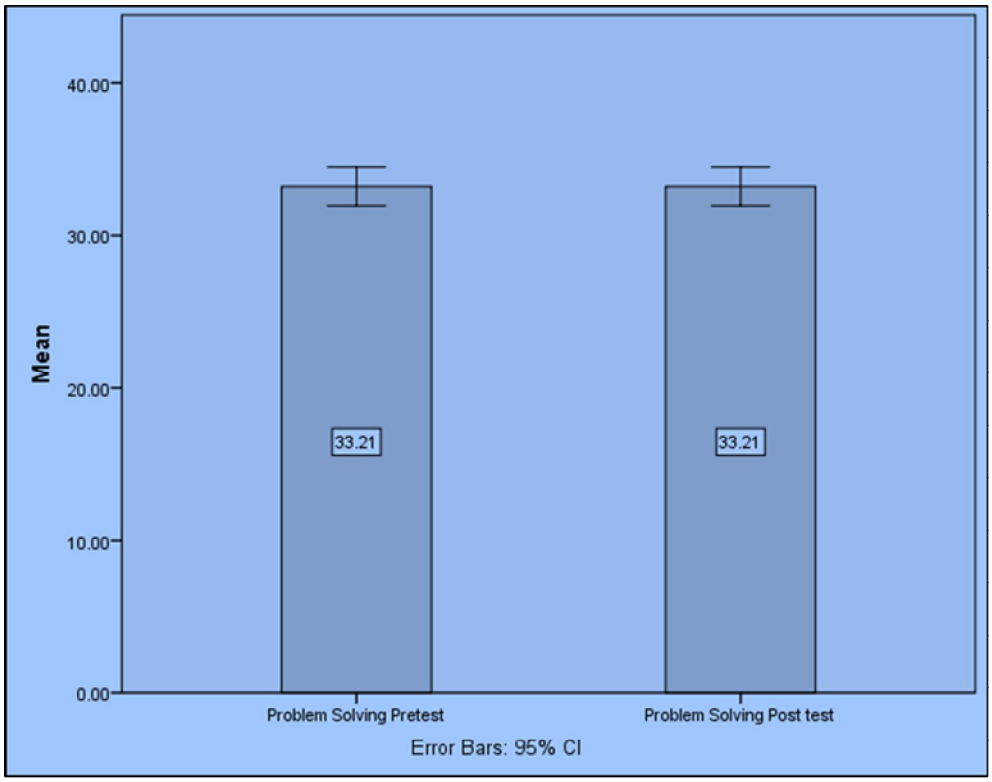
Graph No. 4.21 – Error Bar Graph for Decision Making

Data Analysis and Interpretation

From the graph 4.20, it can be seen that there is a significant difference in the mean scores of the pre-test and post-test indicating enhancement/improvement in the Life Skill – Decision Making after the implementation of the Life Skill Programme.

4.2.4.2.5 Error Bar Graph – Problem Solving

The Error Bar Graphs shows comparison between Mean values of pre – test and post – test for Problem Solving. Mean values – Pre – test = 33.21 and Post – test = 33.21



Graph No. 4.22 – Error Bar Graph for Problem Solving

Data Analysis and Interpretation

From the graph 4.22, it can be seen that there is no significant difference in the mean scores of the pre-test and post-test indicating no enhancement/improvement in the Life Skill – Problem Solving after the implementation of the Life Skill Programme.

4.2.5 Analysis of the data collected for Objective 4 – Researcher made Rating Scale

Analysis of user group responses about usability of Life Skills Programme

The Researcher gave the Life Skills Programme to 10 Science teachers of Std. VIII, S.S.C. Board and collected information by discussing, administering rating scale and acquiring feedback.

I) Usability Quality Component – Understandability

Statement 1 - Life Skills Programme is easy to understand.

Responses	Frequency	Percentage (%)
Not at all true	0	0
Occasionally true	0	0
Sometimes true	0	0
Most of the times true	0	0
Always true	10	100
Total	10	100

Table No. 4.20 – Usability Quality Component - Statement 1

Observation – The table reveals that 100% users responded that the Life Skills Programme is easy to understand.

Interpretation – All the users easily understood the Life Skills Programme.

Statement 2 - Life Skills Programme is easy to understand from the perspective of Std. VIII, Science students.

Responses	Frequency	Percentage (%)
Not at all true	0	0
Occasionally true	0	0
Sometimes true	0	0
Most of the times true	06	60
Always true	04	40
Total	10	100

Table No. 4.21 – Usability Quality Component - Statement 2

Observation – The table indicates that 60% users felt that the Life Skills Programme is most of the times easy to understand from the perspective of Std. VIII, Science students and 40% users felt that the Life Skills Programme is always easy to understand from the perspective of Std. VIII, Science students.

Interpretation – Most of the users found the Life Skills Programme easy to understand from the perspective of Std. VIII, Science students.

Statement 3 - Life Skills Programme is easy to understand from the perspective of Std. VIII, Science teachers.

Responses	Frequency	Percentage (%)
Not at all true	0	0
Occasionally true	0	0
Sometimes true	0	0
Most of the times true	03	30
Always true	07	70
Total	10	100

Table No. 4.22 – Usability Quality Component - Statement 3

Observation – The table indicates that 70% users felt that the Life Skills Programme is most of the times easy to understand from the perspective of Std. VIII, Science teachers and 30% users felt that the Life Skills Programme is always easy to understand from the perspective of Std. VIII, Science teachers.

Interpretation – Most of the users found the Life Skills Programme easy to understand from the perspective of Std. VIII, Science teachers.

Statement 4 - Strategies/Techniques/Activities included in the Life Skills Programme are easy to understand.

Responses	Frequency	Percentage (%)
Not at all true	0	0
Occasionally true	0	0
Sometimes true	0	0
Most of the times true	07	70
Always true	03	30
Total	10	100

Table No. 4.23 – Usability Quality Component - Statement 4

Observation – The table reveals that 70% of the users most of the times felt that Strategies/Techniques/Activities included in the Life Skills Programme are easy to understand and 30% of the users always felt that Strategies/Techniques/Activities included in the Life Skills Programme are easy to understand.

Interpretation – Most of the times the users found the Strategies/Techniques/Activities included in the Life Skills Programme easy to understand.

II) Usability Quality Component - Learnability

Statement 5 - Life Skills Programme is appropriate for enhancing Life Skills as well for learning Science content.

Responses	Frequency	Percentage (%)
Not at all true	0	0
Occasionally true	0	0
Sometimes true	0	0
Most of the times true	08	80
Always true	02	20
Total	10	100

Table No. 4.24 – Usability Quality Component - Statement 5

Observation – The table indicates that 80% of the users most of the times felt that the Life Skills Programme is appropriate for enhancing Life Skills as well for learning Science content and 20% of the users always felt that the Life Skills Programme is appropriate for enhancing Life Skills as well for learning Science content.

Interpretation – Most of the times the users found the Life Skills Programme appropriate for enhancing Life Skills as well for learning Science content.

Statement 6 - Strategies/Techniques/Activities included in the Life Skills Programme makes learning of Science content easier as well enhances the Life Skills of the Std. VIII students.

Responses	Frequency	Percentage (%)
Not at all true	0	0
Occasionally true	0	0
Sometimes true	0	0
Most of the times true	09	90
Always true	01	10
Total	10	100

Table No. 4.25 – Usability Quality Component - Statement 6

Observation – The table indicates that 90% of the users most of the times felt that Strategies/Techniques/Activities included in the Life Skills Programme makes learning of Science content easier as well develops/enhances the Life Skills of the Std. VIII students and 10% of the users always felt that Strategies/Techniques/Activities included in the Life Skills Programme makes learning of Science content easier as well develops/enhances the Life Skills of the Std. VIII students.

Interpretation – Most of the users found Strategies/Techniques/Activities included in the Life Skills Programme, makes learning of Science content easier as well develops/enhances the Life Skills of the Std. VIII students.

Statement 7 - Strategies/Techniques/Activities included in the Life Skills Programme creates an interesting, lively, healthy and conducive learning atmosphere.

Responses	Frequency	Percentage (%)
Not at all true	0	0
Occasionally true	0	0
Sometimes true	0	0
Most of the times true	02	20
Always true	08	80
Total	10	100

Table No. 4.26 – Usability Quality Component - Statement 7

Observation – The table reveals that 20% of the users most of the times felt that Strategies/Techniques/Activities included in the Life Skills Programme creates an interesting, lively, healthy and conducive learning atmosphere and 80% of the users always felt that Strategies/Techniques/Activities included in the Life Skills Programme creates an interesting, lively, healthy and conducive learning atmosphere.

Interpretation – Most of the users found Strategies/Techniques/Activities included in the Life Skills Programme creates an interesting, lively, healthy and conducive learning atmosphere.

Statement 8 - The non – conventional ways of teaching Science content for enhancing the Life Skills makes the teaching learning process more effective and facilitates lifelong learning.

Responses	Frequency	Percentage (%)
Not at all true	0	0
Occasionally true	0	0
Sometimes true	0	0
Most of the times true	01	10
Always true	09	90
Total	10	100

Table No. 4.27 – Usability Quality Component - Statement 8

Observation – The table represent that 10% of the users most of the times felt that the non – conventional ways of teaching Science content for enhancing the Life Skills makes the teaching learning process more effective and facilitates lifelong learning and 90% of the users always felt that the non – conventional ways of teaching Science content for enhancing the Life Skills makes the teaching learning process more effective and facilitates lifelong learning.

Interpretation – Most of the teachers found the non – conventional ways of teaching Science content for enhancing the Life Skills makes the teaching learning process more effective and facilitates lifelong learning.

III) Usability Quality Component - Operatability

Statement 9 - The design, layout and overall structure of the Life Skills Programme is easy to use.

Responses	Frequency	Percentage (%)
Not at all true	0	0
Occasionally true	0	0
Sometimes true	0	0
Most of the times true	0	0
Always true	10	100
Total	10	100

Table No. 4.28 – Usability Quality Component - Statement 9

Observation – The table represents that 100% of the users always felt that the design, layout and overall structure of the Life Skills Programme is easy to use.

Interpretation – For all the users the design, layout and overall structure of the Life Skills Programme is easy to use.

Statement 10 - The activities included in the Life Skills Programme can be conducted easily while teaching.

Responses	Frequency	Percentage (%)
Not at all true	0	0
Occasionally true	0	0
Sometimes true	0	0
Most of the times true	10	100
Always true	0	0
Total	10	100

Table No. 4.29 – Usability Quality Component - Statement 10

Observation – The table represents that 100% of the users most of the times felt that the activities included in the Life Skills Programme can be conducted easily while teaching.

Interpretation – Most of the times, all the users can conduct the activities included in the Life Skills Programme, easily while teaching.

Statement 11 - The Life Skills Programme can be easily used.

Responses	Frequency	Percentage (%)
Not at all true	0	0
Occasionally true	0	0
Sometimes true	0	0
Most of the times true	0	0
Always true	10	100
Total	10	100

Table No. 4.30 – Usability Quality Component - Statement 11

Observation – The table represents that 100% of the users felt that the Life Skills Programme could be easily used.

Interpretation – All the users can use the Life Skills Programme easily.

Statement 12 - The Life Skills Programme can be implemented feasibly.

Responses	Frequency	Percentage (%)
Not at all true	0	0
Occasionally true	0	0
Sometimes true	0	0
Most of the times true	08	80
Always true	02	20
Total	10	100

Table No. 4.31 – Usability Quality Component - Statement 12

Observation – The table reveals that 80% of the users felt that most of the times the Life Skills Programme can be implemented feasibly and 20 % of the users felt that always the Life Skills Programme could be implemented feasibly.

Interpretation – Most of the teachers found the Life Skills Programme feasible.

IV) Usability Quality Component - Utility

Statement 13 - The Life Skills Programme is useful for the Std. VIII students to understand the Science content as well for enhancing Life Skills.

Responses	Frequency	Percentage (%)
Not at all true	0	0
Occasionally true	0	0
Sometimes true	0	0
Most of the times true	03	30
Always true	07	70
Total	10	100

Table No. 4.32 – Usability Quality Component - Statement 13

Observation – The table indicates that 30% users most of the times felt that the Life Skills Programme is useful for the Std. VIII students to understand the Science content as well for enhancing Life Skills and 70% users always felt that the Life Skills Programme is useful for the Std. VIII students to understand the Science content as well for enhancing Life Skills.

Interpretation – Most of the teachers found the Life Skills Programme useful for the Std. VIII students to understand the Science content as well for enhancing Life Skills.

Statement 14 - The Life Skills Programme is instrumental for the development of Life Skills in Std. VIII students.

Responses	Frequency	Percentage (%)
Not at all true	0	0
Occasionally true	0	0
Sometimes true	0	0
Most of the times true	08	80
Always true	02	20
Total	10	100

Table No. 4.33 – Usability Quality Component - Statement 14

Observation – The table represents that 80% users most of the times felt that the Life Skills Programme is instrumental for the development of Life Skills in Std. VIII students and 20% users always felt that the Life Skills Programme is instrumental for the development of Life Skills in Std. VIII students.

Interpretation – Most of the users found the Life Skills Programme instrumental for the development of Life Skills in Std. VIII students.

Statement 15 - The Life Skills Programme is useful from the perspective of the students of Std. VIII.

Responses	Frequency	Percentage (%)
Not at all true	0	0
Occasionally true	0	0
Sometimes true	0	0
Most of the times true	04	40
Always true	06	60
Total	10	100

Table No. 4.34 – Usability Quality Component - Statement 15

Observation – The table reveals that 40% of the users most of the times felt that the Life Skills Programme is useful from the perspective of the students of Std. VIII and 60% of the users always felt that the Life Skills Programme is useful from the perspective of the students of Std. VIII..

Interpretation – Most of the users found the Life Skills Programme useful from the perspective of the students of Std. VIII.

Statement 16 - The Life Skills Programme is useful from the perspective of the Science teachers of Std. VIII.

Responses	Frequency	Percentage (%)
Not at all true	0	0
Occasionally true	0	0
Sometimes true	0	0
Most of the times true	0	0
Always true	10	100
Total	10	100

Table No. 4.35 – Usability Quality Component - Statement 16

Observation – The table indicates that 100% users felt that the Life Skills Programme is useful from the perspective of the Science teachers of Std. VIII.

Interpretation – All the users found the Life Skills Programme useful from the perspective of the Science teachers of Std. VIII.

V) Usability Quality Component - Objectivity

Statement 17 - The objective of developing the Life Skills Programme is fulfilled.

Responses	Frequency	Percentage (%)
Not at all true	0	0
Occasionally true	0	0
Sometimes true	0	0
Most of the times true	10	100
Always true	0	0
Total	10	100

Table No. 4.36 – Usability Quality Component - Statement 17

Observation – The table represents that 100% of the users felt that the objective of developing the Life Skills Programme is fulfilled.

Interpretation – For all the users the objective of developing the Life Skills Programme is fulfilled.

VI) Usability Quality Component - Attractiveness

Statement 18 - The design, layout and overall structure of the Life Skills Programme is attractive and appealing.

Responses	Frequency	Percentage (%)
Not at all true	0	0
Occasionally true	0	0
Sometimes true	0	0
Most of the times true	0	0
Always true	10	100
Total	10	100

Table No. 4.37 – Usability Quality Component - Statement 18

Observation – The table indicates that 100% of the users felt that the design, layout and overall structure of the Life Skills Programme is attractive and appealing.

Interpretation – For all the users the design, layout and overall structure of the Life Skills Programme is attractive and appealing.

Statement 19 - The text, pictures and animations included in the Life Skills Programme are attractively organized and presented.

Responses	Frequency	Percentage (%)
Not at all true	0	0
Occasionally true	0	0
Sometimes true	0	0
Most of the times true	03	30
Always true	07	70
Total	10	100

Table No. 4.38 – Usability Quality Component - Statement 19

Observation – The table reveals that 30% of the users most of the times felt that the text, pictures and animations included in the Life Skills Programme are attractively organized and presented and 70% of the users always felt that the text, pictures and animations included in the Life Skills Programme are attractively organized and presented.

Interpretation – Most of the users found the text, pictures and animations included in the Life Skills Programme attractively organized and presented.

VII) Usability Quality Component - Applicability

Statement 20 - The Life Skills Programme is appropriate and applicable for the English Medium students of Std. VIII, S.S.C. Board.

Responses	Frequency	Percentage (%)
Not at all true	0	0
Occasionally true	0	0
Sometimes true	0	0
Most of the times true	0	0
Always true	10	100
Total	10	100

Table No. 4.39 – Usability Quality Component - Statement 20

Observation – The table represents that 100% of the users felt that the Life Skills Programme is appropriate and applicable for the English Medium students of Std. VIII, S.S.C. Board.

Interpretation – All the users found the Life Skills Programme appropriate and applicable for the English Medium students of Std. VIII, S.S.C. Board.

Conclusions of the data about Usability of Life Skills Programme

The Researcher has concluded the overall observations and interpretation of the user group about the usability of Life Skills Programme in the form of Percentage, in the following table –

Quality Components	Statements	% Obtained	Average %
Understability	Life Skills Programme is easy to understand.	100	**92**
	Life Skills Programme is easy to understand from the perspective of Std. VIII, Science students.	88	
	Life Skills Programme is easy to understand from the perspective of Std. VIII, Science teachers.	94	
	Strategies/Techniques/Activities included in the Life Skills Programme are easy to understand.	86	
Learnability	Life Skills Programme is appropriate for enhancing improving Life Skills as well for learning Science content.	84	**90**
	Strategies/Techniques/Activities included in the Life Skills Programme makes learning of Science content easier as well enhances the Life Skills of the Std. VIII students.	82	
	Strategies/Techniques/Activities included in the Life Skills Programme creates an interesting, lively, healthy and conducive learning atmosphere.	96	
	The non – conventional ways of teaching Science content for enhancing the Life Skills makes the teaching learning process more effective and facilitates lifelong learning.	98	
Operatability	The design, layout and overall structure of the Life Skills Programme is easy to use.	100	**91**
	The activities included in the Life Skills Programme can be conducted easily while teaching.	80	
	The Life Skills Programme can be easily used.	100	
	The Life Skills Programme can be implemented feasibly.	84	
Utility	The Life Skills Programme is useful for the Std. VIII students to understand the Science content as well for enhancing Life Skills.	94	**92.5**
	The Life Skills Programme is instrumental for the development of Life Skills in Std. VIII students.	84	
	The Life Skills Programme is useful from the perspective of the students of Std. VIII.	92	
	The Life Skills Programme is useful from the perspective of the Science teachers of Std. VIII.	100	

Objectivity	The objective of developing the Life Skills Programme is fulfilled.	80	**80**
Attractiveness	The design, layout and overall structure of the Life Skills Programme is attractive and appealing.	100	**97**
	The text, pictures and animations included in the Life Skills Programme are attractively organized and presented.	94	
Applicability	The Life Skills Programme is appropriate and applicable for the English Medium students of Std. VIII, S.S.C. Board.	100	**100**

Table No. 4.40 – Overall Analysis of Usability Quality Components

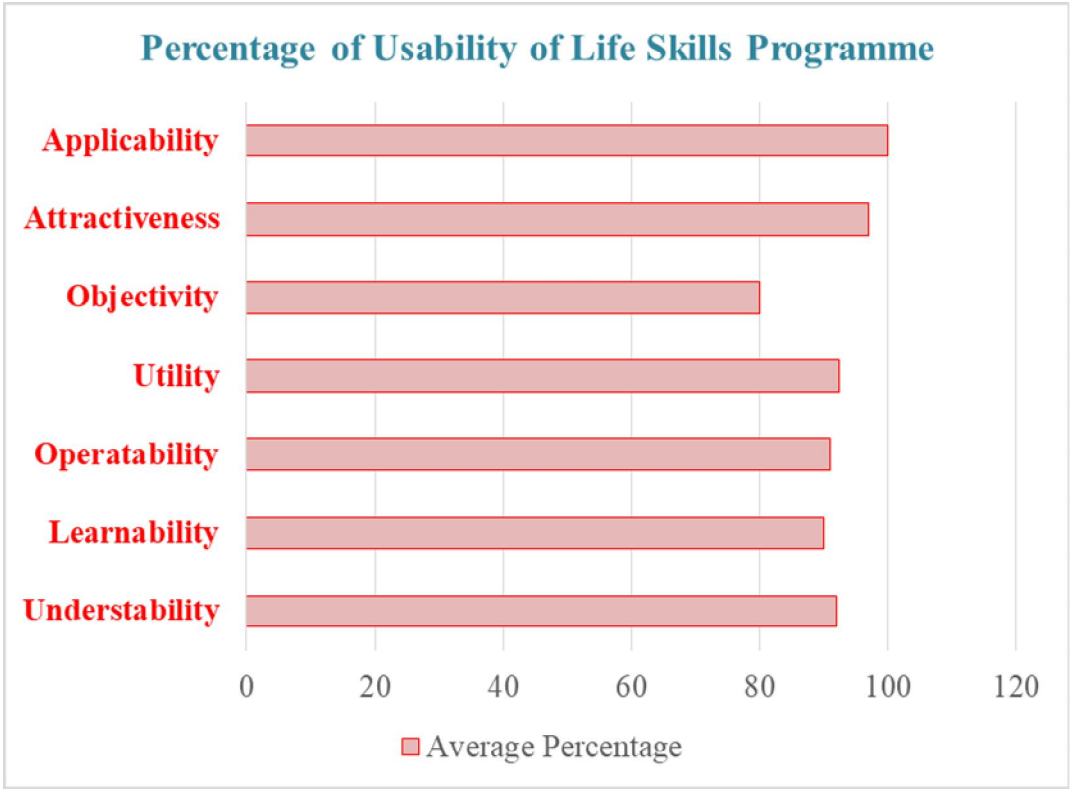
Research Question - How much is the total usability of the Life Skills Programme?

The answer is reflected in the following table –

Sr. No.	Usability Quality Component	Average %	Average of all quality components %
1	Understability	**92**	**91.79 ≈ 92**
2	Learnability	**90**	
3	Operatability	**91**	
4	Utility	**92.5**	
5	Objectivity -	**80**	
6	Attractiveness	**97**	
7	Applicability	**100**	

Table No.4.41 - Total Usability of Quality Components

Graph



Graph No. 4.23 – Usability of Life Skills Programme

Observation – The table and the graph reflects that the average percentage of Usability Quality Components of Life Skills Programme for the students of Std. VIII for Understability is 92%, Learnability is 90%, Operatability is 91%, Utility is 92.5%, Objectivity is 80%, Attractiveness is 97% and Applicability is 100%.

Interpretation – Overall Usability of Life Skills Programme for the students of Std. VIII based on usability quality components and the responses of the user group was 92%.

Interpretation of the data for Usability Quality Components

Understability – The overall view of user group indicates that they understood the entire Life Skills Programme. The Life Skills Programme was easy to understand from the perspective of Std. VIII, Science students as well as Science teachers. Even the activities/strategies/techniques included in the programme were well understood by the user group though different from the regular teaching methodology.

Learnability – The user group found the Life Skills Programme appropriate for the students of Std. VIII for enhancing Life Skills as well for learning Science content. Also, based on the responses of the user group, Strategies/Techniques/Activities included in the Life Skills Programme makes learning of Science content easier as well develops/enhances the Life Skills of the Std. VIII students in an interesting, lively, healthy and conducive learning atmosphere further making the teaching learning process more effective and facilitating lifelong learning.

Operatability – The user group agreed that the Life Skills Programme was easy to operate and implemented feasibly in the classroom. They also found the design, layout and overall structure of the Life Skills Programme easy to use and the activities included in the Life Skills Programme, can be conducted easily while teaching.

Utility – The user group believed that the Life Skills Programme is useful for the Std. VIII students to understand the Science content as well for enhancing Life Skills from the perspective of students of Std. VIII and Science teachers of Std. VIII. Also, the user group were of the view that the Life Skills Programme is instrumental for the development of Life Skills in Std. VIII students.

Objectivity – The user group were of the opinion that the objectivity of developing the Life Skills Programme is fulfilled to a far extent.

Attractiveness – The user group were of the view that the design, layout and overall structure of the Life Skills Programme is attractive and appealing and the text, pictures and animations included in the Life Skills Programme are attractively organized and presented.

Applicability – The user group believed that the Life Skills Programme is appropriate and applicable for the English Medium students of Std. VIII, S.S.C. Board.

4.2.6 Analysis of Research Questions

Sr. No	Research Question	Output
1.	Which topics of Std. VIII, Science Textbook can be effectively included in the Life Skills Programme?	Biodiversity, Laws of Reflection, Solar system, Moon, Metals and non- metals, Properties of magnet, Simple electro – magnet, Simple and Dry cells, Types of Reflection, Laws of Reflection, Energy crisis, Air pollution, Soil Pollution, Diseases – Cholera, Typhoid, Diarrhoea, Entritis, Polio.
2.	What is the current status of the Life Skills possessed by the students of Std. VIII?	Before implementation of the Life Skills Programme, the level of Life Skills possessed by the students was **'AVERAGE'**. After implementation of the Life Skills Programme significant level of increase was found in the students for the three Life Skills – Self – awareness, Effective Communication and Decision Making. (**'HIGH'**)
3.	Can the Researcher for enhancing the Life Skills develop any programme?	Yes, definitely a programme can be developed for enhancing the Life Skills of the students.

4.	Is the developed programme usable?	Yes, the developed programme is usable since the data collected from the Science teachers reflects that overall, 92% of the Usability Quality Components support the Life Skill Programme.

Table No. 4.42 – Analysis of Research Questions

4.2.7 Analysis of data according to the Objectives

Objective	Tool 1	Tool 2	Researcher's remark / opinion
1	Researcher made Questionnaire	Researcher made Check - List	(a) Not all the 10 Life Skills can be developed effectively in the students through the contents of Science textbook of Std. VIII, S.S.C. Board. (b) Traditional method of teaching is not effective for the development/ enhancement of the Life Skills amongst the students. (c) Many practical difficulties causes obstacles in the development/enhancement of the Life Skills amongst the students through the contents of Science textbook of Std. VIII, S.S.C. Board.
2	Standardized Rating Scale	-	All the 10 Life Skills possessed by the students need to be developed/enhanced.
3	Standardized Rating Scale with relevant editions	-	(a) The Life Skills Programme was effective for developing/enhancing the Life Skills; Self-awareness, Effective Communication and Decision Making. (b) Non – conventional ways for teaching Science proves effective and useful for the development / enhancement of the Life Skills.
4	Researcher made Rating Scale	-	The Life Skills Programme is highly usable since the data collected from the Science teachers reflects that overall, 92% of the Usability Quality Components support the Life Skill Programme.

Table 4.43 - Analysis of data according to the Objectives

4.2.8 Discussion

Present Research	Researches Reviewed	Researcher's Remark / Opinion
Conclusion		
(a) The intervention programme in the form of Life Skills Programme for development / enhancement of Life Skills proves effective and beneficial to all the individuals. (b) Using non – conventional methods for teaching Science enhances the Life Skills amongst the students.	The intervention programme i.e. the use of non – conventional ways of teaching, in aggregate, proves effective and beneficial to all the individuals.	(a) In all the past reviewed Researches it was found that they are not content specific whereas the present Research study is content specific i.e. contents of Science textbook of Std. VIII of S.S.C. Board. Developing and practicing such, Life Skill Programmes not only makes effective and easy understanding of the Science content but also develops/enhances the Life Skills of the students in an interesting way. Thus, the purpose of WHO and MSCERT of including 10 Life Skills in the school curriculum is achieved. (b) Life Skills Training should be provided to the teachers for making them more efficient and competent. (c) The teacher should make use of such Life Skills Programme to enhance/develop the Life Skills of the students.

Table 4.44 - Discussion of conclusions of present and past Researches

4.3 Conclusion

In the present chapter, the Researcher has given details about the Data collected, the Analysis and Interpretation of the data collected, Objective wise. Normality testing for the pre – test and post – test scores for all the dependent variables (Self-awareness, Effective Communication, Critical Thinking, Decision Making and Problem Solving) is also been discussed elaborately. Wherever necessary, Graphical representations are made for giving a clear picture i.e. for better understanding. The findings and the conclusions of the present Research study is discussed in the next chapter.

CHAPTER - V

SUMMARY, FINDINGS AND CONCLUSIONS

5.1 Introduction

Life skills are a set of human skills acquired via teaching or direct experience that are used to handle problems and questions commonly encountered in daily human life. The subject varies greatly depending on societal norms and community expectations. For example, UNICEF states, "there is no definitive list" of life skills but enumerates many "psychosocial and interpersonal skills generally considered important." It asserts life skills are a synthesis: "many skills are used simultaneously in practice. For example, decision-making often involves critical thinking ("what are my options?") and values clarification ("what is important to me?"). Ultimately, the interplay between the skills is what produces powerful behavioral outcomes, especially where this approach is supported by other strategies..." (UNICEF, 1997).

Life skills can vary from financial literacy, substance abuse prevention, to therapeutic techniques to deal with disabilities, such as autism. Life skills also emphasize communications and practical skills needed for successful independent living for developmental disabilities/special education students with an Individualized Education Programme (IEP). However, some programmes are for general populations, such as the Overcoming Obstacles programme for middle schools and high schools. Other life skills programmes are focused on social welfare and social work programmes. Such programme covers diverse topics: career planning, communication, daily living, home life, housing and money management, self-care, social relationships, work and study skills, work life, pregnancy and parenting.

Which skills are life skills?

There is no definitive list of life skills. The list below includes the psychosocial and interpersonal skills generally considered important. The choice of, and emphasis on, different skills will vary according to the topic and local conditions. Though the list suggests these categories are distinct from each other, many skills are used simultaneously in practice.

Communication and Interpersonal Skills

Interpersonal communication skills

- Verbal/Nonverbal communication
- Active listening
- Expressing feelings; giving feedback (without blaming) and receiving feedback

Negotiation/refusal skills

- Negotiation and conflict management
- Assertiveness skills
- Refusal skills

Empathy

- Ability to listen and understand another's needs and circumstances and express that understanding

Cooperation and Teamwork

- Expressing respect for others' contributions and different styles
- Assessing one's own abilities and contributing to the group

Advocacy Skills

- Influencing skills & persuasion
- Networking and motivation skills

Decision Making and Critical Thinking Skills

Decision making / problem solving skills

- Information gathering skills
- Evaluating future consequences of present actions for self and others
- Determining alternative solutions to problems

- Analysis skills regarding the influence of values and attitudes of self and others on motivation

Critical thinking skills

- Analyzing peer and media influences
- Analyzing attitudes, values, social norms and beliefs and factors affecting these
- Identifying relevant information and information sources

Coping and Self-Management Skills

Skills for increasing internal locus of control

- Self-esteem/confidence building skills
- Self-awareness skills including awareness of rights, influences, values, attitudes, rights, strengths and weaknesses
- Goal setting skills
- Self-evaluation / Self-assessment / Self-monitoring skills

Skills for managing feelings

- Anger management
- Dealing with grief and anxiety
- Coping skills for dealing with loss, abuse, trauma

Skills for managing stress

- Time management
- Positive thinking
- Relaxation techniques (UNICEF, 1997)

10 core Life skills to be inculcated among the students are:

i. Self-awareness
ii. Empathy
iii. Interpersonal relations
iv. Communicating effectively
v. Critical thinking
vi. Creative thinking
vii. Problem solving
viii. Decision making
ix. Copying with emotions
x. Copying with stress

Thus, Life skills are defined as skills, which can provide you with a better perspective on life, skills which can allow you to maintain a higher awareness of both yourself and the world around you.

A number of studies have shown that the typical human being only uses a small portion of their brain capacity on a daily basis, but much of our potential as human beings remains dormant. However, you can unlock the other side of your mind by always working hard to reach your full potential.

While school/college gives you the knowledge, which is part of the formula, a school/college education cannot give other things you.

The life skills described are difficult to develop in a classroom setting; in fact, these skills are best learned outside the classroom. While these skills are difficult to learn in a traditional academic setting, mastery of them will lead to a life of wealth, power, success, and most importantly, self-fulfillment and inner peace.

5.2 Need and Importance of the Research study

We find that behaviour does not always follow the mind. This is when incidents of "I know but I can't help it" occur. What we need is the ability to act responsibly. Life skills enable us to translate knowledge, attitudes and values into actual abilities.

The host of factors that promote high-risk behaviour such as alcoholism, drug abuse and casual relationships are boredom, rebellion, disorientation, peer pressure and curiosity. The psychological push factors such as the inability to tackle emotional pain, conflicts, frustrations and anxieties about the future are often the driving force for high-risk behaviour. Life skills training is an efficacious tool for empowering the youth to act responsibly, take initiative and take control. It is based on the assumption that when young people are able to rise above emotional impasses arising from daily conflicts, entangled relationships and peer pressure, they are less likely to resort to anti-social or high risk behaviours.

Why develop Life Skills?

- To develop a dynamic self-image and great self esteem
- To improve the communication skills
- To make relationships better and handling interpersonal problems
- To boost our decision making ability and make informed decisions
- To help us to deal with the challenges of everyday life
- To become a well-adjusted individual
- Deal effectively with the peer pressure
- Prevent high risk behaviours
- Prevent communication gap with the parents
- To reduce vulnerability and improve utilization of protective factors
- To enable the youth to adapt to situations and people

It is necessary for every individual to possess the Life Skills because without having developed them, one will always feel that something is missing in one's life. What good is all the financial success in the world if one don't have, self-confidence, know who one really is, what one wants, or what one is doing here? We've all witnessed many outwardly successful and famous people who have not been able to find personal happiness. No amount of fame or fortune could fill the void they felt inside.

Therefore, in order to enjoy the fruits of any achievement one must first be happy with oneself.

The Life Skills programme developed by the Researcher is a school based programme where Life Skills are imparted in a supportive learning environment by using various strategies and activities. They are applicable for all ages of children and adolescents in school. However, the age group targeted is mainly 13-14, adolescent years, since young people of this age group seem to be most vulnerable to behaviour related health problems. The programme is for the promotion of overall well-being and targeted group is all children.

Implementing the Life Skill Programme has enabled to develop the following five Life Skills in the following way:

1. **Self-awareness** - The ability to introspect, analyze and accept one's thoughts, actions and feelings. Recognizing and acknowledging one has needs and desires. Being aware of the good points about oneself to help build a sense of self-esteem and self-confidence. Being aware of weaknesses to make willing to learn more. To utilize the opportunities available to them in relation to their abilities. Knowing about oneself developed a positive attitude towards life. In making decisions, prioritizing work, and reasoning out many actions and reactions. To recognize when one is stressed or is under

pressure. It is often a pre-requisite for effective communication, interpersonal relationship and developing empathy for others.

2. **Effective communication** -The ability to express, verbally through spoken or written language and non-verbally through gestures and body movements, in ways that are culturally acceptable. Facilitated one understands of the other person's point of view and how they see the world.

3. **Critical Thinking** - In developing intellectually disciplined process of actively and skillfully conceptualizing, applying, analyzing, synthesizing and evaluating information gathered from or generated by observation, experience, reflection, reasoning or communication as a guide to belief and action. In developing the process of determining the authenticity, accuracy or value of something characterized by the ability to seek reasons and alternatives, perceive the total situation, and change one's view based on evidence. It helped to think clearly and rationally. To reflect on things and situations and think independently. To recognize and assess the factors that influence our attitude and behaviour.

4. **Problem solving** - Developed information gathering skills, evaluating future consequences of present actions for self and others, determining alternative solutions to problems and analysis skills regarding the influence of values and attitudes of self and others on motivation.

5. **Decision making** - Developed the process of gathering information about relevant alternatives and making an appropriate choice. It is a choice of what to do and what not to do. The ability to choose the best alternative solution to a problem from the available options, with due consideration of the consequences of different decisions. To weigh the pros and cons of alternatives and make an informed decision.

5.3 Significance of the Research study

In order to excel at a job, a sport or any discipline, a person must acquire and master certain skills. Living life fully and productively is no different.

Furthermore, possessing Life Skills enables you to deal with the life's inevitable difficulties and adversities more effectively. It lessens your chances of overusing prescription drugs, engaging in addictive behaviors, and experiencing overall despair and hopelessness. When you have the proper tools and strategies at your disposal, you have more control over your life and are therefore happier and more productive.

Where do you begin?

You begin by establishing a firm foundation. That foundation is "you". You must know who you are, what you want, and what you are capable of. You must then determine which values, goals and principles you will set up to guide your actions.

Learning about and applying the Essential Life Skills helps to:

- know and understand oneself better
- live life more consciously and deliberately
- attain personal satisfaction and fulfillment

1. The Research study undertaken was not only helpful to the students for enhancing their achievement level but also a step towards leading a successful life. It threw light on the necessity of including content-based Life Skill Programme in the school curriculum.
2. It emphasized on the essentiality of the Life Skills school-based programmes as a means to develop skills among young people that lead to healthy lifestyle choices and optimum physical, social, and psychological wellbeing.
3. It has served as a model of modification in preparing instructional materials for teacher training, practicing teacher, teacher trainer, or administrators.
4. Mastery of Life Skills leads to a life of wealth, power, success and most importantly, self-fulfillment and inner peace.

5. Thus, acquiring Essential Life Skills not only contributes to your personal growth and development, it makes you a more interesting and dynamic individual.

5.4 Theories supporting Research study

(A) Child Develop-ment Theory – Adolescent	Adolescence is an amazing period of growth spanning the ages of 12-24 years old. Youth enter this developmental stage with the body and mind of a child, and then exit 10-12 years later, with the body and mind of an adult. There is a strong inter-relationship among the various aspects of development - physical, cognitive, emotional, social, moral, and sexual dimensions. Also, there is a great deal of individual variation within the normal developmental process. Individual youth may reach developmental milestones at ages that are different from averages, and yet these youth would still be considered "normal."	**Relevance to Research study** – Conceptual understand-ing of Life Skills in the light of develop-ment in the adolescent period
(B) Problem Behaviour Theory	Jessor recognized that youth was a segment of the lifespan in which change is the predominant characteristic, and that rapid change is not unusual; he also recognized the need for a far-reaching understanding of young people and of youthful development. PBT is an intersection of the fields of social psychology, developmental psychology and the psychology of personality. It enlarges the boundaries of the typical discipline-confined approach by encompassing factors that lie in the person, as well as those that lie in the social environment, and by examining their joint contribution to variation in human action and experience. It is not a grand theory, but rather a theory of mid-range—a network or concept of modest scope oriented toward a delimited concern—problem behaviour in youth. Problem behaviour is defined as behaviour that departs from norms—both social and legal—of the larger society; it is behaviour that is socially disapproved of by institutions of authority and tends to elicit some form of social control response, whether mild reproof, social rejection or even incarceration. (as cited in http://www.schools-for-all.org/page/Problem+Behaviour+Theory+and+Schools+(EE))	**Relevance to Research study** – Conceptual understand-ing of Life Skills in the light of development in the adolescent period
(C) Resilience and Risk Theory	*Resiliency Theory* provides a conceptual framework for considering a strengths-based approach to understanding child and adolescent development and informing intervention design. Resiliency theory supplies the conceptual scaffolding for studying and understanding why some youth grow up to be healthy adults in spite of risks exposure. Resiliency focuses attention on positive contextual, social, and individual variables that interfere or disrupt developmental trajectories from risk to problem behaviors, mental distress, and poor health outcomes. These positive contextual, social, and individual variables are called *promotive factors*, operate in opposition to risk factors, and help youth overcome negative effects of risk exposure.	**Relevance to Research study** – Conceptual understand-ing of Life Skills in the light of development in the adolescent period
(D) Social Emotional Learning	It is a process for learning life skills, including how to deal with oneself, others and relationships, and work in an effective manner. In dealing with oneself, SEL helps in recognizing our emotions and learning how to manage those feelings. In dealing with others, SEL helps with developing sympathy and empathy for others, and maintaining positive relationships. SEL also focuses on dealing with a variety of situations in a constructive and ethical manner.	**Relevance to Research study** – Developing Life Skills Programme

(E) Experiential Learning Theory	Experiential learning theories build on social and constructivist theories of learning, but situate experience at the core of the learning process. They aim to understand the manners in which experiences – whether first or second hand – motivate learners and promote their learning. Therefore, learning is about meaningful experiences – in everyday life – that lead to a change in an individual's knowledge and behaviours.	**Relevance to Research study** – Developing Life Skills Programme
(F) Situated Learning Theory and Community of Practice	Situated learning theory recognizes that there is no learning, which is not situated, and emphasizes the relational and negotiated character of knowledge and learning as well as the engaged nature of learning activity for the individuals involved. According to the theory, it is within communities that learning occurs most effectively. Interactions taking place within a community of practice have the potential to foster community social capital that enhances the community members' wellbeing.	**Relevance to Research study** – Developing Life Skills Programme
(G) Social Learning Theory	People learn within a social context, and that learning is facilitated through concepts such as modeling, observational learning and imitation.	**Relevance to Research study** – Developing Life Skills Programme
(H) Constructiv-ism	Learners are not passive recipients of information, but that they actively construct their knowledge in interaction with the environment and through the reorganization of their mental structures. Learners are therefore viewed as sense-makers, not simply recording given information but interpreting it. This view of learning led to the shift from the "knowledge-acquisition" to "knowledge-construction" metaphor.	**Relevance to Research study** – Developing Life Skills Programme
(I) Socio – Constructiv-ism	Cognition and learning are understood as interactions between the individual and a situation; knowledge is considered as situated and is a product of the activity, context and culture in which it is formed and utilized. This gave way to a new metaphor for learning as "participation" and "social negotiation".	**Relevance to Research study** – Developing Life Skills Programme
(J) Brain based Learning	This learning theory is based on the structure and function of the brain. As long as the brain is not prohibited from fulfilling its normal processes, learning will occur. People often say that everyone **can** learn. Yet the reality is that everyone **does** learn. Every person is born with a brain that functions as an immensely powerful processor.	**Relevance to Research study** – Developing Life Skills Programme
(K) Cognitive Develop-ment Theory	It is primarily known as a developmental stage theory. The theory deals with the nature of knowledge itself and how humans gradually come to acquire, construct, and use it. Cognitive development is a progressive reorganization of mental processes resulting from biological maturation and environmental experience.	**Relevance to Research study** – Developing Life Skills Programme
(L) Multiple Intelligence Theory	Dr. Gardner proposes eight different intelligences / learning styles to account for a broader range of human potential in children and adults. Gardner says that these differences challenge an educational system that assumes that everyone can learn the same materials in the same way and that a uniform, universal measure suffices to test student learning.	**Relevance to Research study** – Developing Life Skills Programme

Table-5.1: Theories supporting Research study

5.5 Rationale of the study

Over the last decade there has been an increased interest in the development of Life skills in the adolescents. Much of the interest stems from several papers and reports published by the Carnegie Council on Adolescent Development (e.g., Hamburg, 1990; Carnegie Council, 1995), coupled with research that links increase in Life Skills with decrease in at risk behaviours such as smoking, drinking or drug use in young adults (e.g., Gilchrist, Snow, Lodish, & Schinke, 1985; Hays & Elickson, 1990; Schwarzerm &Fuchs, 1995). But still it is in its infancy and we need to explore the possibilities in this area.

Considering the need, importance and present state of Life Skills in the education system of our country, this study will be of great significance.

5.6 Title of the Research Problem

Developing Life Skills through Science Content at Higher Primary Level.

5.7 Conceptual and Operational Definitions of the key terms

Conceptual Definitions

1. Life Skills - Life Skills are abilities for adaptive and positive behaviour that enable individuals to deal effectively with the demands and challenges of everyday life. (WHO)

2. Self-Awareness: Self-awareness includes our recognition of character, our strengths, weaknesses, desires, dislikes and ourselves. It can help us to recognize when we are stressed or feel under pressure. It is often a pre-requisite for effective communication, interpersonal relationship and developing empathy for others. (WHO)

3. Effective Communication: Communication is conveying a message, orally, verbally, written or using signs. Communication is the art of expressing and exchanging ideas, feelings and thoughts through gestures, speech or writing. (WHO)

4. Critical thinking: Critical thinking is an intellectually disciplined process of actively and skilfully conceptualizing, applying, analysing, synthesizing and evaluating information gathered from or generated by observation, experience, reflection, reasoning or communication as a guide to belief and action. It is the ability to analyze information and experiences. It can help us recognize and assess the factors that influence our attitude and behavior. (WHO)

5. Problem solving: Best possible way to get one's needs accomplished. Problem solving is a tool, a skill, and a process. Problem solving is an attempt to find an appropriate way of attaining a goal when the goal is not readily available. (WHO)

6. Decision Making - Decision Making is the ability to choose the best alternative solution to a problem from the available options, with due consideration of the consequences of different decisions. Decision Making is the process of gathering information about relevant alternatives and making an appropriate choice. It is a choice of what to do and what not to do. (WHO)

Operational Definitions of the key terms

It is necessary for the Researcher to define the key words included in the Statement of the problem.

(1) Content-based Life Skill Programme - A Life Skill Programme that is based on the selective content of Science subject of Standard VIII affiliated to S.S.C. Board. It is a programme designed and developed by the Researcher for enhancing five life skills (Self – awareness, Effective Communication, Critical Thinking, Problem Solving, Decision Making), of the eighth standard students, which includes interactive lecture, demonstration, power point presentation, role-play, brain storming, poster presentation, collage, laboratory method, fish – bone method, action maze, group discussion, field visit, study assignment etc.

(2) Effectiveness - Increase in the post - test scores of the students of the experimental group related to the development of the five Life Skills (Self – awareness, Effective Communication, Critical Thinking, Problem Solving, Decision Making), after implementing the Life Skill Programme on the experimental students.

(3) Usability – The capacity of the daily use of the Life Skills Programme for Science teachers of Std. VIII, S.S.C. Board, to develop/enhance the five Life Skills (Self – awareness, Effective Communication, Critical Thinking, Problem Solving, Decision Making).

(4) Self – awareness – It is the increase in the ability to gain knowledge about what one thinks, feels and acts as reflected in the posttest scores obtained through the Standardized Rating Scale.

(5) Effective Communication – It is the increase in the competency in listening, speaking, reading and writing. Elaborately, exchange of ideas, thoughts, feelings, emotions etc., understanding and giving relevant response; verbally and/or non – verbally as reflected in the posttest scores obtained through the Standardized Rating Scale.

(6) Critical Thinking – It is the increase in the ability of making objective judgment based on reasons and evidences as reflected in the post test scores obtained through the Standardized Rating Scale.

(7) Problem Solving – It is increase in the ability of the process of understanding a problem and coming out with the best possible solution as reflected in the post test scores obtained through the Standardized Rating Scale.

(8) Decision Making – It is the increase in the ability of making logical conclusion, solving problems and taking appropriate decision from the available alternatives, as reflected in the posttest scores obtained through the Standardized Rating Scale.

5.8 Objectives of the Research

For the present Research study, the Researcher had decided the following objectives:

1. To identify suitable topics from eighth standard Science textbook to be included in the Life Skill programme.
2. To assess the current status of all the 10 Life Skills possessed by the students.
3. To develop a Life Skills Programme and test its effectiveness.
4. To test the usability of the developed programme.

5.9 Research Questions

1. Which topics of Std. VIII, Science Textbook can be effectively included in the Life Skills Programme?
2. What is the current status of the Life Skills possessed by the students of Std. VIII?
3. Can the Researcher for enhancing the Life Skills develop any programme?
4. Is the developed programme usable?

5.10 Assumptions of the Research

1. Science subject can be taught by carrying out different activities in and out of the classroom. (Ph.D. Thesis - Mariana, S. *Learning - Based Experiments in Physics Teaching at Secondary School Level.*)
2. Students can actively participate in the activities. (Ph.D. Thesis - Stoicescu D. and Stoicescu I. *Environmental Projects to Motivate Science Learning in Primary Schools*)
3. Every individual possesses Life Skills in varying number and extent or intensity. (Book - Darlene M. *Life Skills Activities For Secondary Students with Special Needs*)
4. Life Skills can be developed through Science content. (Life Sills Education Handbook, SCERT)
5. Life Skills are essential for every individual in every mode of life and empowering the life of an individual. (Casey Life Skills Guide)

5.11 Hypotheses of the Research

The main purpose of conducting any Research study is testing of the Hypothesis. For the present Research study, following Hypotheses have been formulated and subsequently tested by the Researcher

Research Hypothesis

The content-based Life Skill Programme enhanced the five Life Skills (Self – awareness, Effective Communication, Critical Thinking, Problem Solving, Decision Making), in the students.

Null Hypothesis

There is no significant difference between the mean scores of the pre – test and post-test of the experimental group after implementing the Life Skills Programme.

5.12 Scope, Delimitations and Limitations of the Research

5.12.1 Scope

This research study is applicable to all the eight Standard English medium schools, of S.S.C. Board, Maharashtra.

5.12.2 Delimitations

≈ The study was delimited to the schools in and around Pune City.

≈ The study was delimited to the English Medium Schools in and around Pune city.

≈ The study was delimited to the development of five Life Skills (Self – awareness, Effective Communication, Critical Thinking, Problem Solving and Decision Making).

≈ The Life Skill Programme was developed based only on the selected contents of Science textbook of Std. VIII, English medium school of S.S.C. Board.

≈ The survey includes the responses only of those teachers who teach Science to the students of Std. VIII in English medium school of S.S.C. Board.

≈ The tools used for data collection i.e. Questionnaire and Check – List were developed by the Researcher.

5.12.3 Limitations

4. Aspects like attitude, interest, motivation, fatigue etc. of the students and teachers are beyond the control of the Researcher.
5. The difference in the achievement level occurred due to time and maturity was not considered.
6. The effect in achievement due to personal guidance and coaching were not considered.
7. The conclusion of the study depended upon the analysis of the responses of the eighth standard students regarding the extent to which these students possess the five Life Skills.

5.13 Review of the Related Literature

Review Matrices

Sources								
Research Review				**Conceptual Review**			**Journal /Articles /Reports**	**Internet**
Ph.D. thesis	PG Dissertations	Minor Research	Research Project	Books	Manuals	Magazines		
18	01	01	01	40	03	01	34	10
Total – 109								

Table-5.2: Review Matrix according to the sources

Variables	**Sources**									
	Research Review					**Conceptual Review**				
	Ph.D. thesis	PG Dissertation	Minor Re - search	Re - search Project	Journals /Articles /Reports	Books	Journals /Articles /Reports	Manual	Magazine	Internet
Life Skills	01	-	-	-	11	07	01	01	01	04

Science	-	-	-	-		12	-	-	-	-
Life Skills Programme	07	01	-	-	11	11	03	02	-	-
Theoretical base	01	-	-	-	-	-	-	-	-	06
Research Methodology	02	-	-	-	02	02	-	-	-	-
Data Documentat - ion	06	-	01	-		-	-	-	-	-
Title, Need, Importance / Significance Objectives, Scope	01	-	-	01	03	08	03	-	-	-

Table-5.3: Review Matrix according to the variables

5.13.1 Use of previous Research studies to the Researcher

The Review has helped the Researcher to plan her study in the following manner:

1) The review has helped the Researcher to make her work comprehensive by carrying out theoretical review as well as research review.

2) The review has helped the Researcher to plan the steps of her research study.

3) The review has helped the Researcher to select her line of action that is Multi – Method Research and Mixed – Method Research, which seems to be the need of the hour.

4) The review has helped the Researcher to determine the Research Design and the Sampling.

5) The review has helped the Researcher to know the importance of the use of standardized test in the Research study.

6) The review has helped the Researcher to determine the tools and techniques of data collection, analysis and interpretation.

7) It has helped the Researcher to plan the Life Skills Programme (product).

It has further helped the Researcher in the understanding of:

1) Developing of Life Skills is an area of immense concern that requires to be immediately attended to. A teacher has to take many efforts to develop / enhance the Life Skills in an interesting way for the students.

2) It is a challenge for the Science teacher to make classroom teaching lively and interactive for the students.

3) Research on developing of Life Skills suggests that there is much scope for the Researchers to develop these Life Skills through textbook teaching through interactive and activity based teaching practices.

4) The acuteness of the problem has been understood and there is need to make use of innovative methods of developing Life Skills through teaching of Science.

5) Review of Related Literature points out that emphasis has been laid on conducting researches on areas like

a. Curriculum

b. To evaluate quality of Science textbooks

c. Teaching methods

d. Evaluation and Models of Teaching

However today's needs are different and there is need to carry out experimental research which can develop Life Skills through the teaching of Science in a more interesting manner and in an appealing way to the students.

5.13.2 Similarities and differences between the present Research and the previous Researches

In most of the previous Researches reviewed by the Researcher, Life Skills Programme / Module is been prepared either for the children (normal or special) or the teachers or teacher educators, and later its effectiveness is been tested. The intention of the development of the Life Skills programme was to develop / enhance the Life Skills directly or indirectly for a happy, prospective and successful future. Almost all the Researches reviewed, adopted Experimental method.

The similarity between the present Research and the previous Researches is development of Life Skills Programme and use of Experimental Method.

The difference between the present Research and the previous Researches is that though the Researcher had also developed a Life Skills Programme similar to the other Research studies, the content, which was selected, was specifically from Std. VIII, Science subject, S.S.C. Board. Whereas, in other cases it was not subject specific but was general content. Another difference is of Research Method used – Multi – Method Research – Mixed Method Procedures for Survey and Experiment (Quan + qual).

5.14 Type and Method of Research

The present Research study falls under – Applied Research.

The Researcher had selected, 'Multi – method Research and Mixed – Method Procedures for Survey and Experiment (Quan + qual)', for conducting the research.

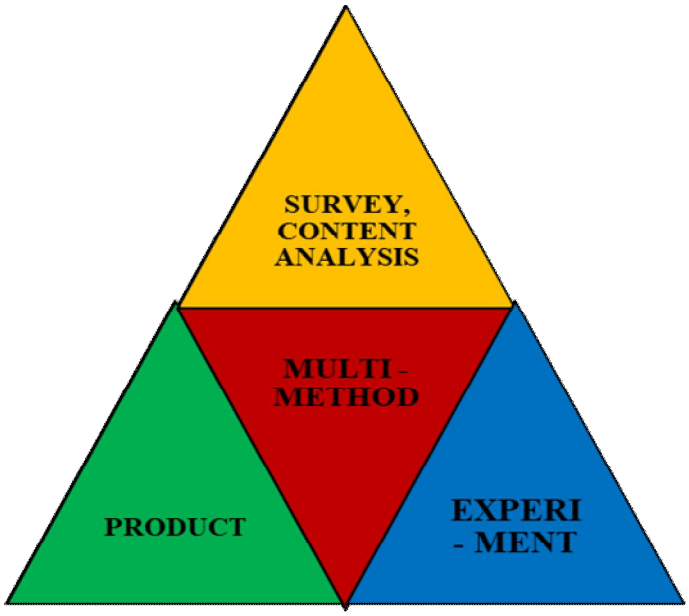
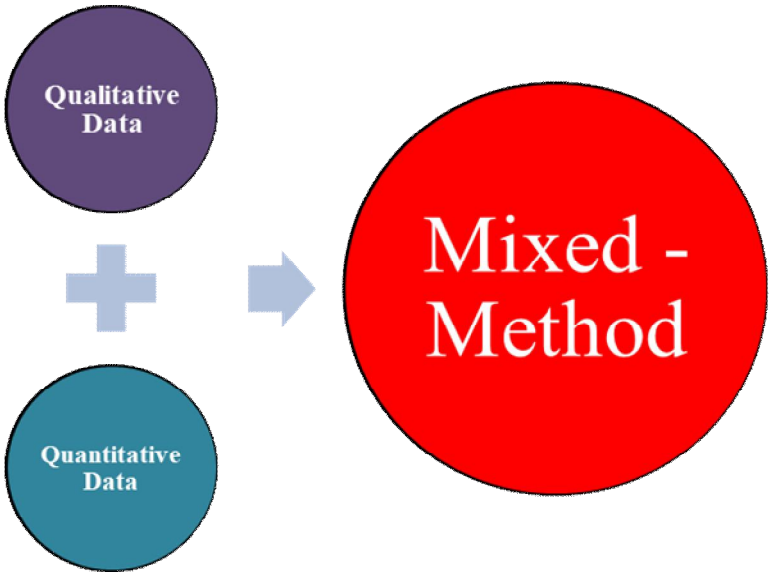


Figure-5.1: Multi - Method



Figur-5.2: Mixed – Method

5.15 Population of the Research

The results of this study are applicable to all the students of Std.VIII, English Medium schools, of SSC Board, of Maharashtra.

5.16 Sample of the Research

For **Objective 1**, the Researcher used **Non – Probability Sampling Method, Purposive Sampling Method** for selecting 17 Science teachers, for administering the questionnaire and check – list (both were validated from six subject experts and one research expert), for selecting the content from Std. VIII, Science textbook to be included in the Life Skills programme as well as for the development of the programme/product.

For **Objective 2**, the Researcher used **Probability Sampling Method, Random sampling Method** for selecting 16 English Medium Schools (1528 students), from Pune Corporation area for conducting the **Survey**.

For **Objective 3**, the Researcher used **Non – Probability Sampling Method, Purposive Sampling Method** for selecting a school for conducting the Experiment on 33 students.

For **Objective 4**, the Researcher used **Non - Probability Sampling Method, Purposive sampling Method** for selecting 10 Science teachers of English Medium Schools, S.S.C. Board, teaching to Std. VIII for administering the Researcher made Rating Scale for knowing the usability of the Life Skills Programme i.e. the product.

5.17 Tools and Techniques of the Research

For Objective 1 – In the present Research study, a Questionnaire was prepared for the teachers to help in the designing and development of the Life Skills Programme. While preparing the Questionnaire the Researcher attempted to put forth the questions in such a way that the subjects were able to provide the required information. The topics and issues to be covered were prepared in advance, checked, and verified by the experts.

A Check – List was prepared for the teachers to help in the designing and development of the Life Skills Programme. The topics and issues to be covered were prepared in advance, checked, and verified by the experts.

Questionnaire and **Check – List** were administered on 17 science teachers for selecting the content from Science textbook of Std. VIII affiliated to S.S.C. Board, to be included in the Life Skills Programme and the development of the Product. In addition, the Researcher herself followed the Content Analysis Method to achieve the same.

For Objective 2 – Standardized Rating Scale was used by the Researcher for collecting factual information under Survey method, to know the extent or level of 10 Life Skills that 1528 students possess.

For Objective 3 – Standardized Rating Scale with necessary modifications, was used as a pre-test and post-test on 33 students, under Experimental method.

For Objective 4 – Researcher made Rating Scale was administered on 10 Science teachers, teaching to Std. VIII, English Medium School, and S.S.C. Board, to know the usability of the Life Skills Programme i.e. the product, under Survey method.

Statistical tools

Data collected were analyzed by using following statistical tools.

For Objective 1 – Coding and Grouping (Qualitative tools of analysis of data)

For Objective 2 - Tabular and Graphical representation

For Objective 3 - Tabular and Graphical representation

Q – Q plot

- Descriptive Statistics

Mean

Standard Deviation

- Repeated Measures MANOVA

Standard Error

Effect size - Partial Eta Squared values

Bartlett's Test of Sphericity

Pillai's Trace

Greenhouse - Geisser

For Objective 4 – Coding and Grouping

Percentage

Tabular and Graphical representation

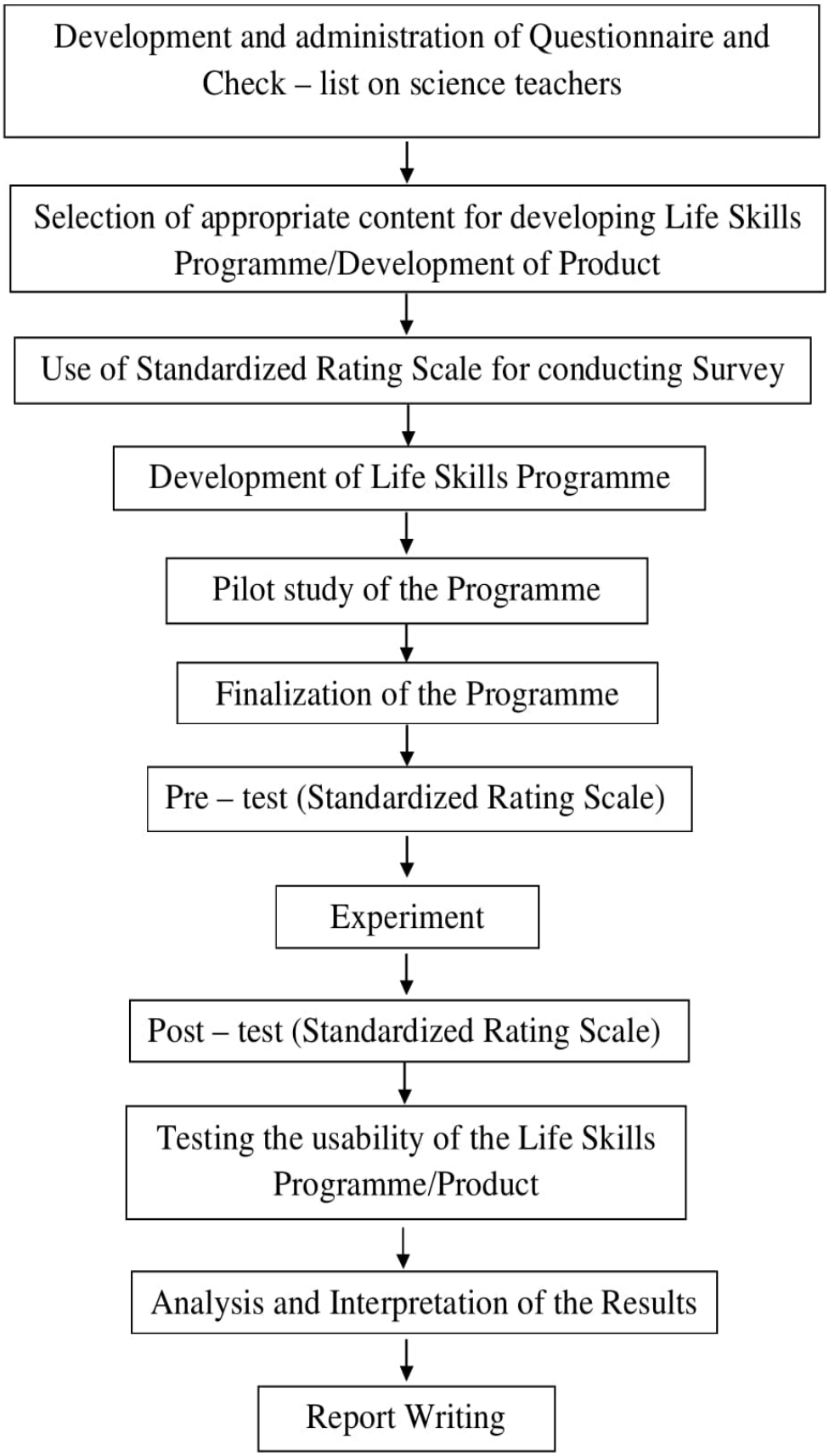
5.18 Methodology and Procedure of the Research

Objective No.	Research Method	Sampling procedure – Method - Technique	Sample size	Tools and techniques for Data collection	Tools for Data analysis
1	Survey and Content Analysis	Non – Probability, Purposive Sampling Method	17 teachers	Researcher made Questionnaire and Check - List	Coding and Grouping (Qualitative tools of analysis of data)
2	Survey	Probability, Random Sampling Method	1528 students	Standardized Rating Scale	Tabular and Graphical representation
3	Product Development and Experiment	Non – Probability, Purposive Sampling	33 students (Exp.)	Standardized Rating Scale with relevant editions (Exp.)	a.Tabular and Graphical representation (Q – Q plot)

		Method (Exp.)			b.Descriptive Statistics (Mean, Standard Deviation) c. Repeated Measures MANOVA (Standard Error, Effect size – Partial Eta Squared values, Bartlett's Test of Sphericity, Pillai's Trace, Greenhouse – Geisser) (Exp.)
4	Survey	Non – Probability, Purposive Sampling Method	10 Science teachers	Researcher made Rating Scale	Coding and Grouping, Percentage, Tabular and Graphical representation

Table-5.4: Research Method, Sampling procedure, method, technique and Tools

Procedure of the Research



5.19 Findings of the Research

5.19.1 For Objective 1: To identify the topics from eighth standard Science textbook to be included in the Life Skill programme.

The data was collected during Survey using Researcher made Open ended Questionnaire and Researcher made Check - List.

Questionnaire -

1. Out of 17 teachers, only 02 teachers knew exactly what Life Skills are, 14 teachers were able to give partly correct answer and one teacher left the question unanswered.
2. Out of 17 teachers, 07 teachers left the question unanswered, 05 teachers were completely unaware of NSDC and the remaining 05 teachers gave irrelevant answer.

Thus, none of the teachers out of 17 were aware of NSDC (National Skill Development Center)

3. Out of 17 teachers, one teacher left the question unanswered and the remaining 16 teachers were able to give partly correct answer about the need and importance of Life Skills.
4. Out of 17 teachers, one teacher left the question unanswered and the remaining 16 teachers were able to give partly correct answer about, why the need has been felt of developing Life Skills in the students through school curriculum.
5. Regarding the development of Life Skills in the students through the Science subject of std. VIII of SSC board, the prominent answers given by the teachers were –

(a) WHO has recommended 10 Life Skills to be taught in school,

(b) For inculcating scientific temper,

(c) For mental, psychological and physical improvements,

(d) It leads to critical thinking, develops curiosity, become aware of things around, deal with the concepts of everyday life,

(e)Students should acquire skills of observation, classification, comparison, correlation, cause and effect relationships, scientific temper.

Out of the 17 teachers, 05 teachers left the question unanswered and from the remaining 12 teachers, none of the teacher could give satisfactory answer.

6. Regarding, As a Science teacher how will you develop Life Skills in the students through the Science subject of std. VIII of SSC board, the prominent answers given by the teachers were –

- By conducting Group discussions,
- By creating conducive atmosphere and creating interest,
- For correlating chapters of science textbook to day to day life,
- By conducting activities.

Out of the 17 teachers, 01 teacher left the question unanswered and the remaining 16 teachers have suggested quite a few useful techniques/strategies/methods for developing Life Skills in students.

7. Regarding, From the Science textbook (General Science: Book Six: Standard Eight) of std. VIII of SSC board which lessons/chapters/activities/practical etc. will be helpful for developing Life Skills? Give few instances/examples, with reference to each Life Skill.

Out of the 17 teachers, 01 teacher left the question unanswered, 05 teachers gave irrelevant answers and the answers given by remaining 11 teachers provided valuable information, essential for the development of the Life Skills Programme (product), by suggesting the lessons/chapters/activities/practical etc. to be included in the Life Skills Programme for the development / enhancement of Life Skills amongst the students.

8. Regarding, Among the lessons/chapters specified by you from the Science textbook (General Science: Book Six: Standard Eight) of std. VIII of SSC board, which specific topics/sub-topics or units/sub-units will be useful/helpful for developing all the 10 Life Skills? Give few instances/examples, with reference to each Life Skill.

Out of the 17 teachers, 04 teachers left the question unanswered, 10 teachers gave irrelevant or not up to the mark answers and the answers given by remaining 03 teachers provided valuable information, essential for the development of the Life Skills Programme (product), by suggesting the topics/sub-topics/units/sub-units to be included in the Life Skills Programme for the development / enhancement of Life Skills amongst the students.

9. Regarding, Apart from the traditional methods, which methods/ techniques/strategies/models of teaching/approaches etc. should be adopted for developing the Life Skills effectively through the Science textbook (General Science: Book Six: Standard Eight) of Std. VIII of SSC board Will it really solve the purpose? If yes, how?; the prominent answers given by the teachers were –

- Interactive sessions,
- Activities, Audio – visual method,
- Demonstration,
- Cooperative learning,
- Project,
- Self – doing,
- Brainstorming,
- Group Discussion,
- Debate,
- Field visit,
- Peer learning.

Out of the 17 teachers, 03 teachers left the question unanswered, 03 teachers gave irrelevant answers and the answers given by remaining 11 teachers provided valuable information, essential for the development of the Life Skills Programme (product), by suggesting useful and effective methods/techniques/strategies/ approaches to be included in the Life Skills Programme. Also, only 01 teacher gave a complete answer.

10. Regarding, While developing Life Skills in students through the Science textbook (General Science: Book Six: Standard Eight) of std. VIII of SSC board, can water tight compartments be made for each Life Skill? The prominent answer given by the teachers was - NO.

Out of the 17 teachers, 09 teachers left the question unanswered and the remaining 08 teachers stated “NO”.

11. Regarding, What difficulties are you facing while developing/inculcating the Life Skills through the Science textbook (General Science: Book Six: Standard Eight) of std. VIII?. The prominent answer given by the teachers were –

- Over - crowded classes restricts the use of activity based teaching methodology due to insufficient time,
- Lack of teaching aids and insufficient time for teaching learning process,
- Activities like field trip or study tour becomes difficult,
- Not all the contents of the textbook are suitable for developing / enhancing the Life Skills amongst the students.

Out of the 17 teachers, 04 teachers left the question unanswered and the answers given by the remaining 13 teachers gave a satisfactory answer about the difficulties faced by the teacher while developing/inculcating the Life Skills through the Science textbook

12. Regarding, Can all the 10 Life Skills developed effectively in the students through the Science textbook (General Science: Book Six: Standard Eight) of std. VIII of SSC board? If no, why. The prominent answer given by the teachers were –

- NO,
- Not all the lessons/topics from the science textbook are useful in developing/inculcating the Life Skills,
- Because of individual differences and time constraint,
- Because activities given in the textbook are not enough,
- Because limited concepts are given in the textbook

Out of the 17 teachers, 02 teachers left the question unanswered, 02 teachers gave irrelevant answers and the remaining 13 teachers gave satisfactory answer. Also, only 04 teachers gave complete answer

13. Regarding, Suggest remedies if all the 10 Life Skills cannot be developed effectively in the students through the Science subject of std. VIII of SSC board. The prominent answer given by the teachers were–

(a) Conduct group discussions,

(b) Conduct field visits,

(c) Conduct group activities,

(d) Projects should be given to the students and

(e) SWOT should be practiced.

Out of the 17 teachers, 06 teachers left the question unanswered and the remaining 11 teachers provided valuable information, essential for the development of the Life Skills Programme (product), by suggesting useful and effective methods/ techniques/strategies/approaches for effective development / enhancement of Life Skills amongst the students.

14. Regarding, Do you receive any co-operation from your colleagues, Principal, Management etc. for developing the Life skills in the students? If yes, how.

Out of the 17 teachers, 02 teachers left the question unanswered, 08 teachers gave complete answer and remaining 07 teachers gave incomplete answer. In addition, only 01 teacher replied that she does not receive any cooperation. However, none of the teachers gave relevant answer.

15. Regarding, Have you attended any seminars/workshops/conferences/refresher courses etc. for developing the Life Skills in the students? If yes, give details.

Out of the 17 teachers, 05 teachers left the question unanswered, 08 teachers have not attended any seminars/workshops/conferences etc. and 04 teachers gave incomplete or irrelevant answer.

16. Regarding, Do you work in collaboration with any other school/institute/organization etc. with respect to Life Skills Education and Development? If yes, give details.

Out of the 17 teachers, 06 teachers left the question unanswered, 10 teachers answered as “NO” and only one teacher gave positive but incomplete answer i.e. Socrates Foundation, British Council, I Earn India.

17. Regarding, Are any seminars/workshops/conferences/refresher courses etc. organized in your school with respect to Life Skills Education and Development? If yes, give details.

Out of the 17 teachers, 02 teachers left the question unanswered, 07 teachers answered as “NO” and the remaining 08 teachers gave incomplete and/or irrelevant answer

18. Regarding, As a Science teacher give suggestions to make Life Skills Education and Development more effective for the students of Std. VIII of SSC board. The prominent answer given by the teachers were –

(a) Conduct group discussions,

(b) Conduct projects,

(c) Provide hands on experiences to the students,

(d) Conduct activities,

(e) Develop the skills of planning, analytical thinking and execution of the students.

Out of the 17 teachers, 03 teachers left the question unanswered and the remaining 14 teachers provided valuable information, essential for the development of the Life Skills Programme (product) by suggesting useful and effective methods/techniques/strategies/approaches for effective development / enhancement of Life Skills amongst the students.

Check - List - As per the survey conducted for the teachers, the scope for developing Life Skills priority wise, through the contents of Science textbook of Std. VIII, is as follows:

1. Creative Thinking
2. Self – awareness
3. Critical Thinking
4. Problem Solving
5. Effective Communication
6. Interpersonal Relationship
7. Decision Making
8. Empathy
9. Coping with Emotions
10. Coping with Stress

The filled Check – List provided by all the 17 teachers helped the Researcher to select appropriate content from the Science textbook of Std. VIII, for preparing the Life Skills Programme i.e. the Product. As well, it also helped the Researcher to select the five Life Skills (Self – awareness, Critical Thinking, Problem Solving, Effective Communication and Decision Making) for the Life Skills Programme i.e. the Product.

5.19.2 For Objective 2: To assess the current extent to which the students possess all the 10 Life Skills.
The data was collected during Survey, using a standardized 5 points Rating Scale consisting of 100 statements for 500 marks. Out of these 100 statements, 11 statements assessed Self-awareness carrying 55 marks, 11 statements assessed Empathy carrying 55 marks, 09 statements assessed Effective Communication carrying 45 marks, 11 statements assessed Interpersonal Relationships carrying 55 marks, 08 statements assessed Creative thinking carrying 40 marks, 11 statements assessed Critical Thinking carrying 55 marks, 11 statements assessed Decision Making carrying 55 marks, 09 statements assessed Problem Solving carrying 45 marks, 11 statements assessed Coping with emotions carrying 55 marks, 08 statements assessed Coping with stress carrying 40 marks.

The extent/level to which the students possess all the 10 Life Skills – Self-awareness, Empathy, Effective Communication, Interpersonal Relationships, Creative Thinking, Critical Thinking, Decision Making, Problem Solving, Coping with emotions and Coping with stress, fall under the category of **'AVERAGE'**.

5.19.3 For Objective 3: To develop a Life Skills Programme and test its effectiveness.
The data was collected during Experiment, using a standardized 5 points Rating Scale, (with few modifications) consisting of 51 statements for 255 marks. Since the Researcher selected 05 Life Skills (Self-awareness, Effective Communication, Critical Thinking, Decision Making and Problem Solving) out of 10, obviously, the Researcher had to select only those 51 statements out of 100 which were related to those 05 Life Skills which were selected for Research by the Researcher under study. Out of these 51 statements, 11 statements assessed Self-awareness carrying 55 marks, 09 statements assessed Effective Communication

carrying 45 marks, 11 statements assessed Critical Thinking carrying 55 marks, 11 statements assessed Decision Making carrying 55 marks and 09 statements assessed Problem Solving carrying 45 marks.

For, Pre – test - The extent/level to which the students possess the five Life Skills – Self-awareness, Effective Communication, Critical Thinking, Decision Making, Problem Solving, fall under the category of **'AVERAGE'**.

For, Post – test - The extent/level to which the students possess the two Life Skills – Critical Thinking and Problem Solving, fall under the category of **'AVERAGE'** and for the remaining three Life Skills - Self-awareness, Effective Communication and Decision Making, fall under the category of **'HIGH'**.

The following tables of scores of pre-test and post-test respectively, gives a clear picture of the data collected.

Sr. No.	Dimensions	Mean	
		Pre – test	Post – test
1.	Self – Awareness	41.09	45.79
2.	Effective Communication	30.36	38.15
3.	Critical Thinking	39.18	39.18
4.	Decision Making	37.03	46.51
5.	Problem Solving	33.21	33.21

Table-5.5: Mean values of pre – test and post –test

There is a significant difference in the mean scores of the pre – test and post – test for the three Life Skills – Self – awareness, Effective Communication and Decision Making. However, it is interesting to know that the mean scores of the pre – test and post – test for the two Life Skills – Critical Thinking and Problem Solving are exactly the same.

5.19.4 For Objective 4: To test the usability of the developed programme.

The data was collected during Survey using Researcher made Rating Scale.

1. All the users easily understood the Life Skills Programme.
2. Most of the users found the Life Skills Programme useful from the perspective of Std. VIII, Science students.
3. Most of the times the users found the Strategies/Techniques/Activities included in the Life Skills Programme easy to understand, also it creates an interesting, lively, healthy and conducive learning atmosphere and also makes learning of Science content easier as well develops/enhances/improves the Life Skills of the Std. VIII students.
4. Most of the times the users found the Life Skills Programme appropriate for enhancing Life Skills as well for learning Science content.
5. Most of the teachers found the non – conventional ways of teaching Science content for enhancing the Life Skills makes the teaching learning process more effective and facilitates lifelong learning.
6. For all the users the design, layout and overall structure of the Life Skills Programme is attractive, appealing, and easy to use.
7. Most of the times, all the users can conduct the activities included in the Life Skills Programme, easily while teaching.
8. Most of the teachers found the Life Skills Programme feasible and useful for the Std. VIII students to understand the Science content as well for enhancing Life Skills.
9. Most of the users found the Life Skills Programme instrumental for the development of Life Skills in Std. VIII students.
10. All the users found the Life Skills Programme useful from the perspective of the Science teachers of Std. VIII.

11. For all the users the objective of developing the Life Skills Programme is fulfilled.
12. Most of the users found the text, pictures and animations included in the Life Skills Programme attractively organized and presented.
13. All the users found the Life Skills Programme appropriate and applicable for the English Medium students of Std. VIII, S.S.C. Board.

5.20 Major Findings of the Research

5.20.1 For Objective 1

- Very few teachers know exactly what Life Skills are.
- None of the teachers are aware of NSDC.
- None of the teachers knew completely about the need and importance of Life Skills.
- None of the teachers knew completely why the need has been felt of developing Life Skills in the students through school curriculum.
- None of the teachers gave satisfactory answer about the development of Life Skills in the students through the Science subject of std. VIII of SSC board.
- Quite a few useful techniques/strategies/methods were suggested by the teachers for developing Life Skills in the students to be included in the Life Skills Programme i.e. the Product.
- Lessons/chapters/activities/practical etc. were suggested by the teachers to be included in the Life Skills Programme i.e. the Product.
- Topics/sub-topics/units/sub-units were suggested by the teachers to be included in the Life Skills Programme i.e. the Product.
- No watertight compartments be made for each Life Skill while developing / enhancing the Life Skills amongst the students through the content of Science textbook of Std. VIII, S.S.C. Board.
- The teachers while developing/inculcating the Life Skills through the Science textbook of Std. VIII, S.S.C. Board, face number of difficulties.
- All the 10 Life Skills cannot be developed effectively in the students through the Science textbook of Std. VIII, S.S.C. Board.
- Certain remedies were suggested by the teachers for effective development of the Life Skills amongst the students through the Science subject of Std. VIII of S.S.C. board.
- Rarely any teacher receives any cooperation from the colleagues, Principal and Management for developing Life Skills amongst the students.
- None of the teachers has attended any seminar/workshop/training related to the Life Skills.
- None of the school works in collaboration with any other school/institute/organization etc. with respect to Life Skills Education and Development.

5.20.2 For Objective 2

The extent/level to which the students possess all the 10 Life Skills – Self-awareness, Empathy, Effective Communication, Interpersonal Relationships, Creative Thinking, Critical Thinking, Decision Making, Problem Solving, Coping with emotions and Coping with stress, fall under the category of **'AVERAGE'**

5.20.3 For Objective 3

The Life Skills programme proved effective for developing / enhancing the three Life Skills – Self – awareness, Effective Communication and Decision Making. Whereas, for the remaining two Life Skills – Critical Thinking and Problem Solving, there was no significant difference in the development / enhancement of the Life Skills.

5.20.4 For Objective 4

- **Understability –** The overall view of user group indicates that they understood the entire Life Skills Programme. The Life Skills Programme was easy to understand from the perspective of Std. VIII, Science students as well as Science teachers. Even the activities/strategies/techniques included in the programme were well understood by the user group though different from the regular teaching methodology.
- **Learnability –** The user group found the Life Skills Programme appropriate for the students of Std. VIII for enhancing Life Skills as well for learning Science content. Also, based on the responses of the user group, Strategies/Techniques/Activities included in the Life Skills Programme makes learning of Science content easier as well develops/enhances/improves the Life Skills of the Std. VIII students in an interesting, lively, healthy and conducive learning atmosphere further making the teaching learning process more effective and facilitating lifelong learning.
- **Operatability** – The user group agreed that the Life Skills Programme was easy to operate and implemented feasibly in the classroom. They also found the design, layout and overall structure of the Life Skills Programme easy to use and the activities included in the Life Skills Programme, can be conducted easily while teaching.
- **Utility –** The user group believed that the Life Skills Programme is useful for the Std. VIII students to understand the Science content as well for enhancing Life Skills from the perspective of students of Std. VIII and Science teachers of Std. VIII. In addition, the user group were of the view that the Life Skills Programme is instrumental for the development of Life Skills in Std. VIII students.
- **Objectivity –** The user group were of the opinion that the objectivity of developing the Life Skills Programme is fulfilled to a far extent.
- **Attractiveness –** The user group were of the view that the design, layout and overall structure of the Life Skills Programme is attractive and appealing and the text, pictures and animations included in the Life Skills Programme are attractively organized and presented.
- **Applicability –** The user group believed that the Life Skills Programme is appropriate and applicable for the English Medium students of Std. VIII, S.S.C. Board.

5.21 Conclusions of the Research

For Objective 1

(a) Not all the 10 Life Skills can be developed effectively in the students through the contents of Science textbook of Std. VIII, S.S.C. Board.

(b) Traditional method of teaching is not effective for the development / enhancement of the Life Skills amongst the students.

(c) Many practical difficulties causes obstacles in the development / enhancement of the Life Skills amongst the students through the contents of Science textbook of Std. VIII, S.S.C. Board.

For Objective 2

All the 10 Life Skills possessed by the students need to be developed/enhanced.

For Objective 3

(a) The pilot study implemented by the Researcher showed that the developed Life Skills Programme was suitable to be implemented in the classroom.

(b) The analysis of the post – test scores and the calculated Effect Size shows that the Life Skills Programme was effective for developing / enhancing the Life Skills - Self – awareness, Effective Communication and Decision Making.

(c) Non – conventional ways for teaching Science proves effective and useful for the development / enhancement of the Life Skills.

For Objective 4

The Life Skills programme based on Science content, prepared for the students of Std. VIII, S.S.C. Board for enhancing Life Skills is usable since the data collected from the Science teachers reflects that overall, 92% of the Usability Quality Components support the Life Skill Programme.

Main Conclusion: Using non – conventional methods for teaching Science enhances the Life Skills amongst the students.

5.22 Discussion of the findings of the present Research with relation to the Review of the Related Researches

Researcher reviewed the earlier Researches, their findings and compared with the findings of the present study. The Researcher has given below in detail the similarities between it.

1. **Pandey, Suman in June 2016**, conducted a research study to find out Correlation of Life Skills with physical fitness, mental health, socioeconomic status and emotional maturity of the school-going adolescents. It was found that there was a positive relationship between Life Skills and Mental health, there was a positive relationship between Life Skills and Emotional Maturity, there was no significant relationship between Life Skills and Physical fitness and there was no significant relationship between Life Skills and Socio-economic status.

   Similarly, in the present study it was found that the Life Skills Programme was effective in developing / enhancing the three Life Skills – Self – awareness, Effective Communication and Decision Making, of the students whereas for the other two Life Skills – Critical Thinking and Problem Solving, it was not found significantly effective.

2. **Indu Rawat in 2016**, had done study on the Effect of life skills training on teachers perceived work environment and self-efficacy. It was found that Life skills training has been found effective in improving the performance of the trainees.

   Similarly, in the present study it was found that the Life Skills Programme was effective in developing / enhancing the three Life Skills – Self – awareness, Effective Communication and Decision Making, of the students.

3. **Geeta in 2015,** in her study found out the Impact of an intervention programme on the development of life skills among children with dyslexia. It was found that intervention programme had significant positive effect on the overall development of the all Life Skills among primary school dyslexic students.

   Similarly, in the present study it was found that the Life Skills Programme was effective in developing / enhancing the three Life Skills – Self – awareness, Effective Communication and Decision Making, of the students.

4. **Parmar in 2015**, had studied the Impact of life skills task package based on Indian philosophical thinking on student teachers perception regarding quality of life. It was found that majority of the student teachers found this LSTP useful for their future life.

   Similarly, the Life Skills Programme in aggregate was found to be effective.

5. **Usha More in 2012**, had developed a Life Skills Programme for pupil – teachers and tested its effectiveness. It was found that the pupil – teachers found the Life Skills Programme beneficial in their life.

   Similarly, in the present study it was found that the Life Skills Programme was effective in developing / enhancing the three Life Skills – Self – awareness, Effective Communication and Decision Making, of the students.

6. **Malhan in 2011**, studied the Effect of hybrid instructional model in cooperative learning situation on life skills of secondary students in relation to learning approaches. It was found that the model had a positive effect overall on all the Life Skills of the students. Few modules of the model were based on science subject – physics, chemistry and biology.

Similarly, based on the contents of Science subject, the Life Skills Programme in aggregate was found to be effective.

7. **Helaiya in 2010**, Developed and implemented a life skills programme for student teachers and there was a remarkable gain in their Self Awareness Skill, Effective Communication Skill, and Interpersonal Relationship Skill, Coping with Emotions Skill, Decision Making Skill and Problem Solving Skill of the student teachers. There was moderate gain in their Coping with Stress Skill, Empathy Skill, Critical Thinking Skill and Creative Thinking Skill of the student teachers.

   Similarly, in the present study it was found that the Life Skills Programme was effective in developing / enhancing the three Life Skills – Self – awareness, Effective Communication and Decision Making, of the students whereas for the other two Life Skills – Critical Thinking and Problem Solving, it was not found significantly effective.

8. **Dalton in 2009**, undertook a Research study of teaching important Life Skills while coaching to win. Through Survey, it was found that Coaches teach a diverse array of Life Skills that they also believe will help their teams to win games. These coaches view the relationship between the importance of winning and teaching life skills as complimentary and not contradictory concepts.

9. **Verma in 2009**, developed and implemented a life skills program for adolescents in school. Program evaluation showed that more inputs are needed for reducing tension and anxiety, recognizing emotions, and initiating leadership among adolescents. Negligible gender differences were observed in the different domains of life skills, except for the session on reproductive health.

   Similarly, in the present study it was found that the Life Skills Programme was effective in developing / enhancing the three Life Skills – Self – awareness, Effective Communication and Decision Making, of the students whereas for the other two Life Skills – Critical Thinking and Problem Solving, it was not found significantly effective.

10. **Bessick in 2008**, undertook a study on one of the Life Skills - Improved critical thinking skills as a result of direct instruction and their relationship to academic achievement. It was found that the instructions brought positive development in the Critical Thinking Skill on few parameters whereas for the other it was not significantly effective.

    Similarly, in the present study it was found that the Life Skills Programme was effective in developing / enhancing the three Life Skills – Self – awareness, Effective Communication and Decision Making, of the students whereas for the other two Life Skills – Critical Thinking and Problem Solving, it was not found significantly effective.

11. **Ekua-Yankah in 2002**, studied the Effects and Effectiveness of Life Skills Education for HIV prevention in young people. The outcome of the study was most interventions used life skills training as a component of the overall education strategy. Programs, worked best to positively influence, knowledge, attitude, intentions, skills and abilities. Programs rarely produced consistent effects on sexual behavior. Life Skills training has little effects on biological outcome.

12. **Ann in 1997**, studied the effect of Life Skills instruction on locus of control in Adult male inmates. The impact was that upon completion of the program the Adult male inmates felt more in control of their own circumstances and believed that they were able to make the necessary changes to improve their chances of success upon release from prison.

13. **Carol in 1994**, undertook 4 H Consumer Life Skills Project - A Test of Consumer Knowledge and Skills for Making Purchasing Decisions. The study indicated significant differences in consumer knowledge and skills by gender, monthly spending habits and age. Concerning gender – Females had higher levels of consumer knowledge than males. Under monthly spending habits – Teens, who spend under $50 per month, had the lowest overall level of consumers' knowledge while teens who spend $100 to $250 per month had the highest overall level of consumer knowledge. Regarding age – As age increases, consumer knowledge increases.

Overall review of the past Research studies reveals that, the intervention programme in the form of Life Skills Programme for development / enhancement of Life Skills proves effective and beneficial to all the individuals. However, the major difference in the past Researches and the present Research is that all the above Researches are not content specific whereas the present Research study is content specific i.e. contents of Science textbook of Std. VIII of S.S.C. Board.

5.23 Recommendations

Based on the present study the Researcher would like to make following recommendations:

1. Life Skills Training is required for the teachers.
2. The results of the study show that the Life Skills Programme is effective for enhancing/ improving the three Life Skills – Self – awareness, Effective Communication and Decision Making of the students. Therefore, it is strongly recommended that the teacher should use this Life Skills Programme to enhance / develop the above stated three Life Skills.
3. The contents of the Std. VIII, Science textbook, S.S.C. Board should be modified and improvised for giving enough scope for the development / enhancement / improvement of all the ten Life Skills of the students.

5.24 Suggestions for Further Research

Based on the present study the Researcher would like to make following suggestions:

1. The results of the study show that the Life Skills Programme is effective for enhancing / improving the three Life Skills – Self – awareness, Effective Communication and Decision Making of the students. For the remaining Life Skills a similar Life Skills Programme can be developed and implemented.
2. The Life Skills Programme was not found significantly effective for the two Life Skills – Critical Thinking and Decision Making. The reasons for the same should be found out and by overcoming it; the Life Skills Programme can be implemented.
3. In the present Research study, Life Skills Programme was based on the contents of Science textbook. A similar Programme can be developed and implemented for the other subjects.
4. The present Research study was conducted for the students of Std. VIII. A Research study can be undertaken for the students of other standards / classes.
5. The present Research study was conducted for the students of S.S.C. Board. A Research study can be undertaken for the students of other Boards.
6. The findings of the Research study show that the teachers teaching Science subject to Std. VIII, S.S.C. Board were not much aware of Life Skills. A Research study can be undertaken for providing training in Life Skills to these teachers, test its effectiveness, and find its usability.

5.25 Contribution to the Knowledge

In rapid changing educational scenario, the role of the teacher and teaching strategy are changing fast. The observations, data analysis and conclusion of present Research study indicate the Life Skills Programme in aggregate is effective in developing/enhancing the Life Skills of the students through Science content.

1. The Life Skills Programme not only makes effective and easy understanding of the Science content but also develops/enhances the Life Skills of the students in an interesting way. Thus, the purpose of WHO and MSCERT of including 10 Life Skills in the school curriculum is achieved.
2. The use of various teaching methods / strategies / techniques along with the use of sound, animation graphics and audio – video clips, creates lot of interaction between the teacher and students and amongst the students because of the conducive social system provided, further creating a proper lively learning environment.
3. Today's students are the backbone of future society, so use of such teaching methods / strategies / techniques will help in improving the quality of education.

4. The Research study is valuable for teachers and teacher educators in teaching, for educationists and policy makers.
5. The Research study will emphasize on the essentiality of the Life Skills school-based programmes as a means to develop skills among young people that lead to healthy lifestyle choices and optimum physical, social, and psychological wellbeing.
6. The Research study undertaken will not only be helpful to the students for enhancing their achievement level but also a step towards leading a successful life. It will throw light on the necessity of including content-based Life Skill Programme in the school curriculum.
7. It is hoped that the Research study will serve as a model of modification in preparing instructional materials for teacher training, practicing teacher, teacher trainers, curriculum developers and administrators.
8. The Research study is a unique contribution in the field of Science Education and hence the entire field of Education.
9. A very less volume of literature is available about the Life Skills studies. Therefore, this Research study will further contribute in the literature of Life Skills.
10. The Research study will also provide information about the theoretical foundations of Life Skills.
11. The Research study emphasizes that the mastery of Life Skills will lead to a life of wealth, power, success and most importantly, self-fulfillment and inner peace.

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APPENDIX A - List of Subject and/or Research Experts

1. Dr. Bhushan Patil - Azam College of Education, Pune
2. Dr. Smita Pathak - Tilak College of Education, Pune
3. Dr. Jaybhaye – Adarsh College of Education, Pune
4. Dr. Deepak Chavan - Tilak College of Education, Pune
5. Dr. Madhura Isave – Tilak College of Education, Pune
6. Dr. Anita Belapurkar – Azam College of Education, Pune
7. Prof. Sunil Kalekar – Adhyapak Vidyalay, Arnayeshwar, Pune

APPENDIX B - Questionnaire for Science teachers

1. What are Life Skills?
2. Are you aware about NSDC with respect to Life Skills Education and Development? If yes, give details.
3. What is the need and importance of Life Skills in our life?
4. Why the need has been felt of developing Life Skills in the students through school curriculum?
5. What do you know about the development of Life Skills in the students through the Science subject of std. VIII of SSC board?
6. As a Science teacher how will you develop Life Skills in the students through the Science subject of std. VIII of SSC board?
7. From the Science textbook (General Science: Book Six: Standard Eight) of std. VIII of SSC board which lessons/chapters/activities/practical etc. will be helpful for developing Life Skills? Give few instances/examples, with reference to each Life Skill?
8. Among the lessons/chapters specified by you from the Science textbook (General Science: Book Six: Standard Eight) of std.VIII of SSC board, which specific topics/sub-topics or units/sub-units will be useful/helpful for developing all the 10 Life Skills? Give few instances/examples, with reference to each Life Skill?
9. Apart from the traditional methods, which methods/techniques/strategies/models of teaching/approaches etc. should be adopted for developing the Life Skills effectively through the Science textbook (General Science: Book Six: Standard Eight) of Std. VIII of SSC board? Will it really solve the purpose? If yes, how?
10. While developing Life Skills in students through the Science textbook (General Science: Book Six: Standard Eight) of std. VIII of SSC board, can water tight compartments be made for each Life Skill?
11. What difficulties are you facing while developing/inculcating the Life Skills through the Science textbook (General Science: Book Six: Standard Eight) of std. VIII?
12. Can all the 10 Life Skills developed effectively in the students through the Science textbook (General Science: Book Six: Standard Eight) of std. VIII of SSC board? If no, why?
13. Suggest remedies if all the 10 Life Skills cannot be developed effectively in the students through the Science subject of std. VIII of SSC board.
14. Do you receive any co-operation from your colleagues, Principal, Management etc. for developing the Life skills in the students? If yes, how?
15. Have you attended any seminars/workshops/conferences/refresher courses etc. for developing the Life Skills in the students? If yes, give details.
16. Do you work in collaboration with any other school/institute/organization etc. with respect to Life Skills Education and Development? If yes, give details.
17. Are any seminars/workshops/conferences/refresher courses etc. organized in your school with respect to Life Skills Education and Development? If yes, give details.
18. As a Science teacher give suggestions to make Life Skills Education and Development more effective for the students of Std. VIII of SSC board?

APPENDIX C - Check List for Science teachers

The informant is supposed to put a tick mark (✓) against the name of the chapter from Std. VIII Science text book (General Science: Book Six: Standard Eight) of SSC Board, provided in the column which he/she finds suitable to develop the 10 Life Skills as stated by WHO and recommended by SCERT which the subject teachers are supposed to inculcate among the students while teaching the content of the textbook. Also the informant is supposed to write down the unit and/or subunit from each chapter for each Life Skill wherever applicable.

10 Life Skills

(SA - Self awareness, E - Empathy, IR - Interpersonal relationships, EC - Effective communication, CT - Creative thinking, CCT - Critical thinking, PS - Problem solving, DM - Decision making, CS - Copying with stress, CE - Copying with emotions)

PN - The abbreviations used by the researcher are researcher-made and for ease in creating the checklist.

Sr. No.	Name of the chapter	SA	E	IR	EC	CT	CCT	PS	DM	CS	CE
1.	Stars and our solar system										
	Units/Sub-units										
2.	Biological diversity										
	Units/Sub-units										
3.	Atmospheric Pressure										
	Units/Sub-units										
4.	Magnetism										
	Units/Sub-units										
5.	The structure of an Atom										
	Units/Sub-units										
6.	Chemical reactions and their types										
	Units/Sub-units										
7.	The structure of cell and micro-organisms										
	Units/Sub-units										
8.	Diseases										
	Units/Sub-units										
9.	Reflection of Light										
	Units/Sub-units										
10.	Sources of energy										
	Units/Sub-units										
11.	Electric current										
	Units/Sub-units										
12.	Properties of substances										
	Units/Sub-units										
13.	Metals and non-metals										
	Units/Sub-units										
14.	Carbon and carbon compounds										
	Units/Sub-units										
15.	Air										
	Units/Sub-units										
16.	Soil										
	Units/Sub-units										

17.	Agriculture										
	Units/Sub-units										
18.	Animal husbandry										
	Units/Sub-units										

Any other comment/suggestion/advice:

_____
_____
_____
_____

APPENDIX D - Data Presentation of Check – List

Sr. No.	Name of the chapter	SA	E	IR	EC	CT	CCT	PS	DM	CS	CE
1.	Stars and our solar system	10	2	4	4	13	11	3			
	Units/Sub-units	Artificial satellite, phases of moon			Planet, comets	Celestial objects	Galaxies, satellites				
2.	Biological diversity	12	5	8	7	12	11	8	2		3
	Units/Sub-units							Decline in bio diversity	Protection of rare species		
3.	Atmospheric Pressure	9	1	5	9	14	10	11	4	1	
	Units/Sub-units	Blood pressure			Applications of atmospheric pressure						
4.	Magnetism	6	3	6	7	11	10	8	6		
	Units/Sub-units										
5.	The structure of an Atom	8	1	5	6	10	8	8	7	3	
	Units/Sub-units	Atom			Formation of ions, valency				Isotope compound formation		
6.	Chemical reactions and their types	8	3	6	6	11	7	9	5	3	1
	Units/Sub-units								Acidic reaction		
7.	The structure of cell and micro-organisms	10	8	9	7	10	8	7	6	3	1
	Units/Sub-units	Useful		Disease		Preser		Vacc	Diseas		

		and harm ful micro orga nisms				vation of food		ines, anti bio tics	es		
8.	Diseases	13	11	9	9	10	12	9	7	7	8
	Units/Sub -units		Cause and effect				AIDS	Pre ven tive mea sures	Sym ptoms and re medies		
9.	Reflection of Light	8	3	4	6	13	10	13	8	4	3
	Units/Sub -units	Visibi lity of objects				Peri scope, kalei do scope	Laws				
10.	Sources of energy	11	7	7	7	10	10	12	10	5	3
	Units/Sub -units	Human life		Mea sures	Solute ions to energy crisis		Fossil fuels	Ato mic ener gy	Renew able re sources		
11.	Electric current	10	5	4	8	12	10	9	8	4	3
	Units/Sub -units										
12.	Properties of substances	10	3	5	7	7	8	8	6		3
	Units/Sub -units										
13.	Metals and non-metals	8	4	3	7	11	9	6	5	4	
	Units/Sub -units	conduct ivity				Condu ctors	Rust, corros ion	Uses			
14.	Carbon and carbon compound s	10	4	4	6	10	10	6	5	1	
	Units/Sub -units	Uses						Carb on com poun ds			
15.	Air	8	6	5	7	11	8	10	5	4	1
	Units/Sub -units	Causes	Effect	Diseas es		Measu res		Oz one, acid rais		Pollut ion	Polluta nts
16.	Soil	11	8	8	9	11	9	6	2	1	

	Units/Sub-units	Soil for mation	Pollut ion					Soil eros ion, pollu t ion		Eros ion	
17.	Agri culture	11	9	8	10	10	10	6	4	2	
	Units/Sub-units	Need of agri culture	Less yield	Factors	Methods	Metho ds to im prove	Prote ction of crops		In crease in yield		
18.	Animal husbandry	10	10	12	9	10	9	7	4	1	3
	Units/Sub-units		Disea se		Care of animals						

The figures/digits in each column reflects, the number of teachers, who believes that particular Life Skill can be developed/enhanced through the content of that particular chapter of the Science textbook of Std. VIII.

APPENDIX E - List of Science Teachers

1. Mrs. Rupali Pawar
2. Miss Supriya Bhosale
3. Mr. Amit Kharade
4. Miss Sneha Khetale
5. Mrs. Aparna Pundalik
6. Mrs. Pallavi Bhosale
7. Mr. Kiran Borgaonkar
8. Mrs. Manisha Kutwal
9. Mrs. Swati Ganjapure
10. Mr. Ajay Gaikwad
11. Mrs. Meena Goaswami
12. Mrs. Jansamma Sebastian
13. Mrs. Priyadarshani Purohit
14. Mrs. Priyanka Chouhan
15. Mrs. Rajani Nair
16. Mrs. Vaishali Pophale
17. Mrs. Vaishali Rao
18. Rashmi Yadav
19. Radha Yogesh Kelkar
20. Shamoli Rajeev Raj
21. Jayprabha Shankar Kalekar
22. Vibhakar Shobhakar Telore
23. Vrushali Choudhari
24. Vaishali Shelar

APPENDIX F - Standardized Rating Scale used for Survey

Instructions

This questionnaire (Rating Scale) assesses the level of life skills in the youth population. Below are some statements. They try to find out your way of life and perspectives about living. Kindly consider the statements carefully and answer according to what is true for you. There are no right or wrong answers. This will be used only for research purpose and it will be kept confidential.

Sr. No	Items	Always true of me	Very true of me	Sometimes true of me	Occasionally true of me	Not all true of me
1	I wish I was someone else.					
2	Some songs make me feel so sad, I feel like crying.					
3	I can observe people and understand them by their body language.					
4	I understand there must be a reason when my friends stop talking to me.					
5	I am unable to find new perspective for situations.					
6	I look at a situation and analyze it.					
7	Whenever, there is a doubt, I decide after looking at the whole picture.					
8	If I have a problem, I start finding various options.					
9	I don't know how to express difficult emotions like anger and embarrassment.					
10	I am uncomfortable about the way I look.					
11	I value what others have to say about my competence and behaviour.					
12	If someone doesn't have a friend I feel sad.					
13	I am able to express my feeling without using words.					
14	No one knows my true feelings.					
15	I don't speak, without assessing the situation.					
16	If I have to make a decision, I look at what kind of commitments I will have to make					
17	When I am confused about a problem, I discuss it with others.					
18	I don't know how to put my feeling into words.					
19	I postpone my work till the last minute.					
20	I feel that there is something very good and special in me.					
21	When I read a book, I can easily put myself in place of the character.					
22	I use the right words for the right situations.					
23	I don't like to be isolated.					
24	When I learn something I keep asking lots of questions.					

25	I decide because I like something.					
26	I don't want to be forced or hurried to solve problems.					
27	When I am happy, I feel thrilled.					
28	I have more things to do than I can.					
29	I am aware that I have to play different roles as an individual in the society.					
30	Other people's trouble doesn't disturb me much.					
31	I don't know the right words to ask for help.					
32	I easily mingle with people.					
33	When I have to decide, I look at how much risk I have to take.					
34	When I solve a problem, I don't mind trying and failing.					
35	Health wise I am very sensitive.					
36	I am comfortable even if my likes or dislikes are not the same as my group.					
37	When somebody is upset, I can know without them openly telling it.					
38	Whatever I say people misunderstand me.					
39	All my friends know me as I am.					
40	I am able to generate many ideas.					
41	In a crisis I think clearly.					
42	I collect all the necessary information before I make a decision.					
43	I feel I should solve the problem the way I want.					
44	When I am happy, I shout, jump and dance.					
45	I keep worrying about my health.					
46	I want others to know my special qualities.					
47	People are responsible for their mistakes, and they have to pay for it.					
48	Whether people listen to me or not, I will say what I want.					
49	I share my feeling, without hurting other.					
50	When doing a task, I keep improving it.					
51	Even if fail, I prefer to go by first impression.					
52	I don't look for choices, I just decide.					
53	I make a list of all the aspects relating to a problem.					
54	When I am excited, I don't know what to do.					
55	I don't require others, to tell me about my good qualities as I know them well.					
56	I can think of two/three things, when listening to somebody.					
57	If I don't understand, I am able to ask a question.					
58	I find that my friends take advantage of me.					
59	I cannot stop working, unless I am satisfied.					
60	Once I have thought of something, it is very difficult to change my view.					
61	My parents and family help me to decide.					
62	I am able to tell myself what my real problem.					

63	Even my best friends don't know about my moods.					
64	I have so many ideas in my head, due to that I can't sleep.					
65	I look for ideas and suggestions from important people in my life.					
66	Even if people don't express, I value their feelings.					
67	I am in such a hurry to talk that I can't wait for others to stop.					
68	When I have a good idea, I remain absorbed in it.					
69	Whenever, there is a problem or a concern, I find another way.					
70	Whatever my friends decide I go by it.					
71	I am able to identify my problems clearly.					
72	I am unable to control my emotions.					
73	I feel burdened with my studies.					
74	I am aware that, depending on the situations, I behave differently.					
75	I get distracted, when I am listening to others.					
76	I feel sad that I give more than I receive from my friends.					
77	I like to work with ideas or materials.					
78	When I read or listen to something, I am able to see the missing parts.					
79	The more problems I have the more difficult it is for me to decide.					
80	I am sure about my likes and dislikes.					
81	When I see someone's pain or difficulty, I respond spontaneously.					
82	Breaking friendships doesn't bother me.					
83	I don't like discipline, if it tries to make me to become like others.					
84	When I read or listen, I keep asking questions to myself.					
85	While deciding I keep checking with others, whether I am on the right track.					
86	Once I have thought of a solution, I definitely act.					
87	When I feel angry, I am able to tell and talk about it.					
88	During exam my mind goes blank.					
89	I am able to accept compliments.					
90	I am able to take the position of my friends, as they share their experiences with me.					
91	I don't feel bad when I meet my past friends with whom I had fought.					
92	I feel I can see connections that others in my group cannot.					
93	When I have taken up some work, difficulties don't bother me much.					
94	Difficult situations makes me take wrong decisions.					

95	I feel that it is useless to talk about feelings.					
96	While listening to my friends, I am able to keep my problems separately for that time.					
97	I am unable to talk about difficult or negative feelings. (Grief, disturbed, doubts)					
98	When I want somebody as my friend, I am able to go and start a talk.					
99	When I am in a doubt, I look at the whole situation.					
100	I don't even realize that, when I get excited, I am shouting.					

APPENDIX G - List of Schools

North zone

1. Sugirdh Villa Sabha, Khadki
2. Padmashree Dr. D.Y. Patil Public School, Pimpri
3. Kanitlal Khinwasara English School, Thergaon

East zone

1. Guru Nanak Public School, Hadapsar
2. Roseland English Medium School, Kondhwa
3. Sahyadri National School, Warje

West zone

1. Bharatiya Vidya Bhavan Paranjape Vidya Mandir, Karve Nagar
2. Dr. Kalmadi Shamarao High School Secondary Section, Kothrud
3. Dyanganaga English Medium School, Sinhgad Road

South zone

1. Spring Dale School, Ambegaon
2. Muktangan English Medium High School, Sahkar Nagar
3. Vishwakarma Institute of Technology, Bibwewadi

Central zone

1. Sardar Dastur Girls High School, Camp
2. Modern English Medium School, Shivaji Nagar
3. Shikshan Prasrak's Mandal English Medium School, Sadashiv Peth
4. Abhinav English Medium School, Narhe

APPENDIX H - Rating Scale – Usability of Life Skills Programme

User's name: -

_____

Name of the School: -

_____

Educational Qualifications: -

_____

Total teaching experience:-

_____

Aim – To study the usability of Life Skills Programme

Note –

Rating Scale was prepared to get the feedback from user group about the Life Skills Programme i.e. the product. The main purpose of the Rating Scale is to study the usability of the Life Skills Programme. Statements are based on the Life Skills Programme, which was prepared for the students of Std. VIII, learning Science subject belonging to English Medium Schools, S.S.C. Board. Statements are classified under the different criteria of usability quality components.

User's signature _____

UNDERSTABILITY						
Sr. No.	**Statements**	**Not at all true**	**Occasionally true**	**Sometimes true**	**Most of the times true**	**Always true**
1.	Life Skills Programme is easy to understand.					
2.	Life Skills Programme is easy to understand from the perspective of Std. VIII, Science students.					
3.	Life Skills Programme is easy to understand from the perspective of Std. VIII, Science teachers.					
4.	Strategies/Techniques/Activities included in the Life Skills Programme are easy to understand.					
LEARNABILITY						
Sr. No.	**Statements**	**Not at all true**	**Occasionally true**	**Sometimes true**	**Most of the times true**	**Always true**
5.	Life Skills Programme is appropriate for enhancing Life Skills as well for learning Science content.					
6.	Strategies/Techniques/Activities included in the Life Skills Programme makes learning of Science content easier as well develops/enhances/improves the Life Skills of the Std. VIII students.					

7.	Strategies/Techniques/Activities included in the Life Skills Programme creates an interesting, lively, healthy and conducive learning atmosphere.					
8.	The non – conventional ways of teaching Science content for enhancing the Life Skills makes the teaching learning process more effective and facilitates lifelong learning.					
OPERATIBILITY						
Sr. No.	**Statements**	**Not at all true**	**Occasionally true**	**Sometimes true**	**Most of the times true**	**Always true**
9.	The design, layout and overall structure of the Life Skills Programme is easy to use.					
10.	The activities included in the Life Skills Programme can be conducted easily while teaching.					
11.	The Life Skills Programme can be easily used.					
12.	The Life Skills Programme can be implemented feasibly.					
UTILITY						
Sr. No.	**Statements**	**Not at all true**	**Occasionally true**	**Sometimes true**	**Most of the times true**	**Always true**
13.	The Life Skills Programme is useful for the Std. VIII students to understand the Science content as well for enhancing Life Skills.					
14.	The Life Skills Programme is instrumental for the development of Life Skills in Std. VIII students.					
15.	The Life Skills Programme is useful from the perspective of the students of Std. VIII.					
16.	The Life Skills Programme is useful from the perspective of the Science teachers of Std. VIII.					
OBJECTIVITY						
Sr. No.	**Statements**	**Not at all true**	**Occasionally true**	**Sometimes true**	**Most of the times true**	**Always true**
17.	The objective of developing the Life Skills Programme is fulfilled.					
ATTRACTIVENESS						

Sr. No.	Statements	Not at all true	Occasionally true	Sometimes true	Most of the times true	Always true
18.	The design, layout and overall structure of the Life Skills Programme is attractive and appealing.					
19.	The text, pictures and animations included in the Life Skills Programme are attractively organized and presented.					
APPLICABILITY						
Sr. No.	**Statements**	**Not at all true**	**Occasionally true**	**Sometimes true**	**Most of the times true**	**Always true**
20.	The Life Skills Programme is appropriate and applicable for the English Medium students of Std. VIII, S.S.C. Board.					

Suggestions/Comments if any:-

_____
_____
_____
_____

APPENDIX I - Mean Scores of 1528 students acquired from 16 schools, through survey

		LIFE SKILLS									
Name of the school		**Self Awareness**	**Empathy**	**Effective Communication**	**Interpersonal Relationships**	**Creative Thinking**	**Critical Thinking**	**Decision Making**	**Problem Solving**	**Coping with Emotions**	**Coping with Stress**
BVB											
48		49	38	31	41	30	37	37	34	37	28
53		41	38	30	40	28	38	37	33	38	28
101	**Average**	**45**	**38**	**30.5**	**40.5**	**29**	**37.5**	**37**	**33.5**	**37.5**	**28**
DY Patil											
47		42	37	30	37	30	37	35	33	35	24
48		40	38	30	39	29	37	36	32	37	25
50		40	38	29	37	28	36	36	31	35	24
145	**Average**	**40.66**	**37.66**	**29.66**	**37.66**	**29**	**36.66**	**35.66**	**32**	**35.66**	**24.33**
Guru nanak											
25		**40**	**37**	**30**	**36**	**29**	**35**	**37**	**32**	**34**	**24**
Dnyanganga											
39		39	37	28	36	28	35	35	31	24	25
21		42	39	32	39	29	38	37	35	38	28
16		47	40	30	41	32	41	37	37	36	27
76	**Average**	**42.66**	**38.66**	**30**	**38.66**	**29.66**	**38**	**36.33**	**34.33**	**32.66**	**26.66**
Muktangan											
61		42	36	29	40	30	38	36	34	37	26
47		44	39	32	40	32	39	40	36	37	27
108	**Average**	**43**	**37.5**	**30.5**	**40**	**31**	**38.5**	**38**	**35**	**37**	**26.5**
Khinwasara											
44		39	37	30	36	28	37	36	32	35	24
45		39	37	30	36	29	37	36	32	36	24
89	**Average**	**39**	**37**	**30**	**36**	**28.5**	**37**	**36**	**32**	**35.5**	**24**
Dastur											
43		**42**	**39**	**28**	**40**	**29**	**37**	**36**	**35**	**35**	**23**
Modern											
47		**42**	**36**	**31**	**38**	**30**	**37**	**37**	**35**	**37**	**27**
SPM											
45		42	36	31	38	29	38	37	33	40	29
42		41	37	30	39	28	35	37	33	38	29
87	**Average**	**41.5**	**36.5**	**30.5**	**38.5**	**28.5**	**36.5**	**37**	**33**	**39**	**29**
Spring Dale											
59		41	39	30	38	29	38	36	34	35	25

64		41	38	31	38	29	37	36	34	35	25
55		41	37	29	38	28	35	38	32	35	27
178	**Average**	**41**	**38**	**30**	**38**	**28.66**	**36.66**	**36.66**	**33.33**	**35**	**25.66**
Rosela nd											
28		**37**	**35**	**29**	**35**	**29**	**37**	**36**	**32**	**38**	**24**
VIT											
59		40	38	28	37	29	37	36	33	33	22
63		39	37	29	37	29	35	35	33	33	23
122	**Average**	**39.5**	**37.5**	**28.5**	**37**	**29**	**36**	**35.5**	**33**	**33**	**22.5**
Abhina v											
29		40	37	29	39	30	37	36	33	35	22
35		39	39	32	38	28	38	37	34	36	26
64	**Average**	**39.5**	**38**	**30.5**	**38.5**	**29**	**37.5**	**36.5**	**33.5**	**35.5**	**24**
SVS											
53		**40**	**37**	**30**	**37**	**28**	**37**	**34**	**33**	**34**	**23**
Sahyad ri											
41		41	38	31	40	29	38	36	35	37	25
49		44	38	32	41	30	39	38	36	37	27
90	**Average**	**42.5**	**38**	**31.5**	**40.5**	**29.5**	**38.5**	**37**	**35.5**	**37**	**26**
KHS											
55		43	36	31	39	30	37	36	33	36	26
49		43	36	30	39	29	37	36	34	36	26
54		42	37	29	39	30	36	35	34	37	26
57		44	37	30	39	30	38	36	34		27
215	**Average**	**43**	**36.5**	**30**	**39**	**29.75**	**37**	**35.75**	**33.75**	**36.3333**	**26.25**
TOTAL											
1528	**Average**	**41.43**	**37.43**	**29.97**	**38.34**	**29.14**	**37.12**	**36.34**	**33.5**	**35.67**	**25.5**

APPENDIX J - Categorization of Life Skills according to the range of scores

Classification	Self Awareness	Empathy	Effective Communication	Interpersonal Relationships	Creative Thinking	Critical Thinking	Decision Making	Problem Solving	Coping with Emotions	Coping with Stress
Very High	Above 48	Above 51	Above 40	Above 49	Above 38	Above 52	Above 48	Above 45	Above 47	Above 35
High	44 – 48	46 -51	36 -40	45 -49	35 -38	48 -52	44 - 48	41 - 45	43 - 47	31 – 35
Average	**34 – 43**	**36 -45**	**26 -35**	**35 -44**	**26 - 34**	**36 -47**	**34 - 43**	**31 - 40**	**32 - 42**	**22 – 30**
Low	29 -33	30 - 35	20 -25	30 – 34	20 -25	30 – 35	28 - 33	25 - 30	26 - 31	16 – 21
Very Low	Below 29	Below 30	Below 20	Below 30	Below 20	Below 30	Below 28	Below 25	Below 26	Below 16

APPENDIX K - List of students of Pilot study

Sr. No.	Name of the student	Sr. No.	Name of the student
1	Ajgar Gouri	29	Ladda Aarti
2	Aknoji Saniya	30	Madale Sakshi
3	Aladar Vrushali	31	Magar Mrunal
4	Bavdankar Prajakta	32	Mahajan Purva
5	Bharswadkar Trushita	33	More Shraddha
6	Bhor Sakshi	34	More Vaibhavi
7	Chavan Vaishnavi	35	Nangare Dipti
8	Chinde Vaishnavi	36	Nangare Dhanashree
9	Chaudhari Yogita	37	Nimbalkar Janhavi
10	Dangat Mrudula	38	Padval Pratiksha
11	Dange Shruti	39	Padval Riya
12	Darvatkar Rasika	40	Pasalkar Gaytri
13	Desai Nikita	41	Patankar Mrunal
14	Dhamishte Chaitrali	42	Petkar Manasi
15	Giri Trunmai	43	Pote Payal
16	Jadhav Vaishnavi	44	Pote Sharvari
17	Kadam Dhanashree	45	Purandare Renuka
18	Kadam Sanjana	46	Puri Neha
19	Kadam Shweta	47	Ranjane Samrudhi
20	Kale Sayali	48	Salunkhe Aakansha
21	Kamthe Aakansha	49	Sawant Sanskruti
22	Khadke Tanuja	50	Shah Shivani
23	Kaladkar Vaishnavi	51	Shinde Vrushali
24	Khomane Pranjal	52	Solapure Harshala
25	Khopade Neha	53	Soneri Pooja
26	Khirsagar Vaishnavi	54	Suryvanshi Kiran
27	Waykar Rashmi	55	Tambekar Aakansha

APPENDIX L - List of students of Experimentation

Sr. No.	Name of the Student
1	Aman Bhasme
2	Mulsingh A. Bhati
3	Aman Choudhri
4	Akash P. Chavan
5	Yuvraj Chavan
6	Vaibhav Ajay Deshpande
7	Atharva Vikas Kadam
8	Gautam Malviya
9	Durgesh Maurya
10	Sabir M. Patel
11	Durgesh L. Prajapati
12	Rohan M. Sahani
13	Akshay Chunnilal Shah
14	Vishwajeet Sharma
15	Naman Tukaram Shinde
16	Suraj J. Sutar
17	Niraj Satyanarayan Thakur
18	Harshada Balasaheb Agarkar
19	Pallavi Bala Chakranarayan
20	Reena Maurya
21	Shruti Pawar
22	Saj Baburam Prajapati
23	Jyoti Chamanlal Rawat
24	Priya Shah
25	Ragini Jogendar Sharma
26	Vansheela K. D. Sharma
27	Shreya Sanjay Shinde
28	Khushi Singh
29	Nisha Singh
30	Pranali Vishnu Sole
31	Ruchita Sanjay Uttekar
32	Khushi Varma
33	Anita Ramsumer Yadav

APPENDIX M - Pre – test and Post – test

Instructions

This questionnaire (Rating Scale) assesses the level of life skills in the youth population. Below are some statements. They try to find out your way of life and perspectives about living. Kindly consider the statements carefully and answer according to what is true for you. There are no right or wrong answers.

Sr. No	Items	Always true of me	Very true of me	Sometimes true of me	Occasionally true of me	Not all true of me
1	I wish I was someone else.					
3	I can observe people and understand them by their body language.					
6	I look at a situation and analyze it.					
7	Whenever, there is a doubt, I decide after looking at the whole picture.					
8	If I have a problem, I start finding various options.					
11	I value what others have to say about my competence and behaviour.					
13	I am able to express my feeling without using words.					
15	I don't speak, without assessing the situation.					
16	If I have to make a decision, I look at what kind of commitments I will have to make					
17	When I am confused about a problem, I discuss it with others.					
20	I feel that there is something very good and special in me.					
22	I use the right words for the right situations.					
24	When I learn something I keep asking lots of questions.					
25	I decide because I like something.					
26	I don't want to be forced or hurried to solve problems.					
29	I am aware that I have to play different roles as an individual in the society.					
31	I don't know the right words to ask for help.					
33	When I have to decide, I look at how much risk I have to take.					
34	When I solve a problem, I don't mind trying and failing.					
36	I am comfortable even if my likes or dislikes are not the same as my group.					
38	Whatever I say people misunderstand me.					
41	In a crisis I think clearly.					
42	I collect all the necessary information before I make a decision.					
43	I feel I should solve the problem the way I want.					
46	I want others to know my special qualities.					

48	Whether people listen to me or not, I will say what I want.					
51	Even if fail, I prefer to go by first impression.					
52	I don't look for choices, I just decide.					
53	I make a list of all the aspects relating to a problem.					
55	I don't require others, to tell me about my good qualities as I know them well.					
57	If I don't understand, I am able to ask a question.					
60	Once I have thought of something, it is very difficult to change my view.					
61	My parents and family help me to decide.					
62	I am able to tell myself what my real problem.					
65	I look for ideas and suggestions from important people in my life.					
67	I am in such a hurry to talk that I can't wait for others to stop.					
69	Whenever, there is a problem or a concern, I find another way.					
70	Whatever my friends decide I go by it.					
71	I am able to identify my problems clearly.					
74	I am aware that, depending on the situations, I behave differently.					
75	I get distracted, when I am listening to others.					
78	When I read or listen to something, I am able to see the missing parts.					
79	The more problems I have the more difficult it is for me to decide.					
80	I am sure about my likes and dislikes.					
84	When I read or listen, I keep asking questions to myself.					
85	While deciding I keep checking with others, whether I am on the right track.					
86	Once I have thought of a solution, I definitely act.					
89	I am able to accept compliments.					
93	When I have taken up some work, difficulties don't bother me much.					
94	Difficult situations makes me take wrong decisions.					
99	When I am in a doubt, I look at the whole situation.					

APPENDIX N - Pre – test Scores

Sr. No.	Name of the Students	Life Skills					
		Self Awareness	**Effective Communication**	**Critical Thinking**	**Decision Making**	**Problem Solving**	**Total**
1	Aman Bhasme	32	31	36	38	35	172
2	Mulsingh Bhati	38	25	35	34	32	164
3	Aman Choudhri	46	29	39	35	31	180
4	Akash Chavan	41	28	34	36	33	172
5	Yuvraj Chavan	44	24	37	38	38	181
6	Vaibhav Deshpande	42	28	42	38	37	187
7	Atharva Kadam	39	32	40	39	33	183
8	Gautam Malviya	36	24	40	30	38	168
9	Durgesh Maurya	46	36	41	33	33	189
10	Sabir Patel	38	35	41	42	32	188
11	Durgesh Prajapati	38	26	38	41	29	172
12	Rohan Sahani	43	32	39	39	40	193
13	Akshay Shah	47	25	42	42	36	192
14	Vishwajeet Sharma	38	25	35	34	31	163
15	Naman Shinde	40	29	27	35	30	161
16	Suraj Sutar	38	37	47	35	29	186
17	Niraj Thakur	43	34	40	30	33	180
18	Harshada Agarkar	46	38	40	43	32	199
19	Pallavi Chakranarayan	51	29	45	31	37	193
20	Reena Maurya	48	35	44	39	35	201
21	Shruti Pawar	38	23	44	41	36	182
22	Saj Prajapati	39	37	42	36	30	184
23	Jyoti Rawat	39	31	36	33	36	175
24	Priya Shah	45	25	43	41	33	187
25	Ragini Sharma	47	27	44	41	35	194
26	Vansheela Sharma	43	33	37	37	32	182
27	Shreya Shinde	44	28	36	40	32	180
28	Khushi Singh	36	32	41	36	36	181
29	Nisha Singh	37	34	40	39	29	179
30	Pranali Sole	33	33	35	43	37	181
31	Ruchita Uttekar	38	37	36	29	23	163
32	Khushi Varma	41	22	38	35	29	165
33	Anita Yadav	42	38	39	39	34	192
	Average/Mean	**41.09**	**30.36**	**39.18**	**37.03**	**33.21**	**180.87**

APPENDIX O - Post – test Scores

Sr. No.	Name of Students	Life Skills					
		Self Awareness	**Effective Commu nication**	**Critical Thinking**	**Decision Making**	**Problem Solving**	**Total**
1	Aman Bhasme	45	40	40	47	29	226
2	Mulsingh Bhati	44	37	35	46	40	220
3	Aman Choudhri	46	36	36	48	36	220
4	Akash Chavan	44	39	38	45	31	219
5	Yuvraj Chavan	48	37	39	48	30	226
6	Vaibhav Deshpande	44	38	38	44	34	219
7	Atharva Kadam	45	40	39	47	36	226
8	Gautam Malviya	48	37	42	46	29	222
9	Durgesh Maurya	47	36	35	48	37	222
10	Sabir Patel	45	39	27	48	23	223
11	Durgesh Prajapati	44	38	47	48	29	222
12	Rohan Sahani	44	40	40	44	35	220
13	Akshay Shah	47	36	40	47	32	224
14	Vishwajeet Sharma	46	37	45	48	32	222
15	Naman Shinde	48	39	44	47	37	228
16	Suraj Sutar	45	40	44	48	33	228
17	Niraj Thakur	47	40	42	46	38	225
18	Harshada Agarkar	46	36	36	44	33	219
19	Pallavi Chakranarayan	47	39	42	48	32	230
20	Reena Maurya	48	40	40	45	29	222
21	Shruti Pawar	47	36	40	47	33	226
22	Saj Prajapati	44	38	41	46	32	220
23	Jyoti Rawat	46	38	41	48	35	223
24	Priya Shah	48	37	43	48	36	224
25	Ragini Sharma	45	40	44	45	30	226
26	Vansheela Sharma	44	36	37	44	36	218
27	Shreya Shinde	44	40	36	46	33	222
28	Khushi Singh	47	39	41	46	37	227
29	Nisha Singh	46	37	36	47	35	223
30	Pranali Sole	46	40	35	48	32	229
31	Ruchita Uttekar	44	38	39	45	31	220
32	Khushi Varma	47	36	34	47	33	225
33	Anita Yadav	45	40	37	46	38	221
	Average	**45.79**	**38.15**	**39.18**	**46.51**	**33.21**	**223.24**

APPENDIX P - Sample Lesson Plan

Std. VIII **Subject: Science**

Unit: Biological Diversity

Sub – units: (a) Protection of rare species

(b) Reserved biodiversity zones

Title: (A) PROTECTION OF RARE SPECIES

(B) RESERVED BIODIVERSITY ZONES

Content

i. Measures undertaken for protection of rare species

ii. Treaty for protecting biodiversity

Objectives

1. To help the students understand and undertake measures for protection of rare species.
2. To provide information regarding the efforts to be taken to provide knowledge related to biodiversity to the common man.
3. To help the students understand the need of seed banks, gene banks, bio – technology.
4. To provide information about the treaty for protecting plants and wild life in danger of extinction.

Expected Learning Outcomes

1. Students think critically and decides to take some measures for protection of rare species by discussing amongst themselves through effective communication.
2. Students get informed about the efforts to be taken to provide knowledge related to biodiversity to the common man and decides to practice the same.
3. Students get informed and thinks critically about the need of seed banks, gene banks, bio – technology.
5. Students get informed about the treaty for protecting plants and wild life in danger of extinction and decides to spread the information about it.

Time Required: 2:30 hrs. (05 periods)

Life Skill promoted / developed / enhanced: DECISION MAKING

Supplementary Life Skills promoted / developed / enhanced:

CRITICAL THINKING

PROBLEM SOLVING

EFFECTIVE COMMUNICATION

Techniques:

I. Action Maze

II. Brainstorming

III. Group Discussion

IV. Interactive Lecture supported by power – point presentation

Materials Required:

a. CPU and Projector

b. Power point slides with audio,

c. Audio visual presentation and

d. Printed Material (Write – up)

Students' Action Plan:

Phase I
During Action Maze, students listen to the write – up about the description of threat to plants and wild life, which are on the verge of extinction. Then through Group Discussion, they decide about the appropriate action plan for protecting the rare species.

Phase II
During the Brainstorming session, students will listen, interact and discuss about nurturing biodiversity in reserved biodiversity zones.

Phase III
During the interactive lecture supported by power – point presentation, students understand and get informed about the measures to be taken, bio – technology, treaty etc. and wherever necessary discuss amongst themselves.

Procedure
Step I
During Action Maze, students understand about the laws and measures to be taken for protection of rare species, efforts to be taken for creating awareness and spreading information about biodiversity, discussion with students about seed banks, gene banks and bio – technology.

Step II
During Brainstorming session students understand about the reserved biodiversity zones and treaty.

Step III
During exclusive Group Discussion, students understand their exact role and contribution towards protecting the rare species and preserving it.

Consolidation
Through interactive lecture and power – point presentation, the entire unit is revised.

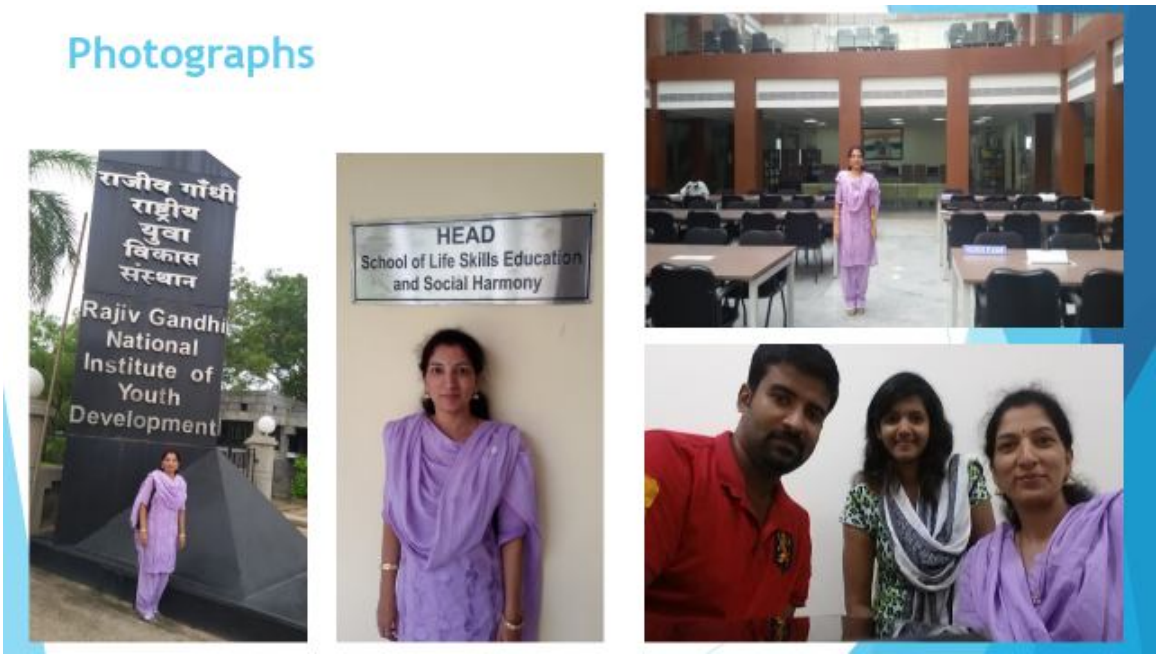
Facilitative Questions
1. List the various efforts being made by people at all levels to protect endangered species.
2. List the measures that can be undertaken for preserving the disappearing biodiversity.
3. Activities – A Tree Study

Window to our rich biodiversity

Home Assignment:
1. Make a list of species who have become extinct.
2. Make a list of species who are on the verge of extinction.

APPENDIX Q - Photographs

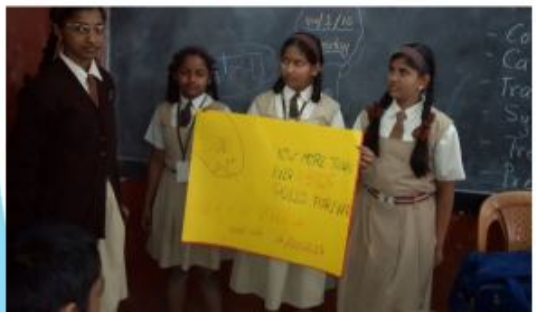
Visit to RGNIYD, Chennai; Library, RGNIYD; Discussion with Research Scholars, RGNIYD



Intervention Programme – Life Skills Programme, Modern English Medium School, Warje







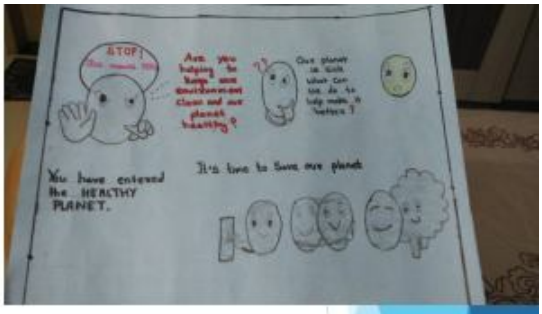




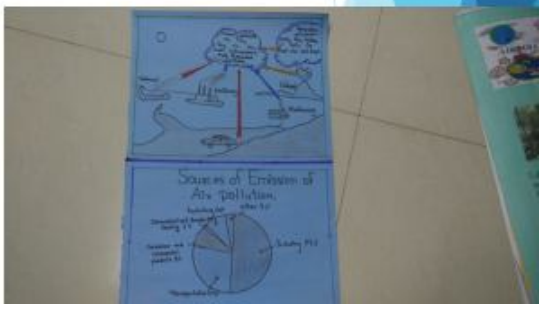



मोफत


Six
Comon
Pollutants
Carbon Monoxide
Ozone
Lead
Particulate Matter
Sulfur Dioxide

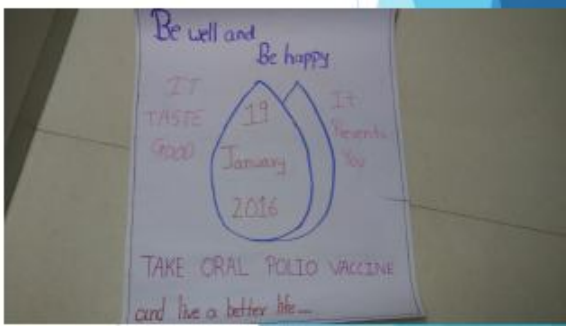

STOP!
Are you helping to keep our environment clean and our planet healthy?
You have entered the HEALTHY PLANET.
It's time to Save our planet

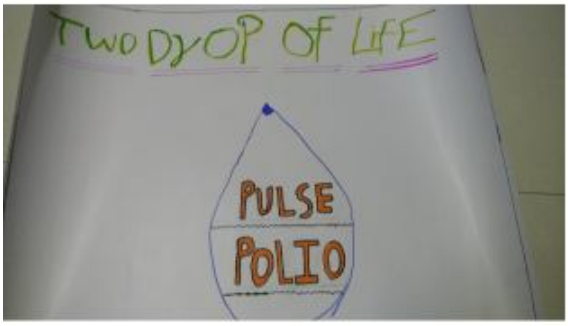

Air Pollution


Sources of Emission of Air pollution

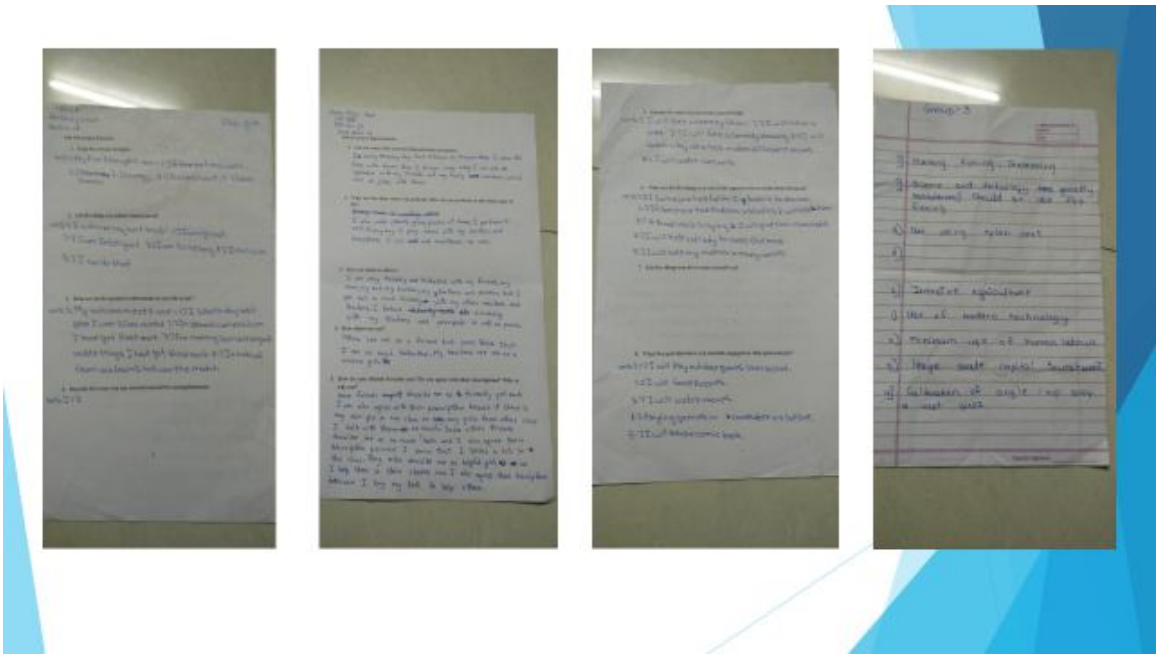

Pulse Polio

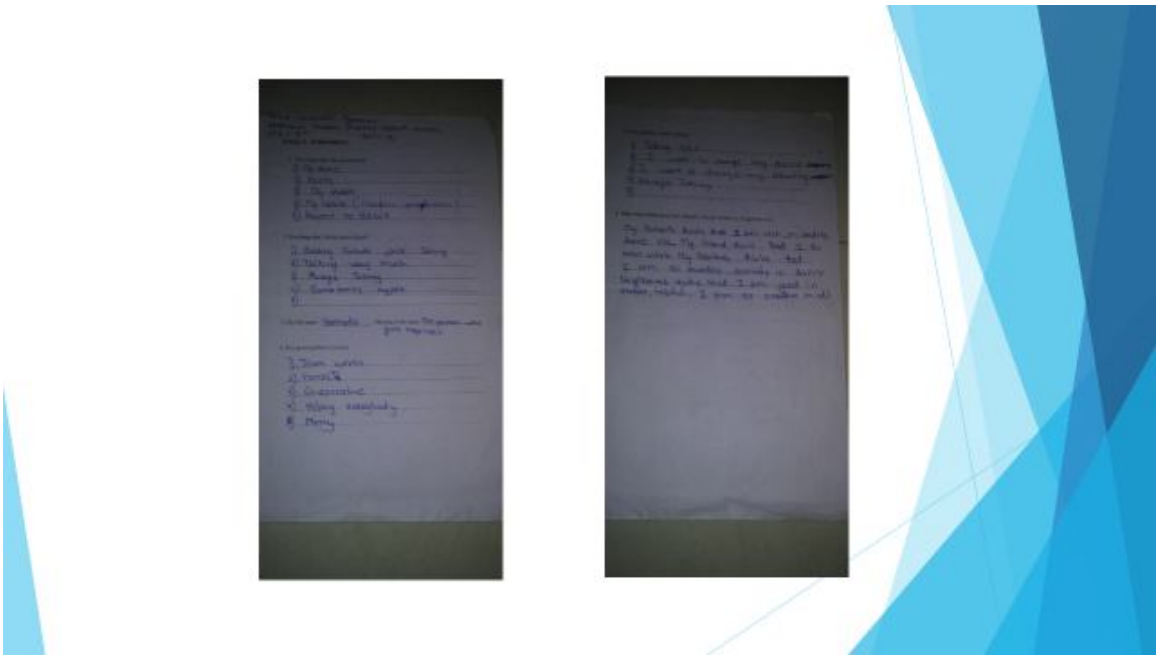

CAUSES OF AIR POLLUTION


Be well and
Be happy
19
January
2016
TAKE ORAL POLIO VACCINE
and live a better life...


TWO DROP OF LIFE
PULSE
POLIO


NOW MORE THEN
EVER : STOP
POLIO FOREVER





Appendix R - List of students of Survey

Sr. No.	Name of the student	Sr. No.	Name of the student	Sr. No.	Name of the student
1	Sanjyot S. Amritkar	40	Shreeshaliya R. C.	79	Komal Abhay Mohite
2	Sanat P. Bhujbal	41	Namrata P. Bhandari	80	Vaibhavi S. Narawane
3	Purva Danati	42	Vaishnavi Bhosale	81	Nidhi C. Nehere
4	Aditya N. Devtarkar	43	Diksha M. Birla	82	Shraddha S. Paigude
5	AryanDharmadhikari	44	Sahil Churi	83	Sejal Ganesh Pardeshi
6	Om Manoj Gabdule	45	Vikrant Date	84	Kshitij S. Borhade
7	Aditya Gaikwad	46	Shaunak M. Dhande	85	Sushant P. Kudale
8	Pragati V. Jadhav	47	Chaitrali D.	86	Parth Jayant Kulkarni
9	Abhijeet S. Joshi	48	Atharva Gaikwad	87	Saket R. Kulkarni
10	Neha D. Kanade	49	Kshitij Ghongadi	88	Shubham R. Kulkarni
11	Varun G. Kore	50	Sejal J. Girme	89	Mehul Sanjay Lalwani
12	Anushka Kulkarni	51	Atharva V. Joshi	90	Siddhant V. Mahajan
13	Jui P. Kulkarni	52	Shivam A. Kadam	91	Narayani Dixit
14	Samruddhi N. Lomte	53	Aditi Kandarkar	92	Krishna Sunil Godale
15	Sidhant S. Nagimukh	54	Chaitanya Dinesh Khot	93	Vaishnavi Godse
16	Swastik S. Naik	55	Ishita Koske	94	Mrunal Gole
17	Grishma Parab	56	Omkar S. Kshirsagar	95	Soham Jagdale
18	ShashankR.Pathmudi	57	Kshitija K. Kulkarni	98	Aditi Satish Joshi
19	Adwait Patil	58	Samruddhi D. Patil	99	Atharva Atul Khole
20	Rohit Yelnare	59	Parth P. Poojari	100	Kimaya M. Londhe
21	Trupti A, Dandgaval	60	Aditya Rathi	101	Vashishthi R. Magar
22	Shweta S. Dhamale	61	Sanika R. Salunke	102	Rahul Mandviya
23	Apoorva Nitin Durge	62	Shruti S. Sonawane	103	Atharva H. Matkar
24	Aprita S. Gaikwad	63	Rahul Tangsali	104	Priya Mokashi
25	Mansi M. Gogawale	64	Anushka Wanjale	105	Janhavi D. Mudaliar
26	Dnyaneshwari S. Gore	65	Kaushal Phulgirkar	106	Ashutosh M. Pawar
27	Riya P. Gujarathi	66	Smriti S. Puntamkar	107	Shreyash R. D.
28	Aakansha V. Gunda	67	Arpita Sathaye	108	Atharva A. D.
29	Aditi S. Inamdar	68	Krishna Varma	109	Dhruvi D. Gohel
30	Anushka Anil Jagtap	69	Sarthak Bharadwaj	110	Kalyani Gohokar
31	Riya Rajendra Jalindre	70	Sankarshan C.	111	Eesha Y. Inamdar
32	Manasi Mahesh Kale	71	SamarthR.Choudhary	112	Atharva Jadhav
33	Tanaya S. Kale	72	Rutvik U. Darwatkar	113	Sanket R. Mahalpure
34	Sakshi Rajesh Kamble	73	Vedant J. Deokule	114	Aditya U. Mandhare
35	Pranjal P. Kandpile	74	Omkar M. Dhavale	115	Yuvaraj H. Marane
36	Siddhi V. Karpe	75	Ritesh Gadre	116	Krishna S. Marane
37	Sejal Sandeep Katke	76	Abhishek V.Gaikwad	117	Sudiksha V. A.
38	Mitali Milind Khedkar	77	Atharva RamGokhale	118	Akanksha A. Asabe
39	Rutik R. Chaturbhuj	78	Vaishnavi A. Malekar	119	Shivani Atul Bhinge

120	Suyog Sandeep Gole	161	Manasai U. Bhosale	201	Anuja Patwardhan
121	Zaid Inamdar	162	Sakshi D. Bhosale	202	Darshan Ajit Bafana
122	Siddhesh P. Ingulkar	163	Sakshi R. Bhunde	203	Aditya Bahulikar
123	Karan P. Jadhav	164	Amisha B. Borana	204	Tejas P. Bansal
124	Pratham Jagtap	165	Sakshi S. Chavan	205	Omkar Bargaje
125	Yugandhar C. Jagtap	166	Chaitrali Shirish Dabi	206	Ayush A. Bage
126	Rushabh Jain	166	Isha J. Deshpande	207	Rohan D. Bhandare
127	Mayank Sanjay Joshi	167	Aditi Deepak Dhumal	208	Varadraj Vijay Bhosale
128	Sanjog ShamKalantri	168	Siddhi Kisan Kale	209	Siddharth Bibre
129	Hrutvik G. Kale	169	Siddhi Lanke	210	Bhavesh Ravindra Bora
130	Rohan R. Kamble	170	Durva K. Mahajan	211	Yash S. Borade
131	Kaivalya A. Kasbe	171	Sanjana S. Mandhare	212	Rahul M. Deogaonkar
132	Atharva Ajay Kirkole	172	Aditi A. Mehendale	213	Sachin Dhokale
133	Saurabh S. Kodre	173	Aboli A. Paithankar	214	Prathamesh S. Gadhave
134	Yash V. Konde	174	Shambhavi Pansare	215	Kushal M. Gandhi
135	Sahil RahulKondhare	175	Rachana Rajesh Patil	216	Pranav Santosh Kadu
136	Rohit Anil Kudale	176	Gour Rani	217	Sarang Dattatray Kale
137	Pallavi Y. Pawar	177	Ingale Akankasha	218	Gokarna Lele
138	Rugveda KiranPawar	178	Jaiswal Simran	219	Kamble Aishwarya
139	Sakshi H. Pawar	179	Shristi PrasannaShete	220	Kumavat Divya
140	Samiksha Konghe	180	Swaraj S. Adagale	221	Kumavat Pooja
141	Saket Palasakar	181	Pranav V. Babar	222	Om S. Pawar
142	Shravani A. Paraswar	182	Aditi P. Jagdale	223	Varshini V. Rai
143	Aditya Parkale	183	Sanjali Jahgirdar	224	Anuja M.Riswadkar
144	Mihika Rajendra Rane	184	Nakshatra Kankaria	225	Om Salunke
145	Rohan Rasane	185	Tanvi Nitin Kapre	226	Vedant Shende
146	Aryan Sahu	186	Komal Kulkarni	227	Prajna Subash Shetty
147	Varun Saraf	187	Vedant M. Kulkarni	228	Shruti Shirke
148	Raazik . K. Shirolkar	188	Adwait Mahajan	229	Revati Shukla
149	Yash Sisodiya	189	Isha A. Mahajan	230	Palak S. Somani
150	Atharva Upasani	190	Maithilee Mali	231	Manoj S. Tavargeri
151	Anushka V.	191	Soumitra A.Nipunage	232	Shruti S. Thorat
152	Hemant Wankhede	192	Bhavyen Patel	233	Atharv A. Vaspate
153	Madhura Zirpe	193	Nidhi Pokharna	234	Rajas Yardi
154	Tejas Bharekar	194	Shruti S. Prabhu	235	Arya Antarkar
155	Isha Borkar	195	Sahil Sarnaik	236	Shankar Avad
156	Radha Chandanshiv	196	Nupur Shenoy	237	Kedar Bhide
157	Maitri Milind Joshi	197	Sanyukta Shrotri	238	Riddhi Bihani
158	Riya S. Kalbag	198	Shubham Yargttikar	239	Anusha Venugopal
159	Jayesh Kshirsagar	199	Aditya R. Madkar	240	Manas Apte
160	Gargi R. Bhosale	200	Aniruddha Padgaonkar	241	Tanaya Bhavsar

242	Bhavesh Choudhary	283	Aditya Gosavi	325	Nachiket M. Awachat
243	Tanaya P. Chunekar	284	Atharva D. Gupte	326	Niranjan V. Badhe
244	Abhishek Deshpande	285	Isha Mandar Joshi	327	Aditya D. Bang
245	Aaditya S. Dikshit	286	Manasi Milind Kale	328	Shantanu B.
246	Shreya Deepak Joshi	287	Atharva M. Kapote	329	Ruchira Vikas Dalvi
247	Sanjana Karwa	288	MrunmayeeN.Moghe	330	Karan M. Deshmukh
248	Disha Khade	289	Aditya Nene	331	Onkar Deshmukh
249	Parth P. Kulkarni	290	Anusha Patil	333	Prerna H. Dodeja
250	Rujuta R. Kulkarni	291	Sai Yuvraj Patil	334	Chirayu A. Dudhade
251	Samyak Lodha	292	Teli Shivam	335	Samarth Manoj Jadhav
252	Mahajan Samiksha	293	Thapa Roman	336	Shruti Joshi
253	Mishra Neha	294	Varma Nikhil	337	Hrishikesh Kakirde
254	Munot Akanksha	295	Vikarma Shivam	338	Aniket S. Pattanshetty
255	Prajapat Preeti	296	Yadav Shubham	339	Anushkaa Pawar
256	Raut Gayatri	297	Air Renuka	340	Varsha Ashish Phadke
257	Sawant Pradnya	298	Borana Bhagyashree	341	Choudhary Vimal
258	Sharma Uma	299	Shelar Siddhi	342	Dude Diksha
259	Pranav Mali	300	Singh Madhu	343	Gade Chhaya
260	Ganesh Rahul Mehta	301	Tiwari Puja	344	Jamadar Preeti
261	Sahil Ajay Mokashi	302	Baitha Rohit	345	KumavatBhagyashree
262	Varun V. Velankar	303	Barke Tushar	346	Mishra Priyanka
263	Adhagale Chaitrali	304	Gour Lovkush	347	Pawar Chaitrali
264	Awasthi Janavhi	305	Jain Hemant	348	Sharma Kajal
265	Dhamale Karishma	306	Jaiswal Ayush	349	Sharma Wartika
266	Rathod Chandu	307	Jangid Ravindra	350	Singh Simran
267	Rathod Rahul	308	Mhaske Ashutosh	351	Yadav Reema
268	Sarwade Sushant	309	Mishra Suraj	352	Yewale Shreya
269	Shaikh Shanawaz	310	Motekar Saurav	353	Chavhan Abhishek
270	Shirke Niketan	311	Nirmal Prathamesh	354	Dalal Nizam
271	Singh Prince	312	Parihar Dinesh	355	Degaal Kunal
272	Sanskruti S. Mokashi	313	Pawar Prajwal	356	Gupta Akshay
273	Ketki S. Panse	314	Phadtare Omkar	357	Gupta Shivdutta
274	Richa Gaurang Parmar	315	Rajiwade Dhananjay	358	Nafeesa D. C.
275	Rushika Pranjale	316	Jabade Abhishek	359	Zainab Y. D.
276	Akash S. Rao	317	Jadhar Atul	360	Bhagyashri R. Fase
277	Siri Sampagaonkar	318	Jangid Manish	361	Jangid Pankaj
278	Ishaan N. Shah	319	Saakshi S.Shalgaonkar	362	Kanojiya Yash
279	Mitali Bokil	320	Saurabh Shimpi	363	Kapure Umesh
280	Simran M. Chandak	321	Ashwin Thorat	364	Tejas M. Pote
281	Vedang Fate	322	Shamee S. Zirpe	365	Akshata U. Sakhalkar
282	Rohit Gavali	323	Siddharth N. Ambekar	366	Ishan Amod Sane

367	Atharva D. Shetty	408	Anuja S. Sonawane	449	AliyaK.Santrampurwala
368	Pranita S. Shetty	409	Neha V. Tavargiri	450	Afsa S. Skaikh
369	Yash Taware	410	Krutika D. Thakare	451	Anum B. Shaikh
370	Mrunmayee Waykar	411	Shweta R. Tripathi	452	Fazeelat F. Shaikh
371	Kinnari Abhyankar	412	Kunal A. Bafna	453	Sarah Amir Shaikh
372	Tanvee Achyut	413	Pratik R. Bobade	454	Sakshi Manoj More
373	Anjali Angadi	414	Nidhi Chandaliya	455	Prathamesh R. Nandre
374	Sankarshan Baddar	415	Atharva S. Chaudhari	456	Rohit K. Parihar
375	Niranjan V. Bhilare	416	Shuham D. Dalvi	457	Dhanashree S. Patil
376	AnishaGangakhedkar	417	Vishal Dinesh	458	Rithika Ajay Pillai
377	Isha Gharpuray	418	Kedar M. Dudhal	459	ArjunsinghG.Rajpurohit
378	Arya Jayant Gijare	419	Sourav G. Ganjare	460	Ravina H. Rajpurohit
379	Shruti Gore	420	Karishma A.Gautam	461	Udaylal Patel
380	Preshit S. Gujar	421	Ajinkya S. Jadhav	462	Shruti M. Gurav
381	Arya Riswadkar	422	Mayuresh Atul Joshi	463	Advait S. Hagawane
382	Aniruddha K. S.	423	Bhargavi Kulkarni	464	Sakshi R. Kalyankar
383	Chitra Sathe	424	Piyush P. Lachake	465	Shreyas S. Khaire
384	Kumbhar Shivshankar	425	Tanaya Moholkar	466	Rajendra J. Khawas
385	Lokhande Aditya	426	Kinjel S. Mutha	467	Mayuri C. K.
386	Mishra Shivam	427	Anushkka Patil	468	Shraddha Vikas Bhor
387	Pandey Adarsh	428	Vedant M. Kondalkar	469	Anagha Anil Bhosale
388	Pandey Bipin	429	Anurag S. Kumawat	470	Divya D. Bhosale
389	Pandey Vicky	430	Mayuresh V. Kumkar	471	Manajiri Chavan
390	Paradeshi Yash	431	Heramb R. Mane	472	Shantanu S. Chorage
391	Pawar Vishal	432	Kalyani ShivajiMane	473	Shrivatsa S. Desai
392	Rajput Umesh	433	Aniket B. Manjare	474	Mandira Prasad sonar
393	Raut Aniket	434	Suddhi T. Gophane	475	Kanchi V. Timbadia
394	Rathod Kiran	435	Khushi Gethi	476	Gautami Vishwasrao
395	Saini Vinayak	436	Harshita A.Gundecha	477	Priyank Dhamdhere
396	Satras Rohit	437	Miyad N. Haque	478	Jhelum C. Ghate
397	Seervi Praveen	438	Yusra Hiroli	479	Srushti J. Ghodke
398	Shinde Dhananjay	439	Vinish N. Jain	480	Shivani R. Godse
399	Shukla Durgesh	440	Ayushka A. Kamathe	481	Mrunal S. Kangle
400	Singh Sunny	441	Singh Vishal	482	Jara Riyaz Khan
401	Samruddhi S. G.	442	Solanki Prakash	483	Uzma Naim Khan
402	Samruddhi U. G.	443	Yadav Manish	484	Zakia A. Khan
403	Shriti H. Gawli	444	Isha S. Abnave	485	Manavi Nilesh Lodha
404	Sakshi H. Savant	445	Kadambari Adhav	486	Afroze Lokhandwala
405	Hrithika P. Shetty	446	Nida M. Attaraut	487	Diksha D. Magidwar
406	Sonali R. Shrivastava	447	Dnyanada Bhosale	488	Aaliya Bilal Memon
407	Shaunak S. Sindgi	448	Alifiya I Pithawala	489	FathimaJ.Mohammed

490	Pratiksha A. More	531	VedashreeV.Tanksale	572	Vedang Hemant Phadke
491	Sajda Sameer Mulani	532	SamaruddhiN.Waikar	573	Jatin Tejkaran Pungliya
492	Parveen TasirNirwan	533	Pratik B. Bodkhe	574	Pranav S. Ransing
493	Sakshi H. Ostwal	534	Sahil Borude	575	Pranav V. Shinde
494	Simran J. Pardeshi	535	PrathameshM.Chandage	576	Divyankush C. Shitole
495	Vidhi Patel	536	Aditya Vinod Chavan	577	Advait S. Thite
496	Samruddhi S. Pawar	537	Atharva Vikas Chavan	578	Jaijeet M. Unkule
497	Tanishka S. Pillay	538	Maitrey H. D.	579	Omkar V. Vernekar
498	Vishal R. Dengale	539	Deshpande Savani	580	Shubham V. Karande
499	Tanmay S. Dixit	540	Gate Amit	581	Gathe Siddhesh
500	Atharva A. Gokhale	541	Sarang Joglekar	582	Aditya S. Shilimkar
501	Prasad R.ajeev Ranpise	542	Trupti R. Deshmukh	583	Pratik B. Shinde
502	Santosh S. Rathod	543	SamruddhiD.Dhamale	584	Sharvin R. Tagunde
503	Sakshi Raut	544	Aishwarya Dhole	585	Siaanesh S. Tagunde
504	Saurabh B. Rohokole	545	Sahil Dilip Dhumal	586	Shivani Tambe
505	Ritu Suresh Sahani	546	AbhinandanA.Gaikwad	587	Liya Lalan Thomas
506	Shreepad C. Sherkar	547	Atharva V. Gaikwad	588	Kaushik H. Tike
507	Mansi Pravin Shingade	548	Venkatesh M. Ghadi	589	Adnan R. Tamboli
508	Prathamesh P. Sonar	549	Shubham S. Jadhav	590	Rohan Agarkar
509	Lokendra Suthar	550	Anam H. Jamdar	591	Ishan Bhujbal
510	Kishan Mani Tiwari	551	Yashraj b. Kadam	592	Aditya Borate
511	Vaibhav Laxman Tonde	552	Shreyash M. Kadlag	593	Sudharm Borole
512	Vedprakash G. Yadav	553	Baljot Koor Kambow	594	Kedar Deshpande
513	Harsh Mohan Agrawal	554	Bhakti Maruti Kindre	595	Sharva Deshpande
514	Siddhi Tushr Awate	555	Utkarsha U. Magar	596	Swapneel Deshpande
515	Rugved V. Bane	556	Abhiraj S. More	597	Atharva Dhayagude
516	Anushka Vijay Barate	557	Atharva Shekhar More	598	Prithviraj Gotepatil
517	Gauri T. Bhatia	558	Atharv Shivaji More	599	Akhilesh Jawalkar
518	Ojas M. Deshpande	559	Shrusti U. More	600	Sohum Kulkarni
519	Shubham V. Phadtare	560	Deven S. Nalawade	601	Siddhi N. Nalawade
520	Anurag Anil Pillai	561	Bhagyashree R. Shetty	602	Anurrita A.Namjoshi
521	Nikita Kothadiya	562	Manas Kadwe	603	Atharv V. Nangare
522	Hema V. Mahedrakar	563	Aditya R.Kavale	604	Manashree S. Nikesar
523	Binita B. Mal	564	Yash P. Khedekar	605	Hrushikesh U. Panchal
524	Vaishnavi Ram More	565	Atharva P. Kinikar	606	Rutuja S. Pasalkar
525	Shrutika S. Navgire	566	Shivam S. Mendjogi	607	Sahil Sunil Patekar
526	ShreenidhiD.Pardeshi	567	Piyush M. Mendjogi	608	Kamesh R. Pathrot
527	Chanchal S. Rathi	568	Sagar A. Moolya	609	Sahil
528	Nidhi Ajay Sabane	569	Suyesh T. Nimbalkar	610	Sohan
529	Siddhi J. Shinde	570	Hitesh B. Patil	611	Nupur
530	Siddhi S. Tambolkar	571	Pinak N. Pendharkar	612	Ghan Yash

613	Ghevane Rucha	654	Yash R. Abhyankar	695	Ruchi
614	Ghule Atharva	655	Neel Atul Adke	696	Vedika
615	Gore Vedant	656	Raghavendra S. Bhujbal	697	Shrutika
616	Hivarekar Sarthak	657	Atharva R. Chaudhari	698	Yash
617	Jadhav Rohit	658	Kalyani P. Deshpande	699	Raghavendra
618	Jadhav Siddhesh	659	Archit Aditya Devadhar	700	Hrushikesh
619	Jagdale Riddhi	660	Arnav Nitin Dharap	701	Shruti Diwakar
620	Jagtap Sahil	661	Javalgekar Vedang	702	Manasi V. Diwate
621	Tanmay Amit Khamkar	662	Jayphalkar Nikita	703	Sayali Vinay Gadre
622	Agarwal Ansh	663	Joshi Ajinkya	704	Ameya Satish Gandhi
623	Agarwal Kailash	664	Joshi Mihir	705	Sanika Vinayak Gholap
624	Bari Shweta	665	Kakade Pratap	706	Shivani N. Jainak
625	Barve Chinmay	666	Katikar Devang	707	Aabha Sagar Joshi
626	Bhadsawale Rohan	667	Kavediya Neelam	708	Atharva Mahesh Joshi
627	Bopardikar Sanika	668	Kulkarni Shraddha	709	Shambhavi J. Joshi
628	Choudhary Parth	669	Kulkarni Wardhan	710	Sumedh Sachin Joshi
629	Sharma Niti	670	Landge Amey	711	Vedant Prasad Karle
630	Tambe Atharva	671	Limaye Pranav	712	Akash Anil Kulkarni
631	Tiparadi Anushka	672	Mahajan Anurag	713	Atharv S. Kulkarni
632	Poorvi	673	Nevgi Anjali	714	Ishani Jitendra Kulkarni
633	Ankita	674	Pendse Prachi	715	Ramani S. Kulkarni
634	Lavanya	675	Phule Eleesha	716	Rutvi R. Kulkarni
635	Esha	676	Sane Rama	717	Sakshi Vinay Kulkarni
636	Anisha	677	Shah Anushka	718	Vaishnavi V. Kulkarni
637	Shriya	678	Shah Mrunal	719	Karche Shruti
638	Aabha	679	Hrishikesh S. Mahajan	720	Karmarkar Mukta
639	Palvi	680	Megha C. Mahajan	721	Siddhesh Arun Malve
640	Ishwari	681	Shriya	722	Vedant
641	Ruturaj	682	Tanaya	723	Tanmay
642	Omkar	683	Rutuja	724	Abhishek
643	Saurabh	684	Gargi	725	Ashutosh
644	Chirag	685	Vedashree	726	Amey
645	Ishan	686	Rujuta	727	Anish
646	Swanand	687	Jahnvi	728	Atharva
647	Harsh	688	Shalvi	729	Aditya
648	Suyash	689	Shivani	730	Varad
649	Piyush	690	Hardi	731	Yash
650	Rohan	691	Shifa	732	Atharva
651	Kunal	692	Medini	733	Abhishek
652	Tiparadi Ashwin	693	Shruti	734	Kunal
653	Vadapurkar Shravani	694	Yuga	735	Rushi

736	Kaushal	777	Manasi	818	Rishita Uday Waghere
737	Ishaan	778	Tanvi	819	Sarthak Badve
738	Anuj	779	Archana	820	Karan M. Bendre
739	Shantanu	780	Sharon Sam Abraham	821	Arpita A. Birajdar
740	Sushant	781	Sumedh	822	Lalita Sunil Borkar
741	Yash	782	Sanket	823	Sakshi Kumar Dolwani
742	Varad Girish Mashalkar	783	Ajinkya	824	Ketki Kiran Gaikwad
743	Esha Mandar Mudgal	784	Prathamesh	825	Preshita D. Ingale
744	Vedashree Nilangekar	785	Siddhesh	826	Shreya R. Kadam
745	Niranjan Nitin Patankar	786	Pradyumna	827	Sakshi M. Karande
746	Tanvi N. Pawar	787	Varad	828	Shrutika M. Landge
747	Omkar Udayan Phadke	788	Rutwik	829	Aman Ayub Shaikh
748	Shreya Manoj Phatak	789	Prajakta A. Lavale	830	Zeeshan Aziz Shaikh
749	Nikhil S. Rajapute	790	Tanusha R. Moolya	831	Bhavesh Sonawane
750	Aditya Sakpal	791	Riya Raejsh Motwani	832	Karnik Atharva
751	Yashaswi Nitesh Shah	792	Khandare Madhura	833	Koratkar Omkar
752	Soham Sunil Shendge	793	Khedkar Shruti	834	Kunjir Prajwal
753	Mayuresh G. Shendkar	794	Khutale Savani	835	Mutgekar Chetan
754	Prathamesh M. Sinkar	795	Tanaya	836	Nivangune Ajinkya
755	Neel S. Sontakke	796	Mahadalkar Purva	837	Patil Shubham
756	Isha Sachin thite	797	Nikam Saishwari	838	Sheth Neel
757	Saiel M. Vste	798	Paigude Bhakti	839	Shinde Sarvesh
758	Roham A. Wadikar	799	Pawar Manasi	840	Shingavi Yash
759	Asagekar Anjali	800	Ranpise Komal	841	Rathod Bhavya
760	Ashtekar Jui	801	Bhat Prerna	842	Shinde Anjali
761	Kedari Dnyande	802	Gandhi Leena	843	Sonawane Neha
762	Prayshee	803	Ghodekar Rutuja	844	Aher Aryan
763	Srushti	804	Hagawane Manasi	845	Aher Atharva
764	Geeta	805	Hupare Shambhavi	846	Arokar Shreyas
765	Vedangi	806	Ithape Ishwari	847	Badade Dev
766	Rutvi	807	Jain Moksha	848	Bagwan Avaiz
767	Sakshi	808	Karande Mrinal	849	Bhosale Atharva B.
768	Yashaswi	809	Jagnani Manav	850	Chipodikar Tanmay
769	Aditi	810	Jagdeo Atharva	851	Chinde Sahil
770	Vidula	811	Joshi Atharva	852	Dixit Aniket
771	Manori	812	Roshani Motwani	853	Dorge Abhishek
772	Shivali	813	Snehal R. Musale	854	Gawade Mathur
773	Avani	814	Vashnavi B. Pokharkar	855	Golait Kaivalya
774	Kimaya	815	Sadiya Mustafa Shaikh	856	Gund Dwarkesh
775	Shatakshi	816	Ankita H. shelke	857	Hegde Pranav
776	Arpita	817	Yashika R. Thakur	858	Jadhav Aditya

859	Kulkarni Akanksha	900	Kadam Ashutosh	941	Kulkarni Ajinkya
860	Kulkarni Isha	901	Kumbhar Manasi	942	Pratham P. Gavhane
861	Mayuresh P. Bhatkar	902	Arvind Arjun Tamatta	943	Rushikesh S. Gavali
862	Atharva D. Chaphalkar	903	Owais J. Tamboli	944	Yogesh Anil Godse
863	Akash Choudhary	904	Sheetej P. Tirodkar	945	Shreyas R. Gunjal
864	Shivaji D. Dherange	905	Swaraj V. Tirunahari	946	Atharva Hande
865	Rohan M. Gaikwad	906	Ismai H. Vohra	947	Niyaz Farukh Inamdar
866	Shivjeet A. Ingawale	907	Kajol N. Agarwal	948	Siddharth D. Jundhare
867	Sameer R. Jawale	908	Akshada Dani	949	Adita S. Kolapkar
868	Chinmay Kamble	909	Samiksha S. Dhadve	950	Chetan Kulkarni
869	Atharva G. Kulkarni	910	Akanksha D. Jadhav	951	Anurag S. Mohite
870	Piyush H. Kulkarni	911	Sanjana S. Jadhav	952	Shoaib S. Mulani
871	sudarshan More	912	Ritika D. Jethwani	953	Jaideep S. Munjugade
872	Rohan K. Nikalije	913	Mayuri A. Kamble	954	Sanket R. Nampurkar
873	Hansmukhlal Parmat	914	Yukta S. Kamble	955	Idris S.Pandharpurwala
874	Amaldev Pillai	915	Gauri Ajay Kankrej	956	Aniket J. Pardeshi
875	Saikrishna B. Pillai	916	chaitali Prashant Kolhe	957	Chirayu Ravindra Patil
876	Kartik R. Ramaswamy	917	Rhea K. Matkar	958	Nikhil Ramesh Pawar
877	Ravi Ravanth	918	Rashmi Prashnt Nikam	959	Aditya Vivek Sabale
878	Aman Shahid Sayyed	919	Sabina Salim Pathan	960	Adish Dinesh Shah
879	Sarthak A. Demgunde	920	Safiyyah S. Shaikh	961	Yukta Manoj Tandon
880	Swaraj S. Etane	921	Bhavesh P. Gaikwad	962	Siddhi Mahesh Wayal
881	Thakar Aditya	922	Mahajan Jui	963	Shrushti S. Zagade
882	Kulkarni Asmita	923	Navangal Isha	964	Shivam V. Agrawal
883	Yashraj A. Nande	924	Nikam Samita	965	Ravin B. Aauji
884	Bhandage Sonali	925	Padalkar Rutuja	966	Dinesh B. Choudhary
885	Bhatade Vaishnavi	926	Pawar Rutuja	967	Abhishek S. Chougule
886	Buktare Kajol	927	Pawar Sai	968	Parth V. Darekar
887	Chaturbhuj Maithilee	928	Pawar Sharvari	969	Prachi N. Bakare
888	Chaudhari Poorva	929	Pendse Ritu	970	Gauri Vijay Bhosale
889	Chiddarwar Srushti	930	Rishi Gargi	971	Triveni G. Borkar
890	Dangat Vaishnavi	931	Shete Ritika	972	Narsale Shreeraj
891	Deshmukh Sharvari	932	Shetty Tanishka	973	Oak Akshay
892	Deshpande Harshada	933	Shinde Pranita	974	Parai Atharva
893	Dhongade Madhura	934	Shinde Sanika	975	Parkhi Rugved
894	Dongre Navya	935	Sohoni Shruti	976	Patil Shree
895	Ingle Rashmi	936	Suke Janhavi	977	Patil Vardhaman
896	Kakade Samruddhi	937	Vaidya Ramani	978	Pawar Mrunank
897	Kulisha Ganesh	938	Wadghule Nupoor	979	Pujari Atharva
898	Kulkarni Aarti	939	Yevale Rucha	980	Rao Prajwal
899	Jagtap Shahank	940	Bewoor Shrinivas	981	Bhadale Ashish

982	Bhandage Hrushikesh	1023	Babar Isha	1064	Shelar Siddhi
983	Bhangare Yash	1024	Borse Nikita	1065	Sontakke Radhika
984	Deshpande Divyaj	1025	Chorghe Neha	1066	Sutar Ankita
985	Gajare Swaraj	1026	Daware Shrushti	1067	Tilekar Aarya
986	Ghanekar Kshitij	1027	Gaikwad Sejal	1068	Walvekar Nisha
987	Gumaste Pralhad	1028	Gandhi Sakshi	1069	Zanje Akshata
988	Ingawale Mit	1029	Garde Tanaya	1070	Agalave Nikhil
989	Kulkarni Radhika	1030	Haval Piyusha	1071	Beldare Shantanu
990	Kumbhar Prachi	1031	Hegde Sakshi	1072	Bhavsar Ameya
991	Mahadik Sejal	1032	Kadam Aishwarya	1073	Chandratre Vedant
992	Shruti Mahesh Borse	1033	Kadam Anushka	1074	Deshmukh Parth
993	Megha Sandeep Gadgil	1034	Kale Shruti	1075	Ekke Ninad
994	Akshita N. Jamadar	1035	Khardekar Gauri	1076	Gaud Manoj
995	Siddhi Manish Karkera	1036	Khakare Chetana	1077	Ghule Ketan
996	Neha P. Lohar	1037	Khedekar Vaibhavi	1078	Jain Naman
997	Fatima Mir	1038	Khule Aditi	1079	Shaikh Amaan Ishaque
998	Shreya S. Omergekar	1039	Joshi Abhimanyoo	1080	Shirurkar Prem Mukesh
999	Mukta Suresh Pawar	1040	Uzair Y. Makhdoom	1081	Kale Chirantan
1000	Pradnya P. Rokade	1041	Pooja R. Saini	1082	Ritik Umesh Matere
1001	Adarsh S. Shahi	1042	Khushi Ashok shedge	1083	Atharva A. Mhasawade
1002	Saurabh D. Sonawane	1043	Adnan Zakir Attar	1084	Lalu Kumar Nair
1003	Pratik R. Surve	1044	Gautam A. Bavadekar	1085	Kishan Sagar Pardeshi
1004	Moasef M. Thorpe	1045	Prasad S. Bhalekar	1086	Ruthik D. Pokharkar
1005	Ashwati Vinayan	1046	Tushar Nitin Bhansali	1087	Hitesh P. Rajpal
1006	Mansi R. Alandkar	1047	Sumit P. Bole	1088	Nishant Rajule
1007	Sakshi Yogesh Alhat	1048	Pratik Dilip Chavan	1089	Adnan E. Shaikh
1008	Shahana Jilani Baig	1049	Chirag S. Choudhary	1090	Ayush Shetty
1009	Ashutosh R. Landge	1050	Pradeep A. Choudhary	1091	Sajid Sameer Shikalgar
1010	Nitin C. Lavhate	1051	Pavan Deore	1092	Mousam S. Singh
1011	Navalgund Rucha	1052	Sahil Dhingra	1093	Shrinivas Sureban
1012	Nimbalkar Sumati	1053	Omkar Gunesh Dixit	1094	Bharat T. Sutar
1013	Pardeshi Anupreeta	1054	Om Sujit Ekhe	1095	Tejasvi Ramesh Bhise
1014	Patil Nikita	1055	Shashank Ghadi	1096	Simarjeet Kaur Daroch
1015	Pandav Mrugesha	1056	Shreyash M. Jadhav	1097	Shrushti Ghumatkar
1016	Patil Swapnali	1057	Atharv Sunil Jaid	1098	Tapashvi V. Jambhale
1017	Pokale Prachi	1058	Swapnali K. Khude	1099	Ashmeen K. Kochhar
1018	Pokale Shruti	1059	Sunny V. Kuvvarapu	1100	Dhruvi D. Patil
1019	Rawate Sanika	1060	Dhiraj Pardeshi	1101	Trilok Pardeshi
1020	Sabale Vedanti	1061	Samel Shravani	1102	Kalushe Venkatesh
1021	Sasane Vedang	1062	Shah Mitali	1103	Kori Atharva
1022	Sonpatki Sarthak	1063	Shastri Rutuja	1104	Kuber Manthan

1105	Magdum Namokar	1146	Prabhjas Singh Hora	1187	Raut Manasi
1106	Mahamuni Aditya	1147	Aniket Dhiresh Jadhav	1188	Sarode Ketaki
1107	Malusure Shivam	1148	Rishi Rajesh Jangira	1189	Atharva Ashtaputre
1108	Malwedkar Tejas	1149	Tandalekar Sneha	1190	Sarang Vijay Chafle
1109	Mhasalkar Pranav	1150	Tilak Shruti	1191	Atharva M. Dekhane
1110	Narale Shubham	1151	Bhandwalkar Rutik	1192	Sharma Diya
1111	Ovhal Omkar Jitendra	1152	Yadav N. V.	1193	Shirke Aditi
1112	Patil Aayush	1153	Yadav Vishal G.	1194	Singh Sakshi
1113	Sabnis Suyash	1154	S. Abhinandan	1195	Singhal Komal
1114	Somani Atharva	1155	Dangi Akshita Kantilal	1196	Thakur Yogini
1115	Tadphale Umang	1156	Dhandekar Shrutika M.	1197	Badgujar Prathamesh
1116	Zende Sarthak	1157	Mehetre Madhura B.	1198	Bana Abhijeet
1117	Ansari Adif Ismail	1158	Naik Samrudhi S.	1199	Barmukh Ashutosh
1118	Gaikwad P. Prakash	1159	Pathan Isha B.	1200	Chandanshive Rohan
1119	Kumar Akash Pannalal	1160	Pawar Amruta Ashok	1201	Prasad Aishto S.
1120	Mourya H. Jaiprakash	1161	Nadaf Sahil Dawood	1202	Salunke Akshata R.
1121	Singh Rishabh Ramesh	1162	Nagnur Sharukh Hyder	1203	Saroj Pooja Nakhelal
1122	Harsh Rahul Pingale	1163	Nirala P. Shivchandra	1204	Shaikh Heena Mubarak
1123	Baljeet Singh Rajpal	1164	Phadtare Rohit Ganesh	1205	Chavan Pratiksha
1124	Sai kishor Rosala	1165	Potdar Vijay Virbhadra	1206	C. Vaishnavi
1125	Saheb Singh Rathore	1166	Rode Gaurav Shivaji	1207	Choudhari Pooja A.
1126	Saurabh S. Shukla	1167	Salve Rohan Sanjay	1208	Choudhary Pooja K.
1127	Taranjot Khurana	1168	Saroj S. Kamlesh	1209	Desarda Sejal
1128	Avadesh singh	1169	Ranmode Samiksha	1210	Dhamdhere Sanyukta
1129	Tanishq M. Yadav	1170	Saad Poonam	1211	Doma Vaishnavi
1130	Amin Kavita	1171	Shahni Shamil	1212	Gadkari Shivani
1131	Ashtekar Apurva	1172	Birnale Sahil	1213	Gorwadiya Kajal
1132	Bari Akshaya	1173	Deshpande Ajinkya	1214	Jadhav Harshada
1133	Darwatkar Vaishnavi	1174	Jagtap Nishant	1215	Kamble Anuja
1134	Deshpande Apoorva	1175	Kadam Amey	1216	Kelgandre Aishwarya
1135	Deshpande Renuka	1176	Kale Ved	1217	Nagtilak Praneeta
1136	Dhamale Apurva	1177	Moolya Abhishekh	1218	Pawar Vrushali
1137	Gaitonde Shreya	1178	Mulay Pranav	1219	Mishra Abhay
1138	Gunjal Aditi	1179	Pathak Abhishek	1220	Mirajkar Niranjan
1139	Joshi Renuka	1180	Polekar Ayush	1221	Rayaguru Deepak
1140	Kale Sanskruti	1181	Kamble Vaibhavi	1222	Renuse Ujwal
1141	Siddhi R. Rajbhoj	1182	Mhasawade Radhika	1223	Salunke Siddhant
1142	Anas Ansari	1183	Munagekar Sukesha	1224	Sarode Kaivalya
1143	Atharva Badhe	1184	Narkar Isha	1225	Shirolkar Ameya
1144	Pranav Bhapkar	1185	Potdar Sanjana	1226	Sonar Prithvi
1145	Sai V. Channaram	1186	Puntambekar Yashita	1227	Tapaswi Alok

1228	Tharwal Ishan	1269	Tanmay Zingade	1310	Choudhari Khushi K.
1229	Parachi R. Bharne	1270	Sejal Kishor Ahire	1311	Dhanawade Shruti S.
1230	Shruti Choure	1271	Rutuja M. Bacche	1312	Ghone Srushti M.
1231	Samruddhi S. Desai	1272	Sakshi Ajay Bhilare	1313	Kondhalkar Snehal P.
1232	Neha S. Deshmukh	1273	Vrushali Gholap	1314	Kulam Pratisha Maruti
1233	Rachana S. Gosavi	1274	Sharadha B. Ghule	1315	Kulkarni Bhagyashree
1234	Tanvi Ingle	1275	Pallavi Kadam	1316	Sharma Anjali Dinesh
1235	Samruddhi M. J.	1276	Samruddhi B. Kashid	1317	Shete Sakshi Pravin
1236	Yashashree Marathe	1277	Riddhi M. Mohite	1318	Vajale Sumesha Sudhir
1237	Vaishnavi Anil Pawar	1278	Sharvari Ravindra Patil	1319	Akole Niraj Deepak
1238	Riddhi B. Shirgopikar	1279	Sejal Dattatary Tathe	1320	Awasare Vinayak Ajay
1239	Mistry Bhagirath	1280	Akshata B. Whaval	1321	Karan R. Bhingare
1240	Rohit Rudra Naikod	1281	Harshwardhan S.Pande	1322	Kiran P. Chorge
1241	Chavan Anil	1282	Pardeshi Yashraj	1323	Ajinkya S. Devkar
1242	Chavan Rohit	1283	Parekar Rushikesh	1324	Sanket S. Kamthe
1243	Choudhary Prakash	1284	Patel Manoj	1325	Shreyas Bajrang Karle
1244	Chodhary Sachin	1285	Pise Deep	1326	Ritesh Kolhe
1245	Deshpande Varad	1286	Rathod Karan	1327	Sushant S. Kondhare
1246	Dhawale Ritesh	1287	Rathod Nitin	1328	Mangade A. C.
1247	Hariprasad Devendra	1288	Rathod Soham	1329	Mulani Aftab Shabbir
1248	Jasabhati Yash	1289	Shinde Yash	1330	Pandgale Omkaar M.
1249	Jalal Aslam	1290	Singh Sandeep	1331	Pansare Juber Harun
1250	Kale Hrutik	1291	Sonawane Rushikesh	1332	Shaikh Misba
1251	Karali Ankit	1292	Suthar Naresh	1333	Shukla Prachi
1252	Katakar Sahil	1293	Suryawanshi Ratish	1334	Thorat Sejal
1253	Kate Sumit	1294	Vadaji Shriraj	1335	Yewangade Manasi
1254	Kshirsagar Rohit	1295	Waghamare Sahil	1336	Beluse Vaibhav
1255	Kumbhar Sahil	1296	Waghmare Yash	1337	Bharekar Karan
1256	Mali Sahil	1297	Zare Om	1338	Bhati Dinesh
1257	Malviya Dhiraj	1298	Adagale Gauri	1339	Bhosale Parth
1258	Maurya Preyash	1299	Awate Akansha	1340	Choudhari Jetendra
1259	Patil Mayuri	1300	Bhosale Chaitrali	1341	Bulbule Akshada
1260	Pote Anuja	1301	Salavi Tanvi	1342	Chavan Neha
1261	Naphade Prasad	1302	Raj Pandit	1343	Devda Rinku
1262	Sagar K. Deshpande	1303	Vaibhav V. Pawar	1344	Hule Manasi
1263	Sumedh S. D.	1304	Yogiraj V. Pokale	1345	Jangid Monika
1264	Satyajeet P. Khenat	1305	Kunal B. Pokharkar	1346	Jat Sharmila
1265	Neeraj S. Mahindrakar	1306	Pratik R. Singh	1347	Katkade Akansha
1266	Atharva Umesh Savale	1307	Indar S. Suthar	1348	Misal Sakshi
1267	Yash Mayur Shah	1308	Shreetej S. Walankar	1349	Misra Ambika
1268	Shantanu A. Velhal	1309	Bhambure Ruchika V.	1350	Nadar Rohit

1351	Naik Roshan	1392	Jogi Siddhant	1433	Naykar Kartik
1352	Patil Bhushan Tukaram	1393	Kamble Omkar	1434	Nesmani Shubham
1353	Patil Praful Prabhakar	1394	Kapure Mithil	1435	Pandey Amankumar
1354	Shaikh Rahil Salman	1395	Kazi Aftab	1436	Patel Abrar
1355	Sharman Dainy A.	1396	Khambalkar Mayur	1437	Patole Akshay
1356	Shelke Atharva Arjun	1397	Khan Arbaaz	1438	Yadav Anmol
1357	Shinde Amar Bhagwan	1398	Kamthe Aditya	1439	Meenal Saraf
1358	Sohoni Samdruddha S.	1399	Pawar Chirag	1440	Rupesh Agarwal
1359	Sonawane Sagar J.	1400	Maurya Sahil	1441	Qureshi Ahmed
1360	Surana Yash Indrajeet	1401	Tamang Dhanendra J.	1442	Qureshi Khalid
1361	Bhairemane Tushar	1402	Yadav Atharv Sanjay	1443	Sayyed Ayan
1362	Gadekar Shriniwas D.	1403	Yadav Mayur Santosh	1444	Khan Fardeen
1363	Kolte Rishikesh B.	1404	Aswale Vishwajeet	1445	Khan Isaqe
1364	Konde Tanmay Satish	1405	Awaghade Omkar	1446	Khandzode Tejas
1365	Konde Yash Shekhar	1406	Balid Sandesh	1447	Koli Karthik
1366	Kondhalkar Suraj K.	1407	Balmiki Aman	1448	Lalbegi Arman
1367	Kothawale Vishwanath	1408	Bekellu Ajeet	1449	Mahendra Shantanu
1368	Kutwad Abhishek S.	1409	Bidlan Vineet	1450	Shaikh Zain
1369	Kanojiya Ritesh	1410	Chavan Arjun	1451	Shinde Yash
1370	Kazi Alfaz	1411	Chavan Rushabh	1452	Singh Akhilesh
1371	Khan Faizaan	1412	Chinchane Aniket	1453	Tambe Rithik
1372	Lilee Lalit	1413	Chnaliya Amit	1454	Shah Sultan
1373	Pardeshi Shubham	1414	Choudhary Aman	1455	Mehul Sanjay Lalwani
1374	Pawar Shantanu	1415	Gaikwad Sushil	1456	Siddhant V. Mahajan
1375	Prajapati Aman	1416	Gonewar Sagar	1457	Narayani Dixit
1376	Rathod Manish	1417	Gupta Sagar	1458	Krishna Sunil Godale
1377	Shaikh Faizan	1418	Shaikh Naveed	1459	Vaishnavi Godse
1378	Shewale Rahul	1419	Shaikh Abdul	1460	Mrunal Gole
1379	Shinde Vishal	1420	Shaikh Adnan	1461	Shaikh Aman
1380	Sinnarkar Varun	1421	Upadhayay ankit	1462	Shaikh Arif
1381	Choudhari Omprakash	1422	Vaidya Ashish	1463	Shaikh Asif
1382	Choudhari Pravin	1423	Vishwakarma Aman	1464	Shaikh Mehraj
1383	Choudhari Ravindra	1424	Vishwakarma Mayur	1465	Shaikh Mubin
1384	Choudhari Mahipal	1425	Wagh Dhananjay	1466	Shweta S. Dhamale
1385	Dogale Antariksh	1426	Raut Pratiksha	1467	Apoorva Nitin Durge
1386	Dudhane Paras	1427	Mahuwalla Husain	1468	Aprita S. Gaikwad
1387	Garuwa Jitendra	1428	Menon Abhay	1469	Mansi M. Gogawale
1388	Gurav Shubham	1429	Mahiskar Suraj	1470	Dnyaneshwari S. Gore
1389	Humane Atharava	1430	Mulla Atik	1471	Riya P. Gujarathi
1390	Jain Kalpesh	1431	Nadara Nikhil	1472	Aakansha V. Gunda
1391	Jat Prakash	1432	Nathan Christifer	1473	Aditi S. Inamdar

1474	Anushka Anil Jagtap	1493	Sheetal Mandhre	1512	Aditya Sakpal
1475	Isha J. Deshpande	1494	Manasi Bapat	1513	Yashaswi Nitesh Shah
1476	Aditi Deepak Dhumal	1495	Manisha Kutwal	1514	Soham Sunil Shendge
1477	Siddhi Kisan Kale	1496	Leena Dhande	1515	Mayuresh G. Shendkar
1478	Siddhi Lanke	1497	Poonam Pardeshi	1516	Prathamesh M. Sinkar
1479	Durva K. Mahajan	1498	Sonal Pawar	1517	Neel S. Sontakke
1480	Sanjana S. Mandhare	1499	Swanand Vyas	1518	Isha Sachin thite
1481	Rupali Dhawane	1500	Swanand Bapat	1519	Saiel M. Vste
1482	Bhagyashri Borkar	1501	Jeevan Wagh	1520	Roham A. Wadikar
1483	Dipti Joshi	1502	Chipodikar Tanmay	1521	Nishigandha Vyas
1484	Anjali Joshi	1503	Chinde Sahil	1522	Siddhi Lanke
1485	Aparna Jamdade	1504	Dixit Aniket	1523	Durva K. Mahajan
1486	Supriya Deshpande	1505	Dorge Abhishek	1524	Sanjana S. Mandhare
1487	Archeana Rairikar	1506	Gawade Mathur	1525	Aditi A. Mehendale
1488	Rasika Yende	1507	Golait Kaivalya	1526	Aboli A. Paithankar
1489	Jyoti Hande	1508	Gund Dwarkesh	1527	Shambhavi Pansare
1490	Jyoti Brahme	1509	Hegde Pranav	1528	Rachana Rajesh Patil
1491	Kshitija Vyas	1510	Asagekar Anjali		
1492	Vaishali Kulkarni	1511	Abhijeet Rasal		

Appendix S– Scores of Survey of students, school wise
Dr. Kalmadi Shamarao High School Secondary Section, Kothrud

(A) : Self Awareness, (B) : Empathy, (C) : Effective Communication, (D) : Interpersonal Relationship, (E) : Creative Thinking, (F) : Critical Thinking, (G) : Decision Making, (H) : Problem Solving, (I) : Coping with Emotions and (J) : Coping with Stress

Div. A												
Roll No.	**Name of Students**	**Life Skills**										**Total**
		(A)	**(B)**	**(C)**	**(D)**	**(E)**	**(F)**	**(G)**	**(H)**	**(I)**	**(J)**	
1	Sanjyot Satish Amritkar	38	38	34	39	27	37	38	28	38	30	347
3	Sanat Prashant Bhujbal	42	38	34	33	29	41	38	33	27	19	334
4	Purva Danati	39	36	27	33	28	36	33	32	31	21	316
5	Aditya Nitin Devtarkar	43	37	30	44	31	39	36	41	38	27	366
6	Aryan Dharmadhikari	45	34	34	39	29	41	44	40	40	32	378
7	Om Manoj Gabdule	35	32	36	30	18	27	34	21	37	29	299
8	Aditya Gaikwad	40	35	30	41	31	35	37	34	34	29	346
9	Pragati Vasantrao Jadhav	49	36	33	41	31	34	36	35	43	31	369
10	Abhijeet S. Joshi	45	35	27	37	28	33	40	34	27	20	326
11	Neha Devendra Kanade	47	37	25	42	31	41	38	29	36	30	356
12	Varun G. Kore	47	19	35	30	28	40	42	40	34	30	345
13	Anushka Kulkarni	42	39	35	39	26	35	34	26	32	21	329
14	Jui P. Kulkarni	42	44	30	42	29	30	29	27	35	28	336
15	Samruddhi Nitin Lomte	44	35	25	42	26	37	33	38	35	22	337
16	Sidhant S. Nagimukh	49	46	31	50	34	37	34	37	45	30	393
17	Swastik S. Naik	40	40	21	35	34	39	35	38	33	23	338
18	Grishma Parab	41	33	23	40	27	31	30	23	36	26	310
19	Shashank Ramakant Pathmudi	40	37	22	34	30	39	36	30	29	19	316
20	Adwait Patil	43	33	22	39	30	36	35	24	34	21	317
21	Samruddhi D. Patil	41	30	27	40	28	33	37	28	37	23	324
22	Parth Pandurang Poojari	30	32	35	34	25	35	26	31	34	28	310
23	Aditya Rathi	42	39	29	35	28	33	39	28	32	22	327
24	Sanika R. Salunke	44	35	27	41	31	37	34	32	33	33	347
26	Shruti S. Sonawane	41	40	33	46	29	34	32	35	36	25	351
27	Rahul Tangsali	40	28	27	35	32	37	35	36	35	24	329
28	Anushka Wanjale	46	40	32	47	36	41	32	36	30	21	361
29	Rohit Yelnare	40	30	35	39	36	40	39	32	31	27	349
30	Namrata P. Bhandari	41	34	28	45	35	30	27	35	39	25	339
31	Vaishnavi Bhosale	34	33	27	31	26	31	37	25	29	23	296
32	Diksha M. Birla	48	39	27	38	28	32	34	32	34	17	329
34	Sahil Churi	42	43	28	41	32	44	35	36	29	20	350
36	Vikrant Date	41	34	37	39	28	34	33	30	39	31	346
37	Shaunak M. Dhande	41	37	39	42	26	33	27	29	37	32	343
38	Chaitrali Dharmadhikari	42	43	16	40	29	34	35	35	29	23	326
39	Atharva Gaikwad	41	34	27	35	27	36	36	31	36	23	326
40	Kshitij Ghongadi	45	36	34	39	30	38	39	38	38	28	365
41	Sejal J. Girme	51	45	31	41	32	44	39	41	35	28	387
42	Atharva Vaibhav Joshi	51	42	45	39	37	51	46	36	48	32	427
43	Shivam A. Kadam	37	28	32	34	26	28	29	33	39	29	315
44	Aditi Kandarkar	49	37	37	43	36	42	41	39	34	28	386

45	Chaitanya Dinesh Khot	38	36	31	39	28	38	32	33	31	26	332
46	Ishita Koske	36	33	21	33	27	29	39	28	37	31	314
47	Omkar S. Kshirsagar	38	31	31	36	24	35	37	28	38	32	330
48	Kshitija Kiran Kulkarni	46	45	38	41	32	42	43	31	45	32	395
49	Kimaya Mahadev Londhe	42	32	31	39	28	38	39	34	38	24	345
50	Vashishthi R. Magar	33	31	45	43	16	46	40	41	39	37	371
51	Rahul Mandviya	42	32	30	36	29	38	35	33	34	22	331
52	Atharva Hemant Matkar	52	38	41	41	39	44	46	39	43	35	418
53	Priya Mokashi	43	39	31	49	36	31	37	37	30	24	357
54	Janhavi D. Mudaliar	44	40	28	42	34	33	34	33	45	31	364
55	Ashutosh M. Pawar	48	38	29	46	33	44	41	37	32	17	365
56	Kaushal Phulgirkar	43	40	27	38	33	37	36	38	39	34	365
57	Smriti Shashank Puntamkar	43	37	30	38	25	30	38	30	38	33	342
58	Arpita Sathaye	52	40	31	42	32	44	40	40	32	29	382
59	Krishna Varma	44	36	32	30	32	37	41	38	42	16	348

Div. B

Roll No.	**Name of Students**	**Life Skills**										**Total**
		(A)	**(B)**	**(C)**	**(D)**	**(E)**	**(F)**	**(G)**	**(H)**	**(I)**	**(J)**	
1	Sarthak Bharadwaj	42	36	27	36	32	38	29	33	27	22	322
2	Sankarshan Choudapurkar	47	36	26	34	33	40	27	37	26	16	322
3	Narayani Dixit	49	34	28	40	27	36	39	31	35	24	343
5	Krishna Sunil Godale	34	30	26	36	23	36	37	27	34	26	309
6	Vaishnavi Godse	52	44	32	35	24	32	33	35	33	33	353
7	Mrunal Gole	43	31	27	41	33	31	39	42	33	22	342
8	Soham Jagdale	43	28	36	36	27	39	33	30	41	26	339
9	Aditi Satish Joshi	48	38	33	43	33	39	39	33	37	31	374
11	Atharva Atul Khole	42	29	33	39	30	42	36	35	36	21	343
12	Samiksha Konghe	45	52	43	50	31	44	42	37	40	29	413
15	Saket Palasakar	47	42	30	43	35	35	41	39	39	23	374
16	Shravani Anand Paraswar	32	42	27	42	27	47	33	29	39	31	349
17	Aditya Parkale	44	37	33	43	30	42	39	36	39	30	373
18	Mihika Rajendra Rane	37	33	30	28	21	36	36	28	44	25	318
20	Rohan Rasane	43	35	32	45	34	35	42	40	44	34	384
21	Aryan Sahu	49	38	22	37	38	44	30	39	46	22	365
22	Varun Saraf	35	24	21	29	28	41	29	35	29	24	295
23	Raazik . K. Shirolkar	27	27	28	31	23	30	34	27	32	26	285
24	Yash Sisodiya	39	30	23	40	23	39	35	35	30	18	312
25	Atharva Upasani	43	33	32	38	29	36	38	36	35	28	348
26	Anushka V. Vishwadnya	40	38	28	38	31	30	30	23	38	30	326
27	Hemant Wankhede	41	36	29	33	33	41	39	37	37	23	349
28	Madhura Zirpe	38	38	37	44	32	37	36	36	33	33	364
29	Tejas Bharekar	44	39	25	38	22	37	33	28	37	32	335
30	Isha Borkar	49	44	31	37	35	38	32	33	37	22	358
31	Radha Chandanshiv	43	30	29	39	25	32	36	35	38	27	334
33	Shreyash R. Deshmukh	40	27	33	37	35	36	39	33	36	18	334
34	Atharva A. Deshpande	47	40	35	44	29	40	43	43	39	32	392
35	Dhruvi D. Gohel	36	28	32	32	24	31	37	31	35	27	313
36	Kalyani Gohokar	40	41	22	39	32	41	35	38	32	33	353
37	Eesha Y. Inamdar	44	42	35	43	32	38	32	33	28	37	364

38	Atharva Jadhav	36	34	26	34	30	35	35	31	37	22	320
39	Aditi P. Jagdale	44	45	29	42	32	39	32	35	34	29	361
40	Sanjali Jahgirdar	46	38	33	46	26	36	38	26	26	32	347
42	Nakshatra Kankaria	40	33	29	39	33	39	38	26	25	27	329
43	Tanvi Nitin Kapre	45	40	25	41	23	41	36	35	32	17	335
45	Komal Kulkarni	41	41	24	48	29	34	40	33	41	23	354
46	Vedant Milind Kulkarni	47	38	31	28	23	26	34	36	35	18	316
47	Adwait Mahajan	44	26	32	47	30	38	29	32	36	20	334
48	Isha A. Mahajan	48	45	29	44	20	40	38	33	34	23	354
49	Maithilee Mali	43	30	24	42	28	35	37	34	31	27	331
50	Soumitra Abhay Nipunage	37	41	35	38	25	33	34	34	31	24	332
51	Bhavyen Patel	51	35	30	38	32	30	36	34	44	21	351
52	Nidhi Pokharna	31	34	32	40	30	38	37	33	37	28	340
53	Shruti S. Prabhu	47	37	33	39	39	42	43	37	38	35	390
55	Sahil Sarnaik	44	38	32	40	27	35	48	39	45	23	371
56	Nupur Shenoy	47	44	34	32	32	42	41	30	42	29	373
57	Sanyukta Shrotri	48	41	36	42	31	41	41	33	41	31	385
58	Shubham Yargttikar	43	33	27	39	27	36	35	37	25	32	334

Div. C		**Life Skills**										
Roll No.	**Name of Students**	**(A)**	**(B)**	**(C)**	**(D)**	**(E)**	**(F)**	**(G)**	**(H)**	**(I)**	**(J)**	**Total**
1	Anusha Venugopal	41	43	28	36	31	33	34	37	40	24	347
2	Manas Apte	42	29	24	40	26	27	30	29	35	28	310
3	Tanaya Bhavsar	36	36	33	36	27	26	34	25	42	32	327
4	Bhavesh Choudhary	37	38	25	43	24	33	35	35	36	29	335
6	Tanaya Prakash Chunekar	51	38	20	39	35	43	37	45	25	14	347
7	Abhishek Deshpande	46	39	29	34	32	35	36	35	42	23	351
8	Aaditya Sanjay Dikshit	48	29	23	34	27	34	28	29	27	29	308
9	Maitri Milind Joshi	47	37	31	47	25	35	33	39	43	26	363
10	Riya S. Kalbag	39	33	30	39	26	31	36	31	34	32	331
11	Jayesh Kshirsagar	48	33	28	42	32	39	36	42	36	29	365
14	Aditya Rajendra Madkar	43	33	27	35	32	33	31	28	40	27	329
15	Aniruddha Padgaonkar	33	32	21	33	29	30	34	34	35	20	301
16	Anuja Patwardhan	42	40	30	40	27	39	37	32	40	24	351
17	Om S. Pawar	38	30	26	27	21	43	33	28	30	21	297
18	Varshini V. Rai	46	33	29	47	29	42	40	39	41	26	372
19	Anuja M.Riswadkar	48	38	24	34	34	47	38	45	29	20	357
20	Om Salunke	35	42	30	43	26	37	36	36	39	27	351
21	Vedant Shende	33	33	25	27	32	30	30	30	43	20	303
22	Prajna Subash Shetty	40	39	32	42	31	42	42	34	44	21	367
23	Shruti Shirke	45	37	27	38	30	38	42	39	42	26	364
24	Revati Shukla	45	37	33	45	28	35	36	35	43	31	368
25	Palak S. Somani	36	27	27	38	29	24	31	23	31	17	283
26	Manoj S. Tavargeri	33	40	22	36	28	32	27	32	26	17	293
27	Shruti S. Thorat	39	39	25	29	35	33	28	30	34	21	313
28	Atharv A. Vaspate	36	36	28	42	29	37	33	31	40	22	334
29	Rajas Yardi	40	33	26	42	31	35	35	41	40	15	338
30	Arya Antarkar	46	43	37	45	37	40	29	35	35	35	382
31	Shankar Avad	41	36	29	32	28	35	28	20	40	31	320

32	Kedar Bhide	45	31	32	40	23	31	30	36	44	31	343
33	Riddhi Bihani	47	31	28	39	32	36	31	37	32	21	334
34	Mitali Bokil	31	35	35	40	31	28	29	28	36	29	322
35	Simran Mahesh Chandak	54	42	36	49	38	44	41	45	47	30	426
37	Vedang Fate	49	35	35	46	34	48	40	41	49	25	402
38	Rohit Gavali	45	34	25	39	29	37	38	34	32	24	337
39	Aditya Gosavi	44	34	25	30	29	35	32	35	42	21	327
40	Atharva Dhiren Gupte	37	41	25	43	34	39	33	34	40	28	354
41	Isha Mandar Joshi	46	41	36	47	33	40	42	39	46	32	402
42	Shreya Deepak Joshi	51	40	33	43	35	39	38	40	37	31	387
43	Sanjana Karwa	40	34	30	34	31	33	39	33	35	26	335
44	Disha Khade	52	45	36	49	37	43	37	43	40	28	410
45	Parth P. Kulkarni	34	35	32	44	29	33	36	31	35	27	336
47	Rujuta R. Kulkarni	42	45	20	43	27	26	30	31	35	27	326
48	Samyak Lodha	37	26	29	27	24	26	33	24	38	33	297
49	Sanskruti Sharad Mokashi	46	35	32	45	33	36	37	37	38	27	366
50	Ketki S. Panse	38	45	30	42	34	41	32	23	32	23	340
51	Richa Gaurang Parmar	41	47	28	32	35	38	35	28	31	31	346
52	Rushika Pranjale	38	38	33	32	33	38	41	27	28	27	335
53	Akash S. Rao	53	40	31	39	35	42	41	44	43	31	399
54	Siri Sampagaonkar	46	46	28	40	28	37	39	28	27	28	347
55	Ishaan N. Shah	40	31	30	26	30	34	37	26	34	27	315
56	Saakshi Sunil Shalgaonkar	49	34	28	52	25	39	38	40	28	21	354
57	Saurabh Shimpi	43	32	21	44	32	35	34	38	39	28	346
58	Ashwin Thorat	28	27	23	31	24	36	30	29	29	26	283
59	Shamee S. Zirpe	44	44	34	47	30	42	44	42	35	27	389
Div.D	**Life Skills**											
Roll No.	**Name of Students**	**(A)**	**(B)**	**(C)**	**(D)**	**(E)**	**(F)**	**(G)**	**(H)**	**(I)**	**(J)**	**Total**
1	Siddharth Nilesh Ambekar	39	21	35	27	31	45	37	34	30	35	334
2	Nachiket M. Awachat	44	38	24	43	20	42	36	28	31	24	330
3	Niranjan V. Badhe	45	31	29	37	29	42	40	35	44	34	366
4	Aditya D. Bang	39	35	32	28	30	35	35	23	40	28	325
5	Shantanu Barhanpurkar	49	34	31	38	33	34	38	33	34	30	354
6	Ruchira Vikas Dalvi	43	42	22	38	32	33	33	32	37	16	328
7	Karan M. Deshmukh	42	38	26	44	32	41	42	37	36	27	365
8	Onkar Deshmukh	44	39	22	36	26	36	39	27	42	30	341
9	Prerna H. Dodeja	37	37	29	35	29	36	39	36	38	29	345
10	Chirayu A. Dudhade	41	42	29	47	30	44	35	33	41	32	374
11	Samarth Manoj Jadhav	47	31	27	40	31	32	38	38	31	23	338
12	Shruti Joshi	39	42	35	43	28	40	39	31	39	32	368
13	Hrishikesh Kakirde	37	37	33	43	32	38	29	32	35	27	343
14	Manasi Milind Kale	48	39	23	38	31	33	37	36	35	25	345
15	Atharva M. Kapote	31	30	27	37	27	28	29	26	38	23	296
17	Mrunmayee Nitin Moghe	49	43	39	39	34	41	35	36	39	32	387
18	Aditya Nene	46	32	28	38	28	40	28	27	35	35	337
20	Anusha Patil	42	39	23	35	36	31	38	34	33	17	328
21	Sai Yuvraj Patil	48	42	27	21	36	41	30	43	24	18	330
22	Tejas M. Pote	45	35	28	33	32	34	27	31	35	25	325
23	Akshata U. Sakhalkar	45	36	25	38	33	36	32	38	32	20	335

24	Ishan Amod Sane	47	40	28	42	25	37	38	36	43	30	366
25	Atharva D. Shetty	46	34	29	38	32	39	30	30	30	25	333
26	Pranita Sudarshan Shetty	48	30	33	44	35	50	40	39	41	23	383
27	Yash Taware	49	43	28	37	32	42	32	39	46	25	373
29	Mrunmayee Waykar	40	40	26	42	30	41	40	30	41	30	360
30	Kinnari Abhyankar	48	42	33	44	28	33	39	33	45	36	381
31	Tanvee Achyut	45	41	24	45	30	32	46	33	41	23	360
32	Anjali Angadi	53	27	26	43	35	37	36	42	38	20	357
33	Sankarshan Baddar	48	32	29	36	31	39	39	37	42	27	360
34	Niranjan Vinayak Bhilare	45	35	30	37	29	37	35	33	33	20	334
35	Anisha Gangakhedkar	49	35	28	44	34	36	42	37	37	24	366
36	Isha Gharpuray	42	42	31	30	34	41	41	40	33	32	366
37	Arya Jayant Gijare	44	35	41	41	30	40	35	42	31	34	373
38	Shruti Gore	46	40	37	49	39	41	33	41	52	34	412
39	Preshit S. Gujar	45	34	28	35	31	41	38	35	33	31	351
40	Ajinkya Suhas Jadhav	47	32	33	41	35	39	35	40	38	28	368
41	Mayuresh Atul Joshi	44	38	32	45	31	41	33	40	44	32	380
42	Bhargavi Kulkarni	50	42	32	37	28	39	32	38	37	30	365
43	Piyush P. Lachake	39	25	27	30	37	32	37	29	35	31	322
44	Tanaya Moholkar	48	40	21	28	28	28	41	28	27	13	302
45	Kinjel Sandeep Mutha	36	44	31	32	32	45	33	37	35	23	348
46	Anushkka Patil	37	31	23	40	24	29	31	30	36	25	306
47	Aniket S. Pattanshetty	42	32	23	36	35	34	40	31	24	20	317
48	Anushkaa Pawar	48	39	37	51	27	49	43	38	34	28	394
49	Varsha Ashish Phadke	48	37	29	43	28	36	38	32	43	29	363
50	Arya Riswadkar	43	42	30	41	32	34	33	38	39	28	360
51	Aniruddha K. Salunkhe	43	34	30	43	27	31	33	29	38	29	337
52	Chitra Sathe	44	32	33	40	26	38	38	37	42	32	362
53	Sakshi H. Savant	41	33	29	39	30	36	35	34	33	27	337
54	Hrithika Prakash Shetty	43	43	24	33	28	34	35	26	38	20	324
55	Sonali Rajeev Shrivastava	54	43	36	42	33	42	36	41	36	26	389
56	Shaunak S. Sindgi	47	35	36	48	29	41	37	33	44	35	385
57	Anuja Sandip Sonawane	40	45	31	46	29	36	36	35	35	24	357
58	Neha V. Tavargiri	43	41	37	42	28	46	36	36	45	35	389
59	Krutika D. Thakare	37	42	31	38	28	38	39	31	34	30	348
60	Shweta R. Tripathi	42	37	32	35	25	36	38	31	33	27	336

Sahyadri National School, Warje

Jupiter		**Life Skills**										
Roll No.	**Name of Students**	**(A)**	**(B)**	**(C)**	**(D)**	**(E)**	**(F)**	**(G)**	**(H)**	**(I)**	**(J)**	**Total**
1	Kunal A. Bafna	29	29	29	33	21	26	35	25	35	25	287
2	Pratik R. Bobade	37	33	24	24	22	31	33	36	41	27	308
3	Nidhi Chandaliya	45	35	27	45	31	32	32	35	34	23	339
4	Atharva Sachin Chaudhari	45	37	27	40	28	40	33	28	31	16	325
5	Shuham Deepak Dalvi	38	38	32	44	32	36	35	32	30	19	336
6	Vishal Dinesh	41	35	28	38	29	38	37	36	38	23	343
7	Kedar M. Dudhal	41	39	30	39	33	43	40	39	36	20	360
9	Sourav G. Ganjare	34	42	24	46	26	43	32	39	36	20	342
10	Karishma Ashok Gautam	36	39	28	34	24	34	39	24	37	31	326
11	Udaylal Patel	28	36	27	31	26	30	26	31	38	27	300
12	Shruti M. Gurav	41	37	36	47	27	44	36	36	41	29	374
13	Advait S. Hagawane	33	33	39	44	29	45	38	31	42	26	360
14	Sakshi R. Kalyankar	47	40	33	44	35	38	40	42	42	25	386
15	Shreyas Sampat Khaire	45	31	33	38	31	41	35	33	42	28	357
16	Rajendra J. Khawas	40	39	24	37	28	37	43	30	38	23	339
17	Mayuri C. Kodmankar	38	38	36	42	32	31	32	36	40	31	356
18	Vedant M. Kondalkar	37	35	26	40	29	44	31	32	34	19	327
19	Anurag S. Kumawat	36	41	31	45	27	35	39	34	34	27	349
20	Mayuresh Vishnu Kumkar	44	37	26	39	27	36	31	31	37	25	333
21	Heramb R. Mane	41	36	32	45	24	37	43	28	34	19	339
22	Kalyani Shivaji Mane	54	46	39	44	31	42	39	42	33	25	395
23	Aniket B. Manjare	51	39	38	44	32	42	42	29	43	33	393
24	Sakshi Manoj More	41	46	28	45	28	42	39	39	37	16	361
25	Prathamesh Rajendra Nandre	44	36	30	43	27	37	38	39	40	24	358
26	Rohit K. Parihar	39	35	24	27	24	38	33	35	35	24	314
27	Dhanashree Sanjay Patil	52	42	35	45	30	45	43	43	33	16	384
28	Rithika Ajay Pillai	43	46	34	45	30	36	38	36	45	25	378
29	Arjunsingh G. Rajpurohit	45	39	30	40	29	38	36	31	38	25	351
30	Ravina Hirasing Rajpurohit	37	37	42	46	30	36	38	29	44	36	375
31	Prasad Rajeev Ranpise	39	43	26	39	29	37	28	35	34	18	328
32	Santosh Shankar Rathod	45	38	34	47	33	47	36	40	39	28	387
33	Sakshi Raut	50	45	29	40	37	45	43	45	36	27	397

34	Saurabh B. Rohokole	39	33	27	34	23	36	34	31	37	31	325
35	Ritu Suresh Sahani	38	36	32	39	33	38	34	30	34	26	340
36	Shreepad C. Sherkar	43	32	25	39	27	36	37	40	41	25	345
37	Mansi Pravin Shingade	40	41	27	32	26	39	38	38	27	22	330
38	Prathamesh P. Sonar	45	38	33	42	32	43	35	36	36	24	364
39	Lokendra Suthar	30	40	26	40	32	37	30	38	33	15	321
40	Kishan Mani Tiwari	40	36	38	32	33	41	43	42	36	25	366
41	Vaibhav Laxman Tonde	39	45	37	43	28	32	37	36	37	27	361
42	Vedprakash Gajendranath Yadav	33	33	35	37	23	31	36	29	35	31	323

Venus		**Life Skills**										
Roll No.	**Name of Students**	**(A)**	**(B)**	**(C)**	**(D)**	**(E)**	**(F)**	**(G)**	**(H)**	**(I)**	**(J)**	**Total**
1	Harsh Mohan Agrawal	48	37	32	46	33	41	35	37	38	24	371
2	Siddhi Tushr Awate	49	40	35	47	30	37	40	40	41	30	389
3	Rugved V. Bane	38	40	33	40	31	33	31	31	31	25	333
4	Anushka Vijay Barate	49	34	27	42	28	35	38	36	36	20	345
5	Gauri T. Bhatia	34	42	33	39	28	37	41	33	35	24	346
6	Shraddha Vikas Bhor	39	41	41	38	31	42	39	35	33	30	369
7	Anagha Anil Bhosale	37	37	35	44	29	37	40	38	39	34	370
8	Divya Deepak Bhosale	41	41	39	42	30	43	44	35	43	30	388
9	Manajiri Chavan	42	29	32	40	26	36	40	25	34	25	329
10	Shantanu Santosh Chorage	48	36	28	43	30	43	36	37	34	25	360
11	Shrivatsa Sheshadri Desai	49	36	33	42	28	44	39	39	41	25	376
12	Trupti Rajendra Deshmukh	35	43	21	26	29	36	33	26	31	20	300
13	Samruddhi D. Dhamale	48	37	30	37	27	40	37	35	39	31	361
14	Aishwarya Dhole	44	38	28	35	29	34	37	32	37	23	337
15	Sahil Dilip Dhumal	47	37	30	40	32	39	42	36	39	29	371
16	Abhinandan A. Gaikwad	51	45	36	39	36	49	38	44	33	22	393
17	Atharva Vijay Gaikwad	38	46	35	35	35	24	34	35	40	27	349
18	Venkatesh M. Ghadi	46	37	34	38	31	32	37	34	41	34	364
19	Shubham Subhash Jadhav	51	42	30	38	32	37	34	44	30	20	358
20	Anam H. Jamdar	50	42	34	39	33	42	40	36	35	25	376
21	Yashraj b. Kadam	41	36	33	48	34	41	34	35	35	26	363
22	Shreyash M. Kadlag	42	39	39	48	29	41	40	37	47	29	391

23	Baljot Koor Kambow	44	37	23	44	35	44	37	42	25	16	347
24	Bhakti Maruti Kindre	44	34	33	35	28	34	43	32	34	32	349
25	Utkarsha Umesh Magar	33	42	19	32	18	28	29	28	37	29	295
26	Abhiraj S. More	42	27	34	37	31	33	36	38	35	22	335
27	Atharva Shekhar More	38	35	32	38	30	37	29	36	35	24	334
28	Atharv Shivaji More	50	45	36	39	36	49	39	44	36	21	395
29	Shrusti U. More	43	34	38	42	29	30	42	38	41	27	364
30	Deven Santosh Nalawade	42	36	26	44	26	29	31	30	31	20	315
31	Siddhi Navnatha Nalawade	48	40	40	46	27	43	42	43	50	27	406
32	Anurrita Abhay Namjoshi	47	38	37	48	31	40	42	41	47	35	406
33	Atharv V. Nangare	44	27	27	37	28	33	35	34	43	36	344
34	Manashree S. Nikesar	45	45	30	37	28	45	36	31	37	25	359
35	Hrushikesh Udhav Panchal	49	38	35	37	34	42	35	39	37	22	368
36	Rutuja S. Pasalkar	43	36	28	37	28	38	36	39	30	19	334
37	Sahil Sunil Patekar	52	32	30	37	38	39	38	34	36	34	370
38	Kamesh Ramesh Pathrot	49	38	21	34	34	37	33	37	30	28	341
39	Shubham Vijay Phadtare	46	39	32	49	31	41	44	33	38	34	387
40	Anurag Anil Pillai	45	38	37	44	29	46	42	39	41	28	389
41	Bhagyashree Ravindra Shetty	50	43	33	46	31	38	40	41	32	27	381
42	Aditya S. Shilimkar	44	36	33	41	31	39	43	39	43	20	369
43	Pratik B. Shinde	41	37	27	33	31	32	37	35	35	18	326
44	Sharvin Rajesh Tagunde	44	37	36	42	29	42	39	39	35	37	380
45	Siaanesh S. Tagunde	41	41	38	42	33	45	38	38	38	27	381
46	Shivani Tambe	44	43	30	46	24	33	25	31	45	30	351
48	Liya Lalan Thomas	47	49	44	50	38	49	45	43	38	33	436
49	Kaushik H. Tike	50	40	24	43	17	37	32	29	40	24	336
50	Adnan R. Tamboli	43	35	30	41	25	42	43	39	39	33	370

Bharatiya Vidya Bhavan Paranjape Vidya Mandir, Karve Nagar

Rigveda		**Life Skills**										
Roll No.	**Name of Students**	**(A)**	**(B)**	**(C)**	**(D)**	**(E)**	**(F)**	**(G)**	**(H)**	**(I)**	**(J)**	**Total**
1	Rohan	49	48	39	49	31	37	37	38	42	31	401
2	Ishan	42	37	28	47	34	34	38	33	40	35	368
3	Aditya	46	36	24	31	30	39	31	40	28	20	325
4	Sudharm	46	33	29	44	27	38	42	38	36	27	360
5	Kedar	45	39	20	41	31	37	31	29	37	20	330
6	Sharva	46	41	33	45	30	47	37	38	39	29	385
7	Swapneel	40	34	38	36	25	29	41	26	41	33	343
8	Atharva	30	40	32	35	25	33	42	31	35	25	328
9	Prithviraj	48	39	32	41	34	42	41	42	39	27	385
10	Akhilesh	48	42	35	43	35	39	43	35	39	26	385
11	Sohum	41	39	31	44	32	43	36	42	31	24	363
12	Ruturaj	34	39	31	36	26	40	43	30	39	24	342
13	Omkar	44	34	32	48	30	44	39	38	41	38	388
14	Saurabh	42	27	29	45	27	39	40	34	43	32	358
15	Chirag	44	38	35	44	29	41	36	33	36	25	361
16	Ishan	42	35	41	36	33	36	36	31	48	30	368
17	Swanand	40	34	36	40	37	38	43	40	25	23	356
18	Harsh	49	36	41	46	36	40	40	33	42	25	388
19	Suyash	41	44	34	44	31	44	33	37	40	26	374
20	Sahil	42	31	21	42	26	37	32	25	30	27	313
21	Sohan	42	34	19	43	30	29	37	33	32	36	335
22	Nupur	48	39	33	42	35	47	46	41	44	33	408
23	Poorvi	35	41	24	26	28	33	32	28	25	15	287
24	Ankita	32	40	29	25	27	39	28	29	27	24	300
25	Lavanya	41	35	37	43	28	28	34	37	44	28	355
26	Esha	39	27	28	46	27	40	39	30	42	29	347
27	Anisha	38	29	26	31	24	25	37	25	38	27	300
28	Shriya	50	46	37	44	27	42	39	37	45	29	396
29	Aabha	44	47	34	40	38	35	48	40	40	33	399
30	Palvi	47	39	19	31	29	34	36	34	28	23	320
31	Ishwari	41	43	33	30	30	36	28	33	32	30	336
32	Shriya	39	35	30	38	22	27	33	28	36	38	326
33	Tanaya	46	39	33	35	23	29	27	31	36	29	328
34	Rutuja	46	38	30	39	33	40	39	37	34	25	361
35	Gargi	40	45	38	46	24	40	35	31	40	36	375
36	Vedashree	44	43	34	47	29	39	41	39	37	25	378
37	Rujuta	44	32	28	43	29	32	36	32	36	30	342
38	Jahnvi	49	38	22	40	35	29	30	31	32	20	326
39	Shalvi	39	35	30	38	28	35	41	33	44	32	355
40	Shivani	39	36	29	42	25	30	32	38	35	30	336

41	Hardi	40	35	40	38	30	36	39	32	43	34	367
42	Shifa	50	49	38	43	38	42	36	34	40	32	402
43	Medini	40	44	36	47	29	39	37	33	36	30	371
44	Shruti	40	41	31	47	31	40	35	39	35	29	368
45	Yuga	42	42	34	48	33	44	39	34	40	26	382
46	Ruchi	40	34	22	41	27	32	37	26	34	26	319
48	Vedika	45	39	31	43	32	41	36	34	45	29	375
49	Shrutika	54	43	25	40	36	34	37	41	38	24	372

Athar veda		**Life Skills**										
Roll No.	**Name of Students**	**(A)**	**(B)**	**(C)**	**(D)**	**(E)**	**(F)**	**(G)**	**(H)**	**(I)**	**(J)**	**Total**
1	Yash	47	44	31	35	29	42	37	37	31	24	357
2	Piyush	47	41	28	28	23	39	25	31	26	22	310
3	Rohan	43	31	29	39	31	38	38	33	41	28	351
4	Kunal	45	34	28	45	29	32	37	30	33	35	348
5	Vedant	50	44	32	44	35	45	39	39	41	36	405
6	Tanmay	41	38	33	47	27	41	43	32	39	25	366
7	Abhishek	37	35	13	35	31	35	35	30	32	18	301
8	Ashutosh	43	42	25	35	24	31	35	27	40	26	328
9	Amey	41	32	30	45	28	45	41	30	44	30	366
10	Anish	39	35	33	42	30	40	44	30	40	37	370
11	Atharva	38	35	26	40	29	38	32	31	34	23	326
12	Aditya	41	35	30	45	27	37	47	37	42	28	369
13	Varad	38	31	27	38	29	38	38	37	38	19	333
14	Yash	45	37	30	44	32	37	42	34	48	25	374
15	Atharva	40	36	23	37	23	33	34	28	34	33	321
16	Abhishek	35	35	29	41	29	39	34	26	29	23	320
17	Kunal	42	39	34	40	32	36	34	29	39	22	347
18	Rushi	38	39	33	36	21	36	41	34	36	29	343
19	Kaushal	41	37	35	43	28	37	40	37	41	28	367
20	Ishaan	30	37	30	40	36	31	37	30	45	32	348
21	Anuj	51	40	30	39	35	41	37	35	30	32	370
22	Shantanu	38	33	35	43	33	42	46	39	48	30	387
23	Sushant	30	37	36	43	31	39	41	32	39	25	353
24	Sumedh	32	38	26	39	31	41	28	32	38	34	339
25	Sanket	44	34	33	44	30	39	40	38	40	29	371
26	Ajinkya	49	45	33	38	28	36	41	35	38	30	373
27	Prathamesh	50	39	33	42	25	40	31	35	43	26	364
28	Siddhesh	35	28	35	45	26	35	40	30	45	29	348
29	Pradyumna	30	35	28	38	24	32	28	24	29	30	298
30	Varad	45	43	38	38	26	40	43	34	38	29	374

31	Rutwik	51	37	37	43	30	39	44	35	44	29	389
32	Raghavendra	42	40	36	37	30	36	33	31	41	26	352
33	Hrushikesh	41	47	25	36	31	40	38	29	35	19	341
34	Yash	42	40	30	41	26	32	39	31	43	29	353
35	Prayshee	38	36	34	36	35	44	34	36	30	31	354
36	Srushti	45	37	24	45	27	36	37	33	25	18	327
37	Geeta	32	39	34	35	22	25	27	30	41	28	313
38	Vedangi	42	38	29	36	29	39	45	33	42	32	365
39	Rutvi	36	36	23	39	28	43	34	32	39	31	341
40	Sakshi	40	31	28	40	22	26	33	27	40	31	318
41	Yashaswi	42	42	35	42	31	41	39	38	39	29	378
42	Aditi	41	38	26	40	29	39	41	37	41	27	359
43	Vidula	45	40	27	39	30	43	42	35	38	27	366
44	Manori	23	39	33	28	22	37	36	23	35	33	309
45	Shivali	35	39	29	37	33	43	33	34	39	25	347
46	Avani	52	43	25	42	33	52	45	36	43	26	397
48	Kimaya	42	40	33	44	22	33	32	40	33	26	345
49	Shatakshi	48	37	26	45	20	36	34	34	43	35	358
50	Arpita	49	36	23	48	34	44	36	38	32	31	371
51	Manasi	36	30	30	41	19	25	39	36	46	30	332
52	Tanvi	43	38	30	39	24	32	32	35	46	29	348
53	Archana	46	44	36	34	27	37	36	32	43	24	359

Padmashree Dr. D.Y. Patil Public School, Pimpri

Div B	Life Skills											
Roll No.	**Name of Students**	**(A)**	**(B)**	**(C)**	**(D)**	**(E)**	**(F)**	**(G)**	**(H)**	**(I)**	**(J)**	**Total**
1	Sharon Sam Abraham	37	44	27	39	30	31	31	22	28	21	310
2	Arpita Anandraj Birajdar	37	43	35	37	28	28	38	38	37	25	346
3	Lalita Sunil Borkar	45	46	34	43	29	33	47	38	35	32	382
4	Sakshi Kumar Dolwani	38	43	32	39	23	42	38	27	43	29	354
5	Ketki Kiran Gaikwad	41	40	23	39	32	38	36	29	33	19	330
6	Preshita D. Ingale	37	48	37	38	32	40	41	35	30	24	362
7	Shreya R. Kadam	43	39	33	40	32	42	36	35	35	33	368
8	Sakshi Mahesh Karande	49	39	33	46	31	34	35	35	36	26	364
9	Shrutika M. Landge	43	43	30	39	32	33	39	24	37	25	345
10	Prajakta A. Lavale	44	37	29	36	35	38	35	30	36	32	352
11	Tanusha Ramesh Moolya	41	38	29	36	27	38	42	31	39	25	346
12	Riya Raejsh Motwani	44	31	27	38	31	33	33	38	28	18	321
13	Roshani Motwani	36	32	30	42	24	34	37	32	41	27	335
14	Snehal R. Musale	43	35	25	38	27	31	39	36	36	22	332
15	Vashnavi Balasaheb Pokharkar	38	33	29	35	25	29	41	29	35	15	309
16	Sadiya Mustafa Shaikh	30	43	28	33	28	28	33	31	38	26	318
17	Ankita H. shelke	39	45	31	43	33	33	39	32	37	22	354
18	Yashika Ravindrasingh Thakur	45	29	32	30	31	40	41	37	35	24	344
19	Rishita Uday waghere	41	35	27	35	24	33	44	5	34	24	302
20	Sarthak Badve	32	40	28	35	19	34	37	32	27	22	306
21	Karan M. Bendre	47	47	29	45	27	41	39	39	33	16	363
22	Mayuresh Pravin Bhatkar	42	42	27	35	28	42	36	35	33	19	339
23	Atharva D. Chaphalkar	43	43	28	32	35	36	35	34	33	30	349
24	Akash Choudhary	37	39	25	36	23	44	28	29	34	17	312
25	Shivaji D. Dherange	33	33	31	46	29	42	36	37	40	14	341
26	Rohan M. Gaikwad	42	40	33	33	24	26	31	34	31	28	322
27	Shivjeet A. Ingawale	33	37	34	35	25	29	33	34	39	25	324
28	Sameer Rajendra Jawale	41	33	34	39	27	38	36	31	39	33	351
29	Chinmay Kamble	45	34	24	40	29	36	31	24	31	22	316
30	Atharva Girirsh Kulkarni	40	41	26	36	31	39	27	25	22	20	307
31	Piyush H. Kulkarni	35	41	30	42	23	27	27	36	37	32	330

32	sudarshan More	46	42	19	43	33	40	38	31	36	26	354
33	Rohan K. Nikalije	42	31	25	34	28	32	36	31	31	30	320
34	Hansmukhlal Parmat	38	23	32	31	21	34	34	20	28	20	281
35	Amaldev Pillai	46	35	36	37	27	43	35	30	41	31	361
36	Saikrishna Bhargavan Pillai	30	33	31	33	30	40	34	33	36	27	327
37	Kartik R. Ramaswamy	37	21	16	39	25	38	38	32	37	29	312
38	Ravi Ravanth	34	38	29	32	38	29	37	29	37	23	326
39	Aman Shahid Sayyed	38	43	31	38	24	31	34	25	36	25	325
40	Aman Ayub Shaikh	36	37	26	32	3	35	35	27	33	23	287
41	Zeeshan Aziz Shaikh	51	36	24	39	36	45	42	42	40	25	380
42	Bhavesh Sonawane	40	37	30	31	29	32	31	32	32	21	315
43	Arvind Arjun Tamatta	39	43	29	33	35	29	31	31	33	22	325
44	Owais J. Tamboli	41	24	38	31	25	34	36	29	34	30	322
45	Sheetej Prakash Tirodkar	43	42	31	31	36	49	43	25	39	24	363
46	Swaraj V. Tirunahari	49	40	28	46	35	43	42	41	33	21	378
47	Ismai H. Vohra	31	34	31	40	34	36	41	36	34	20	337

Div A	**Life Skills**											
Roll No.	**Name of Students**	**(A)**	**(B)**	**(C)**	**(D)**	**(E)**	**(F)**	**(G)**	**(H)**	**(I)**	**(J)**	**Total**
1	Kajol N. Agarwal	46	37	32	47	31	34	30	29	44	26	356
2	Akshada Dani	51	36	30	30	30	41	43	33	36	28	358
3	Samiksha S. Dhadve	37	33	29	36	23	32	34	30	45	28	327
4	Akanksha D. Jadhav	41	37	20	41	27	35	36	30	35	26	328
5	Sanjana Santosh Jadhav	47	40	36	48	33	41	32	35	48	34	394
6	Ritika Deepak Jethwani	50	36	37	38	32	36	44	36	30	30	369
7	Mayuri A. Kamble	39	34	26	37	32	33	34	35	38	20	328
8	Yukta Sandeep Kamble	35	43	19	47	36	39	37	33	33	14	336
9	Gauri Ajay Kankrej	46	36	36	39	34	38	40	32	44	32	377
10	chaitali Prashant Kolhe	41	30	36	45	36	44	45	32	36	32	377
11	Rhea K. Matkar	46	39	36	45	35	46	44	35	43	30	399
12	Rashmi Prashnt	41	39	31	42	28	33	34	28	34	25	335

	Nikam											
13	Sabina Salim Pathan	38	43	32	48	28	38	33	39	38	27	364
14	Safiyyah S. Shaikh	40	37	20	41	29	35	30	33	32	22	319
15	Yukta Manoj Tandon	32	32	29	33	26	36	39	23	42	22	314
16	Siddhi Mahesh Wayal	37	41	35	34	29	43	37	37	31	22	346
17	Shrushti S. Zagade	49	37	17	35	33	53	49	33	32	37	375
18	Shivam V. Agrawal	41	29	24	34	31	29	31	17	40	35	311
19	Ravin B. Aauji	31	40	29	29	22	37	38	29	43	30	328
20	Dinesh B. Choudhary	39	43	27	31	28	42	41	31	41	28	351
21	Abhishek Sanjay Chougule	34	43	40	41	29	35	35	31	38	26	352
22	Parth V. Darekar	37	37	31	35	24	31	39	29	37	20	320
23	Sarthak Arvind Demgunde	36	33	32	38	30	29	31	34	31	24	318
24	Swaraj S. Etane	33	38	36	36	27	35	34	26	23	25	313
25	Bhavesh P. Gaikwad	40	31	29	33	26	34	38	30	41	31	333
26	Pratham P. Gavhane	47	46	28	38	39	43	41	40	33	12	367
27	Rushikesh Shivaji Gavali	37	43	27	38	25	42	32	30	30	18	322
28	Yogesh Anil Godse	41	41	30	41	34	38	38	37	27	19	346
29	Shreyas Ramdas Gunjal	43	34	36	32	34	35	35	32	39	29	349
30	Atharva Hande	48	44	36	49	31	39	42	41	40	27	397
31	Niyaz Farukh Inamdar	36	34	29	38	24	35	37	33	42	30	338
32	Siddharth D. Jundhare	36	35	22	35	24	35	40	29	32	29	317
33	Adita S. Kolapkar	40	35	30	39	27	39	33	31	32	23	329
34	Chetan Kulkarni	40	33	30	41	28	32	33	32	39	26	334
35	Anurag S. Mohite	35	32	25	29	28	30	33	25	28	29	294
36	Shoaib Shaikhala Mulani	48	42	19	40	33	42	42	34	30	11	341
37	Jaideep S. Munjugade	42	36	28	46	29	33	22	38	34	17	325
38	Sanket R. Nampurkar	39	42	32	40	33	41	36	39	40	25	367
39	Idris Saifuddin Pandharpurwala	40	38	26	43	30	38	36	37	35	19	342

40	Aniket Jagdish Pardeshi	40	44	27	41	28	28	33	32	30	19	322
41	Chirayu Ravindra Patil	27	33	35	35	31	41	45	32	45	40	364
42	Nikhil Ramesh Pawar	32	36	40	38	21	37	42	31	45	34	356
43	Aditya Vivek Sabale	39	41	25	45	28	36	35	39	40	20	348
44	Adish Dinesh Shah	41	40	37	41	26	39	38	34	31	29	356
45	Adarsh S. Shahi	30	42	29	31	24	33	33	24	43	21	310
46	Saurabh Dattaatray Sonawane	41	39	25	39	27	37	33	41	35	13	330
47	Pratik R. Surve	38	37	36	41	28	34	31	31	43	18	337
48	Moasef M. Thorpe	36	34	28	36	31	42	33	37	31	19	327

Div C	**Life Skills**											
Roll No.	**Name of Students**	**(A)**	**(B)**	**(C)**	**(D)**	**(E)**	**(F)**	**(G)**	**(H)**	**(I)**	**(J)**	**Total**
1	Ashwati Vinayan	34	35	31	42	27	37	29	25	40	24	324
2	Mansi R. Alandkar	45	36	33	45	25	44	35	34	38	33	368
3	Sakshi Yogesh Alhat	46	40	35	40	43	33	33	39	33	33	375
4	Shahana Jilani Baig	44	36	29	51	29	36	37	38	33	22	355
5	Prachi N. Bakare	51	39	40	45	34	49	33	45	49	36	421
6	Gauri Vijay Bhosale	37	37	34	41	34	30	36	29	31	14	323
7	Triveni G. Borkar	55	45	33	41	35	43	44	43	31	26	396
8	Shruti Mahesh Borse	42	38	33	36	29	33	38	28	37	29	343
9	Megha Sandeep Gadgil	36	30	32	41	29	41	38	32	33	26	338
10	Akshita Nagendra Jamadar	45	42	31	49	31	43	29	33	37	19	359
11	Siddhi Manish Karkera	37	32	22	28	21	31	37	28	39	27	302
12	Neha P. Lohar	34	34	33	41	26	28	39	32	39	24	330
13	Fatima Mir	41	38	26	27	28	36	35	29	33	27	320
14	Shreya Sunil Omergekar	55	38	37	44	36	46	38	37	38	36	405
15	Mukta Suresh Pawar	45	36	30	37	25	43	29	26	36	15	322
16	Pradnya Prakash Rokade	50	43	31	46	31	40	37	38	36	23	375
17	Pooja	41	39	37	43	36	37	44	43	40	33	393

	Rameshchandra Saini											
18	Khushi Ashok shedge	41	40	23	27	32	27	33	36	29	13	301
19	Adnan Zakir Attar	42	38	31	40	28	39	33	34	38	30	353
20	Gautam Avinash Bavadekar	45	29	27	39	27	40	32	36	35	21	331
21	Prasad Shyam Bhalekar	50	49	34	48	32	36	35	35	36	27	382
22	Tushar Nitin Bhansali	44	42	22	42	24	42	39	23	40	35	353
23	Sumit P. Bole	42	34	28	31	29	37	34	40	31	19	325
24	Pratik Dilip Chavan	47	35	31	33	30	38	38	35	34	23	344
25	Chirag Suresh Choudhary	41	35	30	34	32	33	29	33	31	14	312
26	Pradeep Ashok Choudhary	37	42	28	42	28	35	32	27	35	23	329
27	Pavan Deore	30	34	32	38	30	35	43	32	35	28	337
28	Sahil Dhingra	48	37	37	36	37	34	44	36	45	24	378
29	Omkar Gunesh Dixit	45	33	25	34	22	36	35	30	32	26	318
30	Om Sujit Ekhe	38	43	32	39	29	41	34	37	34	34	361
31	Shashank Ghadi	34	41	29	43	30	35	35	27	33	24	331
32	Shreyash M. Jadhav	40	40	29	36	29	37	33	32	39	24	339
33	Atharv Sunil Jaid	49	42	28	34	30	34	41	40	35	26	359
34	Swapnali K. Khude	37	37	27	34	27	41	34	27	37	22	323
35	Ashutosh Ravindra Landge	50	39	34	34	28	37	36	31	34	27	350
36	Nitin C. Lavhate	42	33	22	33	25	29	35	33	35	20	307
37	Uzair Yunus Makhdoom	40	37	38	29	39	29	28	32	39	23	334
38	Ritik Umesh Matere	43	33	23	40	28	29	29	29	37	19	310
39	atharva A. Mhasawade	42	39	31	35	32	40	33	33	28	15	328
40	Lalu Kumar Nair	34	42	31	38	27	41	34	34	35	32	348
41	Kishan Sagar Pardeshi	33	31	26	33	25	45	35	24	35	19	306
42	Ruthik Dillip Pokharkar	40	38	33	34	32	38	39	33	40	20	347
43	Hitesh P. Rajpal	43	41	23	32	29	35	35	42	29	14	323
44	Nishant Rajule	32	33	29	32	23	33	37	29	28	30	306
45	Adnan E. Shaikh	31	27	40	33	28	32	29	28	35	30	313
46	Ayush Shetty	45	40	22	29	29	32	33	36	23	15	304

47	Sajid Sameer Shikalgar	46	32	24	35	35	39	35	38	24	15	323
48	Mousam Shailesh Singh	40	32	31	41	27	40	43	42	44	33	373
49	Shrinivas Sureban	47	30	27	38	31	42	40	33	37	20	345
50	Bharat T. Sutar	25	32	24	27	27	33	26	24	34	26	278

Guru Nanak Public School, Hadapsar

Div A	**Life Skills**										
Roll No.	**Name of Students**	**(A)**	**(B)**	**(C)**	**(D)**	**(E)**	**(F)**	**(G)**	**(H)**	**(I)**	**(J)**	**Total**
1	Tejasvi Ramesh Bhise	43	41	38	44	29	35	39	25	32	22	348
2	Simarjeet Kaur Daroch	35	40	26	38	28	39	36	39	39	27	347
3	Shrushti Ghumatkar	37	36	32	32	33	37	35	31	38	18	329
4	Tapashvi V. Jambhale	38	49	34	42	29	41	41	40	42	26	382
5	Ashmeen Kaur Kochhar	40	38	23	35	29	35	35	35	31	15	316
6	Dhruvi D. Patil	36	38	32	31	33	37	37	31	34	17	326
7	Siddhi Ramdas Rajbhoj	49	48	36	35	37	35	31	31	32	23	357
8	Anas Ansari	49	40	25	41	26	33	42	35	32	18	341
9	Atharva Badhe	35	37	31	35	32	32	35	33	27	32	329
10	Pranav Bhapkar	36	36	27	32	32	33	42	29	37	24	328
11	Sai V. Channaram	35	40	28	27	22	31	39	23	37	26	308
12	Prabhjas Singh Hora	45	38	30	39	24	33	40	33	28	23	333
13	Aniket Dhiresh Jadhav	37	36	32	43	27	39	37	38	36	20	345
14	Rishi Rajesh Jangira	37	37	32	45	27	36	39	39	37	26	355
15	Sunny V. Kuvvarapu	37	32	33	34	22	34	39	25	33	38	327
16	Dhiraj Pardeshi	43	40	37	40	38	44	35	34	36	26	373
17	Trilok Pardeshi	47	33	27	34	21	32	42	34	32	24	326
18	Harsh Rahul Pingale	39	28	31	29	26	32	32	29	32	26	304
19	Baljeet Singh Rajpal	43	31	24	35	21	27	36	34	31	27	309
20	Sai kishor Rosala	34	41	23	37	35	38	34	31	27	22	322
21	Saheb Singh Rathore	46	38	36	41	33	40	36	31	36	25	362

22	saurabh Shivakant Shukla	36	31	26	32	31	35	38	32	30	21	312
23	Taranjot Singh Khurana	46	38	33	35	25	39	35	31	38	26	346
24	Avadesh singh	47	32	22	34	33	37	43	36	30	33	347
25	Tanishq M. Yadav	28	33	26	29	25	33	33	19	37	26	289

Dyanganaga English Medium School, Sinhgad Road

Div A	**Life Skills**										
Roll No.	**Name of Students**	**(A)**	**(B)**	**(C)**	**(D)**	**(E)**	**(F)**	**(G)**	**(H)**	**(I)**	**(J)**	**Total**
1	Amin Kavita	27	37	28	25	23	30	36	20	30	27	283
2	Ashtekar Apurva	40	35	31	36	29	34	40	30	30	27	332
3	Bari Akshaya	38	37	26	35	23	36	35	28	36	25	319
4	Darwatkar Vaishnavi	37	36	28	37	28	39	30	36	34	20	325
5	Deshpande Apoorva	45	40	24	37	32	34	36	34	32	22	336
6	Deshpande Renuka	35	36	22	31	28	30	29	34	35	29	309
7	Dhamale Apurva	29	37	22	34	33	27	22	26	29	23	282
8	Gaitonde Shreya	34	39	22	40	25	31	30	26	41	22	310
9	Gunjal Aditi	51	42	34	45	37	41	37	38	45	28	398
10	Joshi Renuka	45	46	24	38	27	32	35	36	33	25	341
11	Kale Sanskruti	41	33	26	32	24	32	38	31	38	30	325
12	Kamble Vaibhavi	50	28	29	39	30	34	41	34	41	29	355
13	Mhasawade Radhika	40	36	25	23	21	28	35	27	36	22	293
14	Munagekar Sukesha	50	39	31	45	33	40	38	42	42	27	387
15	Narkar Isha	39	39	24	37	35	38	41	31	40	17	341
16	Potdar Sanjana	40	41	30	31	34	38	36	30	31	28	339
17	Puntambekar Yashita	37	37	31	39	30	44	35	40	27	25	345
18	Raut Manasi	46	38	26	43	27	36	39	32	38	25	350
19	Sarode Ketaki	50	40	36	45	36	36	37	35	49	29	393
20	Tandalekar Sneha	36	39	28	39	27	36	35	34	31	23	328
21	Tilak Shruti	40	38	30	37	25	36	33	28	36	26	329
22	Bhandwalkar Rutik	39	40	28	29	29	39	31	36	21	24	316
23	Birnale Sahil	40	42	28	33	23	35	37	24	32	26	320
24	Deshpande Ajinkya	25	30	30	25	20	27	29	22	36	29	273
25	Jagtap Nishant	35	42	22	42	26	29	32	30	31	24	313
26	Kadam Amey	41	40	26	42	35	42	36	36	44	35	377

27	Kale Ved	49	34	34	40	35	34	35	33	41	29	364
28	Moolya Abhishekh	44	42	32	38	32	39	30	37	27	15	336
29	Mulay Pranav	37	40	25	36	37	32	30	21	27	29	314
30	Pathak Abhishek	37	33	27	31	32	34	30	20	28	19	291
31	Polekar Ayush	34	37	22	31	26	36	37	26	34	22	305
32	Rayaguru Deepak	46	35	30	44	28	35	31	35	30	29	343
33	Renuse Ujwal	32	30	27	31	23	29	40	30	33	27	302
34	Salunke Siddhant	43	41	26	42	29	34	28	30	24	13	310
35	Sarode Kaivalya	37	39	28	36	24	35	36	25	35	30	325
36	Shirolkar Ameya	42	36	30	37	21	39	33	35	36	28	337
37	Sonar Prithvi	28	29	27	33	23	37	38	30	23	18	286
38	Tapaswi Alok	33	33	28	29	22	27	37	29	31	22	291
39	Tharwal Ishan	38	33	29	29	24	35	40	37	40	33	338
Div B	**Life Skills**											
Roll No.	**Name of Students**	**(A)**	**(B)**	**(C)**	**(D)**	**(E)**	**(F)**	**(G)**	**(H)**	**(I)**	**(J)**	**Total**
1	Parachi R. Bharne	51	38	33	47	27	40	34	38	34	25	367
2	Shruti Choure	34	38	32	41	29	39	40	31	38	29	351
3	Samruddhi Sanjay Desai	47	45	33	48	33	39	32	38	38	32	385
4	Neha Shantaram Deshmukh	49	40	27	46	34	38	36	41	39	27	377
5	Rachana Sanjay Gosavi	44	33	23	37	27	37	30	40	37	22	330
6	Tanvi Ingle	45	41	32	35	30	44	38	35	43	31	374
7	Samruddhi M. Jondhale	46	41	35	38	31	44	39	41	37	24	376
8	Yashashree Marathe	50	46	39	44	31	42	38	41	46	38	415
9	Vaishnavi Anil Pawar	43	40	31	33	21	32	35	32	43	25	335
10	Riddhi Bipin Shirgopikar	35	36	33	40	33	34	34	32	31	26	334
11	Atharva Ashtaputre	45	29	31	33	33	31	39	32	28	29	330
12	Sarang Vijay Chafle	39	42	27	34	32	40	40	30	34	24	342
13	Atharva Milind Dekhane	35	37	30	35	25	36	38	42	27	24	329
14	Sagar Kishor Deshpande	42	41	31	36	25	38	40	39	34	27	353
15	Sumedh S. Dharashivkar	42	41	39	39	27	36	40	29	41	35	369

16	Satyajeet Pravin Khenat	36	43	29	37	24	42	34	31	48	26	350
17	Neeraj Sanjay Mahindrakar	40	33	32	47	25	32	32	32	35	24	332
18	Atharva Umesh Savale	44	42	34	38	28	36	40	34	38	25	359
19	Yash Mayur Shah	38	43	36	44	31	43	43	38	39	37	392
20	Shantanu Ashok Velhal	44	34	35	36	27	34	38	32	46	32	358
21	Tanmay Zingade	36	45	31	38	26	34	36	32	42	35	355

Muktangan English Medium High School, Sahakar Nagar

Div B	**Life Skills**											
Roll No.	**Name of Students**	**(A)**	**(B)**	**(C)**	**(D)**	**(E)**	**(F)**	**(G)**	**(H)**	**(I)**	**(J)**	**Total**
1	Trupti Atul Dandgaval	40	43	31	31	29	32	31	34	27	22	320
2	Shweta S. Dhamale	45	34	37	38	31	37	40	38	39	26	365
3	Apoorva Nitin Durge	48	41	40	45	35	48	44	37	37	32	407
4	Aprita S. Gaikwad	47	36	29	41	32	39	34	39	36	21	354
5	Mansi Manoj Gogawale	41	34	31	38	27	33	34	29	44	33	344
6	Dnyaneshwari Sunil Gore	47	28	39	47	33	45	43	41	47	25	395
7	Riya Pankaj Gujarathi	42	34	24	36	34	35	36	36	43	29	349
8	Aakansha Vitthal Gunda	37	34	31	47	22	36	42	25	44	24	342
9	Aditi S. Inamdar	46	39	33	44	28	41	39	38	38	24	370
10	Anushka Anil Jagtap	53	40	37	46	36	41	45	41	51	35	425
11	Riya Rajendra Jalindre	41	37	30	46	28	41	39	36	36	28	362
12	Manasi Mahesh Kale	46	41	26	46	34	37	40	37	32	22	361
13	Tanaya S. Kale	43	44	25	50	29	38	34	35	37	14	349
14	Sakshi Rajesh Kamble	52	41	31	43	32	41	40	40	45	26	391
15	Pranjal Pravin Kandpile	39	38	31	43	31	42	40	30	41	32	367
16	Siddhi Vinayak Karpe	39	29	26	35	26	30	31	31	29	23	299
17	Sejal Sandeep Katke	46	41	19	48	22	36	35	32	38	26	343

18	Mitali Milind Khedkar	40	44	39	47	31	37	41	32	39	36	386
19	Vaishnavi Avinash Malekar	36	39	23	31	26	39	35	33	31	19	312
20	Komal Abhay Mohite	42	19	32	24	31	34	43	31	41	28	325
21	Vaibhavi S. Narawane	41	35	24	37	33	37	33	29	31	23	323
22	Nidhi Chandrashekhar Nehere	38	40	32	38	24	40	1	33	42	23	311
23	Shraddha S. Paigude	46	37	32	38	33	38	41	34	40	30	369
24	Sejal Ganesh Pardeshi	35	35	30	37	26	45	41	32	37	37	355
25	Kshitij S. Borhade	41	36	26	41	35	46	43	40	31	26	365
26	Rutik R. Chaturbhuj	38	36	26	34	25	40	29	29	34	20	311
27	Shreeshaliya R. Chavan	36	34	28	45	34	44	36	24	41	30	352
28	Samarth Rupesh Choudhary	41	32	37	45	27	33	39	34	44	36	368
29	Rutvik Umesh Darwatkar	39	45	29	37	37	36	32	34	36	25	350
30	Vedant Jitendra Deokule	46	38	29	41	33	50	42	42	42	28	391
31	Omkar M. Dhavale	37	35	25	36	38	47	40	29	27	21	335
32	Ritesh Gadre	39	39	30	52	33	36	36	33	34	22	354
33	Abhishek Vijay Gaikwad	40	35	31	42	29	46	47	41	38	36	385
34	Atharva Ram Gokhale	45	34	35	38	32	37	47	33	42	32	375
35	Suyog Sandeep Gole	40	33	32	49	27	39	47	33	41	34	375
36	Zaid Inamdar	47	34	25	31	32	43	33	34	31	14	324
37	Siddhesh P. Ingulkar	35	34	33	40	27	33	36	32	38	23	331
38	Karan P. Jadhav	36	33	28	29	31	39	33	27	32	27	315
39	Pratham Jagtap	44	43	28	37	29	34	28	41	32	20	336
40	Yugandhar C. Jagtap	35	33	30	45	28	33	33	32	25	33	327
41	Rushabh Jain	40	32	25	37	27	34	31	28	32	24	310
42	Mayank Sanjay Joshi	37	38	21	33	33	33	37	33	30	20	315
43	Sanjog Sham	39	40	26	42	29	33	36	32	40	26	343

	Kalantri											
44	Hrutvik G. Kale	44	35	26	34	34	29	32	33	32	22	321
45	Rohan R. Kamble	42	42	20	31	27	32	31	32	31	22	310
46	Kaivalya A. Kasbe	48	38	31	44	35	41	40	39	37	25	378
47	Atharva Ajay Kirkole	28	30	31	40	24	37	36	28	43	34	331
48	Saurabh S. Kodre	47	32	21	34	28	37	34	31	32	22	318
49	Yash Vijay Kondedeshmukh	41	38	32	43	27	42	34	34	35	31	357
50	Sahil Rahul Kondhare	31	32	30	35	31	43	34	24	34	28	322
51	Rohit Anil Kudale	49	39	32	35	31	36	33	37	38	25	355
52	Sushant Pramod Kudale	49	37	33	43	35	38	34	39	41	25	374
53	Parth Jayant Kulkarni	42	45	29	44	38	48	38	39	45	24	392
54	Saket Rajendra Kulkarni	46	36	34	44	37	34	38	32	45	23	369
55	Shubham R. Kulkarni	43	30	26	28	24	36	33	29	31	18	298
56	Mehul Sanjay Lalwani	35	37	31	35	32	44	35	33	31	16	329
57	Siddhant V. Mahajan	43	41	25	49	30	38	33	32	39	21	351
58	Sanket Rajendra Mahalpure	38	38	29	36	27	37	35	33	37	27	337
59	Aditya U. Mandhare	37	31	23	47	24	27	36	26	41	32	324
60	Yuvaraj Hanumant Marane	48	38	39	39	27	44	48	43	38	34	398
61	Krishna S. Marane	36	31	24	31	21	29	28	34	28	23	285

Div A	**Life Skills**											
Roll No.	**Name of Students**	**(A)**	**(B)**	**(C)**	**(D)**	**(E)**	**(F)**	**(G)**	**(H)**	**(I)**	**(J)**	**Total**
1	Sudiksha Vinayak Alandkar	49	38	28	43	32	47	47	34	30	29	377
2	Akanksha A. Asabe	48	43	31	33	36	41	36	33	29	15	345
3	Shivani Atul Bhinge	50	38	30	44	35	46	43	43	41	27	397
4	Gargi Ravindra Bhosale	33	36	25	44	27	26	38	27	36	26	318
5	Manasai Uttam Bhosale	48	36	36	44	30	42	47	39	37	23	382

6	Sakshi Dattatray Bhosale	51	38	31	42	33	42	37	43	39	28	384
7	Sakshi Ravindra Bhunde	45	36	34	41	26	42	40	39	40	30	373
8	Amisha Bharat Borana	43	44	40	42	32	38	43	38	26	25	371
9	Sakshi S. Chavan	37	34	19	43	21	32	35	36	26	22	305
10	Chaitrali Shirish Dabi	54	39	37	45	36	35	39	39	33	29	386
11	Isha Jitendra Deshpande	50	37	39	49	32	42	38	41	41	38	407
12	Aditi Deepak Dhumal	43	37	23	44	29	41	36	32	34	22	341
13	Siddhi Kisan Kale	42	42	30	38	28	35	34	29	40	24	342
14	Siddhi Lanke	47	46	39	41	29	38	44	35	37	33	389
15	Durva Kaustubh Mahajan	38	46	35	42	33	44	37	40	44	35	394
16	Sanjana Shekhar Mandhare	37	39	35	40	28	31	35	26	32	27	330
17	Aditi Achyut Mehendale	45	46	34	36	35	44	39	41	44	35	399
18	Aboli Arvind Paithankar	45	42	36	45	29	39	43	37	43	33	392
19	Shambhavi Pansare	48	44	31	46	29	35	37	39	36	27	372
20	Rachana Rajesh Patil	50	41	39	43	32	42	38	41	42	38	406
21	Pallavi Yashwant Pawar	44	43	37	47	31	35	43	39	46	32	397
22	Rugveda Kiran Pawar	49	42	31	48	29	34	37	37	35	27	369
23	Sakshi H. Pawar	44	35	28	23	33	42	41	37	33	22	338
24	Shristi Prasanna Shete	46	42	29	37	36	37	41	33	41	26	368
25	Swaraj S. Adagale	38	34	40	37	33	35	36	37	55	21	366
26	Pranav V. Babar	51	35	37	39	33	36	44	34	34	30	373
27	Darshan Ajit Bafana	44	38	23	31	35	35	28	32	31	20	317
28	Aditya Bahulikar	50	35	31	41	32	47	42	40	36	38	392
29	Tejas P. Bansal	46	39	29	41	27	36	33	33	31	18	333
30	Omkar Bargaje	40	38	32	36	33	42	37	34	38	26	356
31	Ayush A. Bage	36	40	31	45	30	37	37	31	36	31	354
32	Rohan Deepak Bhandare	51	41	31	39	31	40	44	27	31	26	361

33	Varadraj Vijay Bhosale	41	43	30	44	32	42	43	39	41	20	375
34	Siddharth Bibre	39	28	29	34	30	26	31	29	34	29	309
35	Bhavesh Ravindra Bora	45	42	33	39	39	39	40	36	35	21	369
36	Yash S. Borade	23	19	34	23	31	33	45	26	44	31	309
37	Rahul Milind Deogaonkar	45	39	43	46	28	45	39	40	44	31	400
38	Sachin Dhokale	46	44	26	43	29	42	42	38	34	22	366
39	Prathamesh S. Gadhave	36	41	33	42	35	44	38	40	32	24	365
40	Kushal M. Gandhi	48	30	31	36	36	39	49	34	35	26	364
41	Pranav Santosh Kadu	40	41	37	36	36	45	41	31	36	25	368
42	Sarang Dattatray Kale	49	40	29	34	32	47	33	38	36	25	363
43	Gokarna Lele	51	38	31	42	32	45	44	41	37	39	400
44	Pranav Mali	46	41	37	46	36	43	44	33	49	30	405
45	Ganesh Rahul Mehta	49	40	40	51	37	35	45	38	40	36	411
46	Sahil Ajay Mokashi	27	41	28	37	28	38	40	57	34	31	361
47	Varun V. Velankar	48	43	19	38	36	43	36	39	35	18	355

Kanitlal Khinwasara English School, Thergaon

Div A	**Life Skills**											
Roll No.	**Name of Students**	**(A)**	**(B)**	**(C)**	**(D)**	**(E)**	**(F)**	**(G)**	**(H)**	**(I)**	**(J)**	**Total**
1	Adhagale Chaitrali	40	42	28	35	35	35	43	26	29	22	335
2	Awasthi Janavhi	44	35	35	38	28	35	37	38	40	25	355
3	Dhamale Karishma	39	35	29	38	27	34	40	32	39	31	344
4	Gour Rani	41	36	31	44	28	32	50	36	43	28	369
5	Ingale Akankasha	45	37	23	39	27	35	31	30	36	25	328
6	Jaiswal Simran	42	46	28	32	32	40	44	30	36	25	355
7	Kamble Aishwarya	43	47	28	28	30	38	38	32	31	26	341
8	Kumavat Divya	42	40	34	29	30	35	32	33	34	27	336
9	Kumavat Pooja	38	47	26	28	31	37	39	30	36	27	339
10	Mahajan Samiksha	37	31	29	39	34	40	40	30	33	25	338
11	Mishra Neha	34	33	26	29	20	26	31	30	29	27	285
12	Munot Akanksha	40	41	24	32	26	39	39	34	36	21	332
13	Prajapat Preeti	42	31	35	43	28	38	37	39	42	33	368
14	Raut Gayatri	44	45	28	32	32	40	39	34	32	26	352
15	Sawant Pradnya	40	33	34	32	28	32	31	33	33	24	320

16	Sharma Uma	40	36	28	39	34	31	46	36	37	18	345
17	Shelar Siddhi	38	39	33	29	28	37	35	29	24	18	310
18	Singh Madhu	29	41	37	35	27	36	39	31	44	29	348
19	Tiwari Puja	35	35	30	36	28	37	36	27	28	19	311
20	Baitha Rohit	41	35	25	33	24	44	36	33	29	25	325
21	Barke Tushar	42	36	24	43	32	41	30	35	32	24	339
22	Gour Lovkush	30	30	28	30	30	42	30	35	37	22	314
23	Jain Hemant	38	37	30	36	26	36	37	32	34	21	327
24	Jaiswal Ayush	45	34	31	36	34	44	33	34	35	24	350
25	Jangid Ravindra	42	37	32	30	27	44	37	21	33	25	328
26	Mhaske Ashutosh	47	36	24	31	27	28	29	32	31	16	301
27	Mishra Suraj	33	40	28	42	29	31	31	37	32	13	316
28	Motekar Saurav	38	36	24	48	28	49	35	31	40	19	348
29	Nirmal Prathamesh	39	37	31	39	26	28	37	32	40	27	336
30	Parihar Dinesh	34	40	27	37	26	42	32	27	39	19	323
31	Pawar Prajwal	44	39	34	43	33	41	33	39	37	24	367
32	Phadtare Omkar	31	41	31	35	25	35	42	34	38	28	340
33	Rajiwade Dhananjay	40	24	31	31	27	36	29	29	31	17	295
34	Rathod Chandu	43	33	24	31	28	37	37	22	38	25	318
35	Rathod Rahul	38	39	30	40	29	39	45	39	39	24	362
36	Sarwade Sushant	37	38	27	33	27	37	36	30	37	22	324
37	Shaikh Shanawaz	38	26	32	29	31	39	36	26	33	26	316
38	Shirke Niketan	42	37	25	39	32	44	34	30	31	23	337
39	Singh Prince	36	36	31	46	25	39	38	33	31	26	341
40	Teli Shivam	26	31	37	24	22	25	29	25	44	26	289
41	Thapa Roman	37	42	41	45	29	39	43	38	38	30	382
42	Varma Nikhil	35	36	30	32	30	24	33	32	45	26	323
43	Vikarma Shivam	38	34	33	39	28	44	37	34	36	26	349
44	Yadav Shubham	32	30	27	36	23	34	36	28	29	27	302

Div B	**Life Skills**										
Roll No.	**Name of Students**	**(A)**	**(B)**	**(C)**	**(D)**	**(E)**	**(F)**	**(G)**	**(H)**	**(I)**	**(J)**	**Total**
1	Air Renuka	28	38	30	36	24	30	31	23	35	23	298
2	Borana Bhagyashree	45	37	30	35	32	35	35	30	40	31	350
3	Choudhary Vimal	41	37	31	35	32	31	38	30	40	31	346
4	Dude Diksha	40	36	27	36	29	33	24	32	36	21	314
5	Gade Chhaya	45	34	30	34	29	41	34	33	30	25	335
6	Jamadar Preeti	44	41	31	35	31	32	39	30	40	31	354
7	Kumavat	44	32	28	31	30	46	46	32	42	25	356

	Bhagyashree											
8	Mishra Priyanka	38	37	32	36	30	34	32	37	35	25	336
9	Pawar Chaitrali	41	32	24	38	30	43	31	38	24	11	312
10	Sharma Kajal	36	36	36	43	22	33	28	29	36	23	322
11	Sharma Wartika	27	35	29	29	21	45	34	30	41	30	321
12	Singh Simran	38	35	33	33	26	36	29	33	32	24	319
13	Yadav Reema	46	42	30	35	31	32	39	26	40	30	351
14	Yewale Shreya	28	26	29	39	18	40	45	33	31	30	319
15	Chavhan Abhishek	39	31	32	37	34	35	33	35	38	26	340
16	Dalal Nizam	44	40	27	36	30	31	39	38	36	14	335
17	Degaal Kunal	46	38	28	30	32	38	37	24	36	23	332
18	Gupta Akshay	45	40	32	34	29	44	33	36	44	25	362
19	Gupta Shivdutta	40	40	36	39	30	42	39	31	36	26	359
20	Jabade Abhishek	46	38	28	30	33	35	34	26	36	23	329
21	Jadhar Atul	34	33	33	36	33	28	36	26	44	15	318
22	Jangid Manish	42	33	30	40	31	32	36	40	31	28	343
23	Jangid Pankaj	36	35	27	36	25	37	36	29	39	22	322
24	Kanojiya Yash	45	40	32	33	31	36	35	35	32	22	341
25	Kapure Umesh	39	35	31	35	28	45	37	33	35	22	340
26	Kumbhar Shivshankar	39	43	37	39	31	40	44	31	33	23	360
27	Lokhande Aditya	30	35	26	39	23	30	34	32	37	19	305
28	Mishra Shivam	44	39	37	46	25	37	39	30	45	33	375
29	Pandey Adarsh	34	40	28	33	30	37	37	28	32	24	323
30	Pandey Bipin	37	33	34	46	33	34	36	34	33	32	352
31	Pandey Vicky	44	46	34	41	35	38	40	36	36	30	380
32	Paradeshi Yash	35	40	21	26	21	43	38	38	30	28	320
33	Pawar Vishal	36	37	30	34	23	33	32	33	31	22	311
34	Rajput Umesh	45	37	34	27	30	41	31	32	26	23	326
35	Raut Aniket	37	40	29	34	26	36	34	29	29	20	314
36	Rathod Kiran	41	46	30	44	34	39	40	35	32	27	368
37	Saini Vinayak	41	34	29	29	34	36	33	34	41	26	337
38	Satras Rohit	37	42	37	42	30	39	42	38	31	24	362
39	Seervi Praveen	41	41	30	41	29	37	38	33	27	16	333
40	Shinde Dhananjay	30	33	28	36	24	34	34	33	35	20	307
41	Shukla Durgesh	41	39	23	37	31	37	37	26	39	19	329
42	Singh Sunny	33	32	29	36	32	38	37	32	39	22	330
43	Singh Vishal	39	34	30	43	31	45	42	35	44	28	371
44	Solanki Prakash	43	33	31	34	32	37	33	27	36	22	328
45	Yadav Manish	36	40	27	39	29	41	35	35	43	27	352

Sardar Dastur Girls High School, Camp

Div A	**Life Skills**											
Roll No.	**Name of Students**	**(A)**	**(B)**	**(C)**	**(D)**	**(E)**	**(F)**	**(G)**	**(H)**	**(I)**	**(J)**	**Total**
1	Isha S. Abnave	47	38	33	44	33	38	38	40	33	27	371
2	Kadambari Adhav	41	31	30	40	33	39	43	41	41	20	359
3	Nida M. Attaraut	44	39	35	37	31	42	41	32	40	23	364
4	Dnyanada Bhosale	50	36	32	39	36	45	46	40	41	27	392
5	Nafeesa D. Calcuttawala	40	37	30	44	30	35	42	37	36	19	350
6	Zainab Y. Damnrerwala	38	40	25	45	30	33	34	30	33	19	327
7	Bhagyashri R. Fase	33	40	30	45	27	34	31	39	35	29	343
8	Samruddhi S. Gaikwad	46	37	31	37	35	40	39	42	34	19	360
9	Samruddhi U. Gaikwad	41	37	20	33	25	30	38	31	35	25	315
10	Shriti H. Gawli	37	51	40	35	30	37	39	30	30	25	354
11	Suddhi Tushar Gophane	48	43	26	42	34	40	40	39	38	20	370
12	Khushi Gethi	39	44	25	44	35	39	38	34	30	23	351
13	Harshita A. Gundecha	37	43	32	37	25	32	39	33	35	20	333
14	Miyad N. Haque	38	43	23	34	24	37	33	38	37	20	327
15	Yusra Hiroli	39	43	22	32	33	36	38	39	30	20	332
16	Vinish N. Jain	48	36	30	42	30	36	35	30	39	26	352
17	Ayushka A. Kamathe	43	42	30	50	25	33	29	33	35	27	347
18	Mrunal S. Kangle	47	36	22	35	29	32	36	33	39	27	336
19	Jara Riyaz Khan	39	37	28	41	20	33	39	36	35	26	334
20	Uzma Naim Khan	41	44	22	44	32	47	31	41	26	20	348
21	Zakia A. Khan	42	36	31	39	25	34	31	40	33	17	328
22	Manavi Nilesh Lodha	46	44	30	35	30	42	38	34	36	29	364
23	Afroze a Lokhandwala	37	31	26	42	22	39	20	39	25	28	309
24	Diksha Dinesh Magidwar	50	42	25	46	32	39	37	41	40	26	378
25	Aaliya Bilal Memon	46	45	36	41	34	43	36	40	28	14	363
26	Fathima Jaweed Mohammed	41	35	26	30	28	37	35	29	36	23	320
27	Pratiksha A. More	47	28	27	39	26	41	31	37	21	17	314
28	Sajda Sameer	50	42	36	48	33	42	37	39	41	34	402

	Mulani											
29	Parveen Tasir Nirwan	43	39	34	39	25	39	34	33	35	24	345
30	Sakshi Harshad Ostwal	43	38	30	46	28	42	33	35	35	18	348
31	Simran Jaysingh Pardeshi	44	36	28	35	29	39	37	37	35	25	345
32	Vidhi Patel	50	34	33	43	26	34	34	30	32	24	340
33	Samruddhi Sadashiv Pawar	39	40	33	41	31	40	36	32	36	32	360
34	Tanishka S. Pillay	34	33	20	37	21	34	35	25	33	27	299
35	Alifiya I Pithawala	41	32	26	41	30	35	37	30	36	31	339
36	Aliya Kaidzoher Santrampurwala	40	31	23	40	24	32	35	31	36	20	312
37	Afsa S. Skaikh	42	43	32	47	32	43	45	34	41	20	379
38	Anum B. Shaikh	31	38	28	33	37	27	38	28	30	26	316
39	Fazeelat Faheem Shaikh	36	37	24	33	27	41	36	32	32	26	324
40	Sarah Amir Shaikh	37	44	34	47	29	33	38	36	37	26	361
41	Mandira Prasad sonar	47	43	21	26	36	43	36	36	30	14	332
42	Kanchi V. Timbadia	44	39	29	37	32	35	36	36	38	23	349
43	Gautami Vishwasrao	47	41	24	38	30	39	34	34	37	17	341

Modern English Medium School, Shivaji Nagar

Div A	**Life Skills**										
Roll No.	**Name of Students**	**(A)**	**(B)**	**(C)**	**(D)**	**(E)**	**(F)**	**(G)**	**(H)**	**(I)**	**(J)**	**Total**
1	Priyank Dhamdhere	48	39	26	32	37	40	38	42	29	16	347
2	Jhelum C. Ghate	39	31	29	36	23	32	41	29	45	35	340
3	Srushti J. Ghodke	37	36	32	45	27	33	35	35	33	29	342
4	Shivani Rajendra Godse	42	38	30	32	32	39	37	40	31	28	349
5	Nikita Kothadiya	46	38	27	46	26	32	36	38	37	37	363
6	Hema V. Mahedrakar	48	42	36	42	28	43	36	39	36	24	374
7	Binita B. Mal	43	36	37	40	27	34	37	34	29	22	339
8	Vaishnavi Ram More	47	38	34	40	30	38	40	40	39	33	379
9	Shrutika Satish Navgire	38	39	27	34	27	34	31	35	34	22	321
10	Shreenidhi D. Pardeshi	44	34	33	41	32	41	40	36	43	30	374

11	Chanchal Sanjay Rathi	39	38	35	37	31	37	35	31	39	31	353
12	Nidhi Ajay Sabane	47	37	34	45	30	40	34	39	33	25	364
13	Siddhi Jagannath Shinde	43	40	24	37	33	38	39	37	32	21	344
14	Siddhi S. Tambolkar	37	44	33	33	29	36	39	33	36	32	352
15	Vedashree V. Tanksale	48	38	29	40	32	41	40	39	35	31	373
16	Samaruddhi Nitin Waikar	46	34	39	38	34	37	39	39	50	32	388
17	Pratik B. Bodkhe	44	32	20	27	28	34	34	33	30	20	302
18	Sahil Borude	45	39	23	36	34	40	41	33	33	18	342
19	Prathamesh Mahendra Chandage	45	40	27	29	28	40	32	36	34	17	328
20	Aditya Vinod Chavan	39	24	28	39	20	25	27	25	38	23	288
21	Atharva Vikas Chavan	41	41	23	43	29	39	33	35	43	32	359
22	Vishal R. Dengale	41	39	41	38	35	41	31	37	45	27	375
23	Ojas M. Deshpande	46	39	32	38	31	39	36	38	38	34	371
24	Maitrey H. Dhopeshwarkar	39	38	32	45	27	39	36	29	37	34	356
25	Tanmay S. Dixit	41	32	29	40	35	37	41	40	48	32	375
26	Atharva Atul Gokhale	42	32	27	37	30	29	35	30	30	20	312
27	Sarang Joglekar	44	36	34	42	31	43	45	43	33	29	380
28	Manas Kadwe	49	37	32	32	32	37	39	33	27	27	345
29	Aditya R.Kavale	38	35	31	39	25	33	34	31	36	24	326
30	Yash P. Khedekar	44	36	36	39	33	44	37	34	37	28	368
31	Atharva P. Kinikar	49	39	35	41	32	44	41	37	41	27	386
32	Shivam Sachin Mendjogi	34	29	26	46	30	33	42	31	42	32	345
33	Piyush M. Mendjogi	49	39	31	42	32	42	41	38	38	28	380
34	Sagar A. Moolya	40	35	29	42	28	34	34	34	33	22	331
35	Suyesh T. Nimbalkar	46	33	32	33	30	41	35	38	31	23	342
36	Hitesh B. Patil	47	44	44	40	37	47	39	42	48	27	415
37	Pinak N.	41	35	39	42	26	38	40	40	42	36	379

	Pendharkar											
38	Vedang Hemant Phadke	41	35	27	39	29	38	36	39	40	28	352
39	Jatin Tejkaran Pungliya	31	30	29	30	24	39	31	31	41	33	319
40	Pranav S. Ransing	39	42	32	34	30	35	32	30	32	19	325
41	Pranav V. Shinde	39	35	31	41	27	37	43	35	31	24	343
42	Divyankush C. Shitole	35	36	24	29	28	35	28	34	29	26	304
43	Advait S. Thite	43	39	31	41	35	39	37	40	35	38	378
44	Jaijeet M. Unkule	38	35	32	36	24	38	28	35	31	26	323
45	Omkar V. Vernekar	34	28	25	37	22	35	35	21	41	25	303
46	Shubham Vitthal Karande	35	41	30	42	31	40	40	34	45	21	359
47	Tanmay Amit Khamkar	43	36	28	34	31	32	37	34	38	19	332

Shikshan Prasrak's Mandal English Medium School, Sadashiv Peth

Div A	**Life Skills**											
Roll No.	**Name of Students**	**(A)**	**(B)**	**(C)**	**(D)**	**(E)**	**(F)**	**(G)**	**(H)**	**(I)**	**(J)**	**Total**
1	Agarwal Ansh	48	32	30	41	19	26	33	28	37	35	329
2	Agarwal Kailash	40	36	34	40	24	46	39	35	37	29	360
3	Bari Shweta	35	38	31	37	29	31	39	29	40	32	341
4	Barve Chinmay	45	35	35	51	31	34	39	41	37	40	388
5	Bhadsawale Rohan	50	36	30	46	37	36	44	37	40	27	383
6	Bopardikar Sanika	37	35	24	47	38	33	34	29	40	38	355
7	Choudhary Parth	35	29	33	34	26	37	41	25	40	33	333
8	Deshpande Savani	44	37	22	34	28	34	40	34	39	26	338
9	Gate Amit	38	36	30	38	28	38	36	37	40	18	339
10	Gathe Siddhesh	34	32	36	37	24	34	44	25	39	28	333
11	Ghan Yash	50	39	38	40	31	39	48	39	35	27	386
12	Ghevane Rucha	32	35	29	43	22	29	32	35	37	24	318
13	Ghule Atharva	39	33	24	36	29	32	37	34	32	23	319
14	Gore Vedant	39	48	29	36	30	37	41	33	36	29	358
15	Hivarekar Sarthak	35	36	30	34	31	37	38	29	33	24	327
16	Jadhav Rohit	48	35	29	34	32	37	34	39	40	30	358
17	Jadhav Siddhesh	39	26	30	25	26	33	36	24	49	33	321
18	Jagdale Riddhi	45	39	29	46	31	39	44	35	39	34	381
19	Jagtap Sahil	45	34	36	32	23	33	34	35	46	35	353

20	Javalgekar Vedang	42	38	29	45	28	38	35	38	44	30	367
21	Jayphalkar Nikita	34	39	25	44	23	28	32	24	33	24	306
22	Joshi Ajinkya	36	41	29	41	23	39	38	34	41	21	343
23	Joshi Mihir	29	38	26	31	24	35	32	26	30	30	301
24	Kakade Pratap	45	36	29	36	21	24	24	26	44	23	308
25	Katikar Devang	49	44	32	44	38	44	38	40	28	25	382
26	Kavediya Neelam	48	40	36	26	23	37	38	37	44	29	358
27	Kulkarni Shraddha	40	32	34	41	30	39	31	27	37	29	340
28	Kulkarni Wardhan	47	37	30	38	28	35	41	38	36	32	362
29	Landge Amey	46	38	38	41	29	37	42	35	39	31	376
30	Limaye Pranav	47	36	26	38	25	30	29	31	36	25	323
31	Mahajan Anurag	32	40	34	38	22	31	35	23	42	38	335
32	Nevgi Anjali	44	33	36	39	33	38	44	37	40	25	369
33	Pendse Prachi	42	33	30	32	31	39	36	35	37	33	348
34	Phule Eleesha	34	39	24	33	24	36	40	32	29	32	323
35	Sane Rama	46	42	26	47	30	42	41	38	37	29	378
36	Shah Anushka	39	35	31	49	29	39	32	30	39	28	351
37	Shah Mrunal	41	35	30	36	23	34	35	29	32	26	321
38	Sharma Niti	30	36	29	41	27	33	35	34	43	25	333
39	Tambe Atharva	40	41	28	31	30	30	41	37	29	26	333
40	Tiparadi Anushka	46	40	33	42	35	34	38	40	45	24	377
41	Tiparadi Ashwin	42	35	35	38	25	29	35	29	38	37	343
42	Vadapurkar Shravani	47	45	31	37	36	46	36	37	37	29	381

Div B	**Life Skills**										
Roll No.	**Name of Students**	**(A)**	**(B)**	**(C)**	**(D)**	**(E)**	**(F)**	**(G)**	**(H)**	**(I)**	**(J)**	**Total**
1	Yash Rajendra Abhyankar	29	26	25	24	31	32	32	18	36	26	279
2	Neel Atul Adke	43	30	28	36	25	37	43	30	37	29	338
3	Raghavendra Suresh Bhujbal	29	30	26	22	25	34	26	22	26	25	265
4	Atharva Ravi Chaudhari	41	32	30	30	21	37	28	30	38	26	313
5	Kalyani Prashant Deshpande	43	41	41	47	34	36	41	28	45	38	394
6	Archit Aditya Devadhar	43	39	28	44	24	30	29	34	31	27	329
7	Arnav Nitin Dharap	42	31	32	38	30	37	30	32	42	27	341

8	Shruti Diwakar	42	42	22	29	31	32	30	33	26	25	312
9	Manasi Vidyasagar Diwate	48	37	38	45	30	45	44	44	45	35	411
10	Sayali Vinay Gadre	35	27	35	35	19	32	38	24	44	33	322
11	Ameya Satish Gandhi	40	31	34	32	27	37	34	32	34	32	333
12	Sanika Vinayak Gholap	40	31	31	30	24	30	34	28	39	32	319
13	Shivani Nandkumar Jainak	47	44	31	46	29	35	32	35	25	26	350
14	Aabha Sagar Joshi	36	36	36	44	27	34	40	30	40	28	351
15	Atharva Mahesh Joshi	42	36	37	40	28	39	48	34	40	35	379
16	Shambhavi Jitendra Joshi	44	33	33	47	31	43	40	36	33	34	374
17	Sumedh Sachin Joshi	38	28	31	35	26	39	32	31	41	35	336
18	Vedant Prasad Karle	47	36	31	43	28	33	42	37	48	32	377
19	Akash Anil Kulkarni	49	33	34	44	31	46	39	43	46	25	390
20	Atharv Sumant Kulkarni	50	42	41	47	33	49	42	41	42	30	417
21	Ishani Jitendra Kulkarni	43	38	29	38	24	36	38	29	36	24	335
22	Ramani Shubhang Kulkarni	33	38	31	34	27	35	33	29	39	29	328
23	Rutvi Ravindra Kulkarni	51	49	37	43	34	47	46	31	39	37	414
24	Sakshi Vinay Kulkarni	52	35	28	42	31	42	39	36	50	24	379
25	Vaishnavi Vinayak Kulkarni	41	33	34	38	31	32	38	31	33	29	340
26	Hrishikesh Sachin Mahajan	43	37	31	37	32	33	40	38	27	26	344
27	Megha C. Mahajan	50	45	33	40	31	39	42	38	31	29	378
28	Siddhesh Arun Malve	50	37	41	42	34	42	41	42	42	28	399
29	Varad Girish Mashalkar	46	35	38	53	33	46	35	37	49	37	409
30	Esha Mandar Mudgal	36	32	30	38	26	40	42	36	43	31	354
31	Vedashree	41	42	31	40	35	38	43	41	32	39	382

	Nilangekar											
32	Niranjan Nitin Patankar	41	40	43	35	38	48	43	33	35	35	391
33	Tanvi Navinchandra Pawar	45	42	18	36	36	36	40	31	25	24	333
34	Omkar Udayan Phadke	41	34	28	29	26	33	40	42	34	30	337
35	Shreya Manoj Phatak	37	40	36	35	36	45	37	31	36	35	368
36	Nikhil S. Rajapute	40	40	26	42	26	36	30	32	32	31	335
37	Aditya Sakpal	42	39	19	38	32	40	37	34	24	15	320
38	Yashaswi Nitesh Shah	43	35	21	47	24	35	37	24	34	24	324
39	Soham Sunil Shendge	41	42	19	38	35	36	33	41	38	24	347
40	Mayuresh Girish Shendkar	42	38	25	41	37	34	36	38	43	23	357
41	Prathamesh Madhav Sinkar	46	40	30	37	35	41	39	38	35	27	368
42	Neel S. Sontakke	45	38	35	39	30	41	41	33	41	30	373
43	Isha Sachin thite	45	33	33	34	24	38	38	32	38	37	352
44	Saiel M. Vste	46	39	26	40	32	32	28	35	36	20	334
45	Roham Animesh Wadikar	36	32	19	29	24	27	36	31	31	24	289

Spring Dale School, Ambegaon

Div A	**Life Skills**											
Roll No.	**Name of Students**	**(A)**	**(B)**	**(C)**	**(D)**	**(E)**	**(F)**	**(G)**	**(H)**	**(I)**	**(J)**	**Total**
1	Asagekar Anjali	35	39	30	37	23	31	38	26	36	26	321
2	Ashtekar Jui	41	32	31	37	28	38	45	33	42	34	361
3	Bhat Prerna	40	32	31	35	24	31	38	29	35	22	317
4	Gandhi Leena	45	34	27	36	21	32	38	33	43	24	333
5	Ghodekar Rutuja	44	37	25	38	25	39	41	35	32	31	347
6	Hagawane Manasi	44	40	30	44	32	42	40	40	34	26	372
7	Hupare Shambhavi	41	38	34	42	26	42	38	35	44	25	365
8	Ithape Ishwari	54	41	31	39	38	48	41	45	48	27	412
9	Jain Moksha	55	40	33	50	33	45	38	36	35	25	390
10	Karande Mrinal	37	44	21	37	24	27	35	23	31	26	305
11	Karche Shruti	37	30	26	36	22	31	26	25	34	25	292
12	Karmarkar Mukta	41	38	30	39	23	33	42	39	38	26	349

13	Kedari Dnyande	27	23	27	33	23	26	30	22	41	27	279
14	Khandare Madhura	36	25	23	39	30	21	31	35	25	28	293
15	Khedkar Shruti	40	42	27	30	29	33	35	37	33	18	324
16	Khutale Savani	44	34	28	23	33	33	41	30	39	28	333
17	Tanaya	42	41	27	33	24	37	35	34	39	34	346
18	Mahadalkar Purva	36	33	25	40	30	41	46	33	29	33	346
19	Nikam Saishwari	52	41	31	45	30	41	42	37	32	22	373
20	Paigude Bhakti	39	38	23	39	23	39	33	33	25	18	310
21	Pawar Manasi	38	38	28	39	27	34	32	26	41	28	331
22	Ranpise Komal	45	43	33	36	20	34	41	30	34	30	346
23	Rathod Bhavya	44	49	32	40	27	38	42	34	34	31	371
24	Shinde Anjali	40	37	36	40	28	40	47	33	42	32	375
25	Sonawane Neha	37	32	25	36	25	29	37	26	35	25	307
26	Aher Aryan	38	43	25	37	27	30	38	27	26	31	322
27	Aher Atharva	46	38	28	35	32	28	49	34	26	28	344
28	Arokar Shreyas	43	42	32	45	28	35	33	32	36	28	354
29	Badade Dev	34	28	33	28	32	40	35	31	44	32	337
30	Bagwan Avaiz	44	40	25	41	22	38	31	31	29	27	328
31	Bhosale Atharva B.	34	34	28	38	27	31	34	28	35	24	313
32	Chipodikar Tanmay	39	35	29	35	34	36	35	28	29	27	327
33	Chinde Sahil	42	44	20	42	30	34	38	29	28	24	331
34	Dixit Aniket	46	43	18	42	28	32	39	37	32	24	341
35	Dorge Abhishek	29	31	34	36	21	34	37	23	41	34	320
36	Gawade Mathur	46	37	25	44	24	38	33	35	35	20	337
37	Golait Kaivalya	34	39	26	34	27	37	39	26	33	25	320
38	Gund Dwarkesh	43	42	30	43	29	37	33	33	36	28	354
39	Hegde Pranav	34	40	28	32	29	39	28	30	32	24	316
40	Jadhav Aditya	45	38	39	34	32	42	42	38	33	24	367
41	Jagnani Manav	46	34	26	30	34	38	32	31	37	31	339
42	Jagdeo Atharva	27	40	35	43	32	38	38	31	41	23	348
43	Joshi Atharva	34	37	29	41	25	29	43	32	26	24	320
44	Karnik Atharva	46	34	33	35	31	36	43	30	31	24	343
45	Koratkar Omkar	51	41	37	42	38	37	44	27	45	24	386
46	Kunjir Prajwal	40	32	35	33	37	40	35	32	31	28	343
47	Mutgekar Chetan	47	36	35	42	30	37	37	36	30	28	358
48	Nivangune Ajinkya	41	35	22	34	30	35	33	33	38	24	325
49	Patil Shubham	38	39	30	28	31	33	34	26	25	30	314
50	Sheth Neel	46	46	37	41	34	32	39	29	36	33	373

51	Shinde Sarvesh	53	36	29	35	39	44	46	43	32	17	374
52	Shingavi Yash	39	36	35	42	33	31	42	37	39	31	365
53	Thakar Aditya	41	30	31	42	29	35	45	34	32	24	343
54	Kulkarni Asmita	51	41	32	28	28	29	41	29	41	30	350
55	Yashraj A. Nande	36	35	29	38	20	37	37	17	27	22	298

Div D	**Life Skills**										
Roll No.	**Name of Students**	**(A)**	**(B)**	**(C)**	**(D)**	**(E)**	**(F)**	**(G)**	**(H)**	**(I)**	**(J)**	**Total**
1	Bhandage Sonali	46	42	33	44	31	44	40	33	39	24	376
2	Bhatade Vaishnavi	38	47	29	38	40	40	42	33	30	22	359
3	Buktare Kajol	46	42	34	47	32	36	43	39	41	32	392
4	Chaturbhuj Maithilee	41	40	22	39	26	28	33	31	33	23	316
5	Chaudhari Poorva	42	38	33	40	20	39	41	30	43	30	356
6	Chiddarwar Srushti	53	44	26	38	40	36	43	38	41	12	371
7	Dangat Vaishnavi	45	42	25	36	35	33	38	37	39	22	352
8	Deshmukh Sharvari	39	37	31	31	32	39	40	31	34	32	346
9	Deshpande Harshada	51	40	27	42	31	40	38	32	30	13	344
10	Dhongade Madhura	48	42	31	33	31	40	42	42	37	24	370
11	Dongre Navya	45	44	30	38	31	43	35	38	35	19	358
12	Ingle Rashmi	41	44	34	37	21	33	32	35	38	31	346
13	Kakade Samruddhi	27	42	28	25	30	36	33	31	30	17	299
14	Kulisha Ganesh	43	40	30	43	25	38	38	37	42	32	368
15	Kulkarni Aarti	47	35	34	34	23	38	36	34	33	28	342
16	Kulkarni Akanksha	41	41	33	36	28	37	38	34	34	34	356
17	Kulkarni Isha	45	42	27	34	22	40	37	36	36	34	353
18	Kumbhar Manasi	45	49	30	29	32	39	34	35	25	24	342
19	Mahajan Jui	44	45	35	37	30	45	33	35	30	21	355
20	Navangal Isha	38	36	23	36	26	32	40	29	44	30	334
21	Nikam Samita	40	35	24	37	24	29	33	38	28	25	313
22	Padalkar Rutuja	44	32	32	34	29	33	33	34	28	24	323
23	Pawar Rutuja	43	44	30	44	29	39	39	35	43	31	377
24	Pawar Sai	47	35	30	50	27	35	39	39	40	31	373
25	Pawar Sharvari	45	48	23	39	25	38	34	34	24	39	349

26	Pendse Ritu	44	44	29	40	20	34	38	33	46	31	359
27	Rishi Gargi	34	46	34	35	31	35	38	25	32	16	326
28	Shete Ritika	49	42	30	46	35	40	38	41	38	25	384
29	Shetty Tanishka	45	42	31	41	29	42	36	38	38	29	371
30	Shinde Pranita	32	27	29	42	20	35	41	28	25	26	305
31	Shinde Sanika	41	37	37	50	31	39	41	33	43	28	380
32	Sohoni Shruti	29	38	28	42	26	36	30	25	37	31	322
33	Suke Janhavi	44	37	26	32	24	35	35	34	34	25	326
34	Vaidya Ramani	46	34	33	32	33	31	35	36	39	24	343
35	Wadghule Nupoor	42	37	40	39	29	38	40	35	44	30	374
36	Yevale Rucha	30	41	35	37	27	38	40	31	38	27	344
37	Bewoor Shrinivas	25	26	16	42	29	33	27	36	37	25	296
38	Bhadale Ashish	40	36	31	38	34	46	35	39	31	19	349
39	Bhandage Hrushikesh	31	35	27	33	26	39	35	31	30	16	303
40	Bhangare Yash	49	40	30	37	26	37	27	37	44	28	355
41	Deshpande Divyaj	28	39	34	21	28	31	28	34	42	16	301
42	Gajare Swaraj	36	40	25	47	30	42	30	35	42	32	359
43	Ghanekar Kshitij	48	37	29	38	36	43	41	39	46	26	383
44	Gumaste Pralhad	41	38	28	41	31	30	39	30	29	30	337
45	Ingawale Mit	48	39	28	30	29	33	29	30	27	16	309
46	Jagtap Shahank	42	36	28	33	27	36	38	38	31	26	335
47	Kadam Ashutosh	42	41	24	36	27	42	38	31	32	30	343
48	Kulkarni Ajinkya	41	35	27	34	30	37	29	37	34	23	327
49	Narsale Shreeraj	44	40	30	38	28	34	36	29	31	18	328
50	Oak Akshay	33	31	33	32	21	33	37	30	37	23	310
51	Parai Atharva	43	35	28	32	24	34	31	27	31	28	313
52	Parkhi Rugved	46	42	34	34	24	44	45	39	33	22	363
53	Patil Shree	35	48	39	41	36	47	43	39	35	28	391
54	Patil Vardhaman	46	41	28	39	29	44	33	39	27	17	343
55	Pawar Mrunank	46	40	35	28	34	45	43	37	32	28	368
56	Pujari Atharva	40	35	27	47	34	46	32	37	39	17	354
57	Rao Prajwal	36	34	24	47	24	33	32	30	35	27	322
58	Sasane Vedang	45	34	32	36	29	41	33	40	35	23	348
59	Sonpatki Sarthak	42	36	32	37	27	42	39	38	35	27	355

Div C	**Life Skills**										
Roll No.	**Name of Students**	**(A)**	**(B)**	**(C)**	**(D)**	**(E)**	**(F)**	**(G)**	**(H)**	**(I)**	**(J)**	**Total**
1	Babar Isha	38	43	41	42	27	34	42	27	41	23	358

2	Borse Nikita	47	45	25	46	32	41	35	41	33	22	367
3	Chorghe Neha	42	41	31	43	26	42	42	38	40	30	375
4	Daware Shrushti	45	44	31	40	34	42	34	40	32	21	363
5	Gaikwad Sejal	44	37	34	35	26	37	37	35	38	30	353
6	Gandhi Sakshi	37	39	31	34	25	33	31	35	39	27	331
7	Garde Tanaya	45	34	25	23	33	35	31	29	34	29	318
8	Haval Piyusha	38	31	26	33	23	35	32	31	32	26	307
9	Hegde Sakshi	53	44	23	43	33	46	39	43	31	16	371
10	Kadam Aishwarya	36	39	32	40	28	39	37	32	42	27	352
11	Kadam Anushka	43	42	29	35	31	27	38	35	43	30	353
12	Kale Shruti	35	42	31	38	26	36	33	33	32	25	331
13	Khardekar Gauri	46	41	31	41	36	37	41	44	30	22	369
14	Khakare Chetana	36	31	28	41	32	37	29	32	32	25	323
15	Khedekar Vaibhavi	39	39	29	25	23	32	38	31	39	32	327
16	Khule Aditi	36	40	26	32	27	37	33	28	34	15	308
17	Kulkarni Radhika	51	47	31	37	29	35	39	38	33	19	359
18	Kumbhar Prachi	49	45	32	39	27	42	37	40	34	23	368
19	Mahadik Sejal	32	35	29	40	19	38	35	25	40	27	320
20	Navalgund Rucha	36	41	32	31	30	36	36	31	38	20	331
21	Nimbalkar Sumati	33	35	27	32	26	28	35	29	33	33	311
22	Pardeshi Anupreeta	40	39	25	39	32	38	32	39	33	16	333
23	Patil Nikita	39	43	35	45	30	42	36	33	35	30	368
24	Pandav Mrugesha	31	35	31	35	25	28	35	25	35	31	311
25	Patil Swapnali	30	27	27	35	21	27	31	23	35	30	286
26	Pokale Prachi	42	31	28	34	32	44	38	40	34	21	344
27	Pokale Shruti	38	27	35	33	26	38	36	31	46	25	335
28	Rawate Sanika	42	38	32	37	26	46	40	40	29	27	357
29	Sabale Vedanti	45	41	24	39	26	42	40	36	23	27	343
30	Samel Shravani	48	44	28	39	31	37	39	39	35	24	364
31	Shah Mitali	41	36	29	32	33	42	36	32	32	24	337
32	Shastri Rutuja	35	32	27	38	30	30	31	37	35	18	313
33	Shelar Siddhi	35	31	24	31	22	29	30	26	40	28	296
34	Sontakke Radhika	33	36	27	28	27	37	37	25	27	29	306
35	Sutar Ankita	44	42	32	45	29	41	42	42	32	19	368
36	Tilekar Aarya	50	37	35	39	31	41	43	41	29	25	371
37	Walvekar Nisha	41	33	26	36	24	36	32	36	45	23	332
38	Zanje Akshata	41	44	37	39	28	28	38	34	47	31	367
39	Agalave Nikhil	39	36	26	39	29	39	39	34	29	23	333
40	Beldare Shantanu	41	35	41	32	28	39	45	39	38	22	360
41	Bhavsar Ameya	40	35	25	38	34	36	36	32	30	13	319

42	Chandratre Vedant	51	34	36	44	39	49	41	43	44	28	409
43	Deshmukh Parth	39	38	27	32	29	32	33	29	46	28	333
44	Ekke Ninad	48	43	31	34	35	38	40	41	33	17	360
45	Gaud Manoj	42	28	29	48	36	41	33	32	29	26	344
46	Ghule Ketan	40	43	31	39	28	36	32	29	37	23	338
47	Jain Naman	41	31	34	37	32	40	39	34	39	28	355
48	Joshi Abhimanyoo	41	40	43	36	27	43	45	39	44	28	386
49	Kale Chirantan	36	31	27	44	23	39	21	35	28	18	302
50	Kalushe Venkatesh	33	39	32	41	31	36	40	40	35	26	353
51	Kori Atharva	37	31	26	47	26	37	25	34	32	17	312
52	Kuber Manthan	42	44	42	51	38	44	45	45	44	25	420
53	Magdum Namokar	39	40	37	33	27	38	43	38	34	21	350
54	Mahamuni Aditya	45	38	36	44	28	43	44	38	39	28	383
55	Malusure Shivam	42	38	25	34	34	31	37	33	39	32	345
56	Malwedkar Tejas	38	33	28	39	29	43	28	34	34	24	330
57	Mhasalkar Pranav	40	40	28	37	29	37	35	39	26	26	337
58	Narale Shubham	51	44	37	47	36	43	41	39	28	25	391
59	Ovhal Omkar Jitendra	33	31	25	35	24	31	39	31	32	25	306
60	Patil Aayush	32	25	24	37	22	32	31	26	32	24	285
61	Sabnis Suyash	50	42	38	44	35	43	43	41	43	33	412
62	Somani Atharva	47	40	32	37	28	31	22	27	35	35	334
63	Tadphale Umang	49	41	32	42	37	33	39	38	43	28	382
64	Zende Sarthak	48	49	41	48	31	43	39	45	35	23	402

Roseland English Medium School, Kondhwa

Div A	**Life Skills**										
Roll No.	**Name of Students**	**(A)**	**(B)**	**(C)**	**(D)**	**(E)**	**(F)**	**(G)**	**(H)**	**(I)**	**(J)**	**Total**
1	Ansari Adif Ismail	47	33	31	31	34	45	32	41	41	15	350
2	Gaikwad Prathamesh Prakash	49	35	33	37	34	45	32	41	42	13	361
3	Kumar Akash Pannalal	48	36	35	37	28	39	44	36	36	31	370
4	Mourya Himanshu Jaiprakash	41	33	28	31	28	34	38	37	36	25	331
5	Nadaf Sahil Dawood	37	34	31	40	31	39	38	33	27	21	331
6	Nagnur Sharukh Hyder	46	40	23	39	29	42	33	36	28	25	341
7	Nirala Priteshkumar Shivchandra	34	26	30	35	30	47	39	27	35	22	325
8	Phadtare Rohit Ganesh	41	33	35	35	30	34	35	24	36	33	336
9	Potdar Vijay	35	34	24	28	27	39	30	33	26	26	302

	Virbhadra											
10	Rode Gaurav Shivaji	42	32	29	39	28	33	38	33	37	25	336
11	Salve Rohan Sanjay	25	30	25	35	24	36	26	26	33	23	283
12	Saroj Surendra Kamlesh	43	26	21	35	23	36	35	30	46	28	323
13	Shaikh Amaan Ishaque	39	37	26	35	34	35	36	24	34	21	321
14	Shirurkar Prem Mukesh	38	41	32	33	33	32	37	25	32	19	322
15	Singh Rishabh Ramesh	26	38	26	34	36	44	46	33	39	27	349
16	Yadav Nageshwarkumar Vijendra	40	30	32	37	32	31	36	33	39	26	336
17	Yadav Vishal Gajanand	39	34	29	27	27	36	40	35	36	27	330
18	Salunke Abhinandan Amrut	38	32	30	37	26	37	36	28	32	24	320
19	Dangi Akshita Kantilal	45	38	37	39	36	44	36	40	39	25	379
20	Dhandekar Shrutika Machindra	28	36	29	39	25	21	36	21	51	30	316
21	Mehetre Madhura Baban	34	38	34	45	24	39	37	34	37	25	347
22	Naik Samrudhi Santosh	31	29	28	33	27	36	36	39	43	20	322
23	Pathan Isha Bandealikhan	32	31	37	40	26	36	32	29	39	30	332
24	Pawar Amruta Ashok	49	39	24	30	39	49	41	45	36	23	375
25	Prasad Aishto Shravank	40	39	34	24	26	32	24	24	37	20	300
26	Salunke Akshata Ramesh	35	33	26	35	26	34	36	38	41	22	326
27	Saroj Pooja Nakhelal	44	35	23	35	26	41	41	40	34	15	334
28	Shaikh Heena Mubarak	41	40	33	39	26	39	31	30	33	21	333

Vishwakarma Institute of Technology, Bibwewadi

Div A	Life Skills											
Roll No.	**Name of Students**	**(A)**	**(B)**	**(C)**	**(D)**	**(E)**	**(F)**	**(G)**	**(H)**	**(I)**	**(J)**	**Total**
1	Chavan Pratiksha	38	37	27	44	24	37	32	29	34	26	328
2	Chinchansure Vaishnavi	42	42	14	27	31	38	43	31	27	15	310
3	Choudhari Pooja A.	29	39	33	35	22	30	32	26	41	30	317
4	Choudhary Pooja K.	28	38	38	33	23	32	32	28	41	30	323
5	Desarda Sejal	42	36	34	51	32	46	43	42	43	25	394
6	Dhamdhere Sanyukta	41	45	32	45	27	42	38	40	38	25	373
7	Doma Vaishnavi	38	35	29	33	32	35	32	30	32	19	315
8	Gadkari Shivani	43	45	33	46	29	34	33	35	34	17	349
9	Gorwadiya Kajal	38	38	38	37	31	37	40	36	36	20	351
10	Jadhav Harshada	46	33	30	35	37	38	34	36	32	34	355
11	Kamble Anuja	31	38	25	33	34	39	31	29	31	19	310
12	Kelgandre Aishwarya	44	39	28	41	31	40	34	38	33	19	347
13	Nagtilak Praneeta	41	42	23	41	26	38	36	29	32	18	326
14	Pawar Vrushali	32	40	30	41	25	36	42	31	40	19	336
15	Ranmode Samiksha	44	38	32	40	35	34	43	35	43	24	368
16	Saad Poonam	38	28	28	33	27	27	34	27	32	27	301
17	Shahni Shamil	46	41	28	44	33	39	39	40	36	19	365
18	Sharma Diya	35	32	27	41	26	30	33	28	35	25	312
19	Shirke Aditi	43	38	30	31	29	36	38	33	26	20	324
20	Singh Sakshi	46	33	29	36	33	40	30	34	34	24	339
21	Singhal Komal	40	36	27	36	29	33	28	30	34	21	314
22	Thakur Yogini	40	36	34	35	27	31	43	33	27	19	325
23	Badgujar Prathamesh	33	37	32	37	27	37	33	26	29	23	314
24	Bana Abhijeet	44	35	35	26	26	37	35	35	34	15	322
25	Barmukh Ashutosh	46	40	38	37	23	41	33	39	40	28	365
26	Chandanshive Rohan	34	36	31	43	25	27	32	25	25	23	301
27	Chavan Anil	33	30	33	38	20	38	32	31	38	25	318
28	Chavan Rohit	38	34	23	40	24	36	32	33	32	19	311
29	Choudhary Prakash	47	36	22	51	24	31	39	33	20	24	327
30	Chodhary Sachin	34	37	25	36	31	31	36	29	31	22	312
31	Deshpande Varad	44	34	26	33	23	34	36	34	34	28	326
32	Dhawale Ritesh	33	33	37	32	33	41	38	30	34	33	344
33	Hariprasad Devendra	40	35	28	36	36	38	32	34	33	22	334

34	Jasabhati Yash	30	37	25	33	31	34	31	32	31	25	309
35	Jalal Aslam	43	36	35	44	30	33	31	34	34	26	346
36	Kale Hrutik	36	28	28	39	26	40	39	29	30	22	317
37	Karali Ankit	31	29	25	31	36	34	33	30	29	28	306
38	Katakar Sahil	34	37	32	37	29	32	30	34	34	23	322
39	Kate Sumit	40	32	30	33	32	38	38	34	29	31	337
40	Kshirsagar Rohit	43	42	32	38	37	32	39	33	42	18	356
41	Kumbhar Sahil	39	36	28	34	27	29	35	33	33	30	324
42	Mali Sahil	35	32	32	35	30	39	33	27	35	23	321
43	Malviya Dhiraj	41	39	32	41	34	32	26	37	28	21	331
44	Maurya Preyash	37	41	33	40	34	33	43	31	40	16	348
45	Mishra Abhay	32	40	24	36	29	38	37	31	41	25	333
46	Mirajkar Niranjan	47	38	29	44	34	40	33	40	32	20	357
47	Naphade Prasad	42	37	34	40	22	34	30	31	38	26	334
48	Pardeshi Yashraj	36	45	29	40	22	43	33	33	30	22	333
49	Parekar Rushikesh	45	42	38	33	22	35	44	36	44	31	370
50	Patel Manoj	36	35	27	38	33	31	38	28	27	23	316
51	Pise Deep	33	30	30	29	21	29	43	38	42	26	321
52	Rathod Karan	35	37	26	37	27	36	34	36	28	20	316
53	Rathod Nitin	36	35	29	35	28	32	36	28	26	31	316
54	Rathod Soham	45	38	28	39	28	35	39	41	32	27	352
55	Shinde Yash	41	45	37	22	30	35	38	33	35	26	342
56	Singh Sandeep	31	34	24	25	34	33	37	34	22	19	293
57	Sonawane Rushikesh	49	44	22	36	27	35	29	35	35	13	325
58	Suthar Naresh	26	32	21	25	20	32	31	22	29	25	263
59	Suryawanshi Ratish	39	36	32	41	25	24	34	29	37	17	314
60	Vadaji Shriraj	49	40	30	38	35	39	36	36	32	23	358
61	Waghamare Sahil	46	38	24	46	31	45	32	38	27	15	342
62	Waghmare Yash	38	35	30	35	26	35	36	30	35	18	318
63	Zare Om	39	34	28	39	27	38	34	34	30	17	320

Div B	**Life Skills**											
Roll No.	**Name of Students**	**(A)**	**(B)**	**(C)**	**(D)**	**(E)**	**(F)**	**(G)**	**(H)**	**(I)**	**(J)**	**Total**
1	Adagale Gauri	47	44	29	39	31	41	40	37	32	22	362
2	Awate Akansha	34	37	30	41	26	38	38	27	37	24	332
3	Bhosale Chaitrali	50	43	32	40	35	45	46	38	37	29	395
4	Bulbule Akshada	41	46	27	39	32	45	43	40	35	31	379
5	Chavan Neha	47	36	30	40	29	36	38	32	38	23	349
6	Devda Rinku	47	47	25	48	34	39	32	40	31	18	361
7	Hule Manasi	43	43	24	38	28	35	37	34	19	20	321

8	Jangid Monika	43	36	25	37	32	26	34	36	37	20	326
9	Jat Sharmila	45	42	24	44	28	42	37	39	37	16	354
10	Katkade Akansha	49	40	28	42	31	41	36	36	32	19	354
11	Misal Sakshi	47	44	24	36	32	39	34	34	30	14	334
12	Patil Mayuri	40	32	24	26	24	24	37	26	37	22	292
13	Pote Anuja	49	47	32	43	29	39	36	40	31	21	367
14	Salavi Tanvi	47	40	29	39	28	44	44	34	36	29	370
15	Shaikh Misba	45	45	24	45	34	38	29	35	31	22	348
16	Shukla Prachi	46	42	21	36	28	39	37	39	33	31	352
17	Thorat Sejal	39	34	27	40	28	39	33	29	32	17	318
18	Yewangade Manasi	40	34	26	29	24	26	37	26	34	26	302
19	Beluse Vaibhav	41	45	25	35	27	38	35	30	29	20	325
20	Bharekar Karan	33	34	30	28	23	35	34	27	35	29	308
21	Bhati Dinesh	32	30	28	31	24	38	31	28	33	20	295
22	Bhosale Parth	47	41	28	38	30	47	32	37	28	17	345
23	Choudhari Jetendra	34	36	33	44	33	33	34	35	40	21	343
24	Choudhari Omprakash	36	42	33	31	29	36	37	31	32	17	324
25	Choudhari Pravin	37	37	27	38	26	30	35	26	27	19	302
26	Choudhari Ravindra	39	35	31	41	32	43	39	30	42	35	367
27	Choudhari Mahipal	44	43	26	38	33	35	33	38	29	14	333
28	Dogale Antariksh	38	39	29	42	27	42	36	38	34	13	338
29	Dudhane Paras	34	29	34	31	23	32	37	27	36	29	312
30	Garuwa Jitendra	42	27	24	31	25	32	28	36	31	26	302
31	Gurav Shubham	31	31	27	40	28	34	35	33	35	27	321
32	Humane Atharava	42	38	25	46	28	38	31	40	34	18	340
33	Jain Kalpesh	39	38	28	26	27	35	38	32	39	21	323
34	Jat Prakash	30	30	27	35	28	36	27	28	33	25	299
35	Jogi Siddhant	38	37	25	36	22	37	37	34	25	23	314
36	Kamble Omkar	27	38	35	27	26	45	38	38	36	15	325
37	Kapure Mithil	44	40	26	33	29	37	34	32	32	24	331
38	Kazi Aftab	32	40	31	33	25	31	38	32	33	22	317
39	Khambalkar Mayur	38	35	31	32	29	30	32	21	39	21	308
40	Khan Arbaaz	39	27	32	38	23	28	34	29	31	22	303
41	Maurya Sahil	49	39	19	32	34	44	36	40	31	17	341
42	Misra Ambika	48	39	29	42	27	41	36	38	34	11	345
43	Nadar Rohit	41	39	29	29	28	32	33	26	36	22	315

44	Naik Roshan	42	36	26	39	30	39	33	34	35	21	335
45	Lilee Lalit	33	37	29	33	29	37	32	28	34	21	313
46	Pardeshi Shubham	38	37	29	34	26	39	35	33	36	25	332
47	Pawar Shantanu	38	34	29	34	27	30	37	32	28	26	315
48	Prajapati Aman	38	39	31	36	28	33	31	32	39	21	328
49	Rathod Manish	32	37	32	36	29	37	36	33	32	19	323
50	Shaikh Faizan	44	42	30	36	30	42	42	35	26	11	338
51	Shewale Rahul	43	35	29	36	30	43	38	39	34	11	338
52	Shinde Vishal	44	41	28	30	32	44	34	37	30	19	339
53	Sinnarkar Varun	30	37	30	34	27	40	36	32	34	19	319
54	Upadhayay ankit	39	43	28	41	29	35	50	35	32	20	352
55	Vaidya Ashish	39	40	38	44	32	38	37	32	39	33	372
56	Vishwakarma Aman	33	34	26	33	26	34	39	36	34	22	317
57	Vishwakarma Mayur	46	44	32	42	32	44	34	40	35	20	369
58	Wagh Dhananjay	34	36	34	34	29	33	38	32	36	25	331
59	Raut Pratiksha	41	34	34	41	30	37	30	36	39	32	354

Abhinav English Medium School, Narhe

Div B	**Life Skills**										
Roll No.	**Name of Students**	**(A)**	**(B)**	**(C)**	**(D)**	**(E)**	**(F)**	**(G)**	**(H)**	**(I)**	**(J)**	**Total**
1	Sejal Kishor Ahire	44	39	24	39	30	34	37	30	31	25	333
2	Rutuja M. Bacche	37	43	33	40	31	31	43	32	36	25	351
3	Sakshi Ajay Bhilare	31	42	28	47	24	43	38	29	37	24	343
4	Vrushali Gholap	43	33	43	50	28	40	42	25	38	32	374
5	Sharadha B. Ghule	46	27	34	45	32	36	38	38	34	28	358
6	Pallavi Kadam	38	32	24	34	32	41	37	35	35	17	325
7	Samruddhi Bajirao Kashid	42	39	36	48	27	40	37	37	42	21	369
8	Riddhi M. Mohite	43	32	30	29	27	31	27	30	28	13	290
9	Sharvari Ravindra Patil	28	41	30	34	25	30	30	32	31	18	299
10	Sejal Dattatary Tathe	45	38	26	36	38	38	29	38	29	14	331
11	Akshata B. Whaval	45	36	33	45	21	34	35	30	29	24	332
12	Karan R. Bhingare	44	43	26	34	32	42	41	43	27	21	353
13	Kiran P. Chorge	42	35	30	47	23	36	34	35	36	22	340
14	Ajinkya Sambhaji Devkar	33	34	31	36	28	41	40	27	35	27	332
15	Sanket Sambhaji	35	40	23	38	33	37	34	34	37	26	337

	Kamthe											
16	Shreyas Bajrang Karle	38	36	25	38	29	47	39	34	33	25	344
17	Ritesh Kolhe	41	37	28	32	29	29	36	31	30	20	313
18	Sushant S. Kondhare	37	30	28	40	26	28	33	28	38	18	306
19	Mangade Ajinkya Chandrakant	39	30	26	43	38	41	31	32	42	15	337
20	Mistry Bhagirath	43	37	29	32	29	33	35	32	31	20	321
21	Rohit Rudra Naikod	39	45	19	33	29	36	28	32	32	17	310
22	Harshwardhan Sachin Pande	40	34	25	40	31	42	42	35	42	25	356
23	Raj Pandit	35	40	25	47	37	43	31	37	31	12	338
24	Vaibhav V. Pawar	46	38	29	31	26	34	33	39	38	23	337
25	Yogiraj V. Pokale	32	42	30	36	23	43	38	30	39	18	331
26	Kunal B. Pokharkar	47	36	34	44	37	42	37	40	43	28	388
27	Pratik R. Singh	45	40	34	43	33	45	42	39	37	31	389
28	Indar S. Suthar	40	33	34	35	30	35	36	28	32	26	329
29	Shreetej S. Walankar	31	39	36	31	28	31	32	31	34	29	322

Div D	**Life Skills**											
Roll No.	**Name of Students**	**(A)**	**(B)**	**(C)**	**(D)**	**(E)**	**(F)**	**(G)**	**(H)**	**(I)**	**(J)**	**Total**
1	Bhambure Ruchika Vijay	37	35	25	33	33	29	32	33	24	12	293
2	Choudhari Khushi Kanarm	30	36	37	31	18	27	32	32	38	28	309
3	Dhanawade Shruti Suryakant	39	49	36	41	25	39	42	33	35	27	366
4	Ghone Srushti Mahendra	41	39	28	41	34	43	36	30	37	30	359
5	Kondhalkar Snehal Pandurang	34	45	34	38	25	45	36	31	37	31	356
6	Kulam Pratisha Maruti	33	35	35	44	22	33	35	31	38	33	339
7	Kulkarni Bhagyashree Venkatesh	43	36	36	41	27	41	37	30	37	28	356
8	Sharma Anjali Dinesh	35	32	35	37	24	26	38	34	37	29	327
9	Shete Sakshi Pravin	39	43	27	35	23	39	35	35	36	24	336

10	Vajale Sumesha Sudhir	35	33	37	47	29	42	37	32	41	31	364
11	Akole Niraj Deepak	44	42	33	43	29	41	38	41	40	32	383
12	Awasare Vinayak Ajay	31	35	38	35	32	36	43	38	39	19	346
13	Bhairemane Tushar	38	31	33	32	24	34	39	36	41	25	333
14	Gadekar Shriniwas Dattatrya	35	39	31	30	28	35	35	31	40	24	328
15	Kolte Rishikesh Basavant	44	35	28	42	33	41	39	33	41	27	363
16	Konde Tanmay Satish	47	39	34	47	37	43	37	37	33	29	383
17	Konde Yash Shekhar	37	38	33	44	33	40	36	27	41	32	361
18	Kondhalkar Suraj Kundlik	32	35	28	32	25	33	35	31	35	27	313
19	Kothawale Vishwanath Chandrakant	37	42	40	39	25	42	44	44	41	24	378
20	Kutwad Abhishek Shrirang	31	47	36	41	25	37	38	30	43	27	355
21	Mulani Aftab Shabbir	49	44	28	33	22	40	31	35	34	21	337
22	Pandgale Omkaar Mahadev	33	40	28	38	31	41	34	34	36	28	343
23	Pansare Juber Harun	43	40	34	42	27	39	38	35	36	32	366
24	Patil Bhushan Tukaram	45	42	32	35	27	43	37	39	36	22	358
25	Patil Praful Prabhakar	45	38	30	30	28	43	36	36	32	22	340
26	Shaikh Rahil Salman	30	33	29	36	25	35	31	33	38	25	315
27	Sharman Dainy Avinash	46	33	32	40	33	34	39	36	27	26	346
28	Shelke Atharva Arjun	38	42	33	36	25	40	43	34	37	33	361
29	Shinde Amar Bhagwan	32	36	38	44	34	33	36	39	35	32	359
30	Sohoni Samdruddha Santosh	41	33	33	36	37	34	31	37	27	25	334
31	Sonawane Sagar	50	38	29	43	26	38	41	35	36	21	357

	Jeevan											
32	Surana Yash Indrajeet	39	37	29	41	37	44	35	33	31	23	349
33	Tamang Dhanendra Jiralam	49	44	35	47	31	39	36	33	35	23	372
34	Yadav Atharv Sanjay	40	33	28	31	32	41	38	23	31	20	317
35	Yadav Mayur Santosh	39	41	35	36	28	45	41	34	36	33	368

Sugirdh Villa Sabha, Khadki

Div A	**Life Skills**											
Roll No.	**Name of Students**	**(A)**	**(B)**	**(C)**	**(D)**	**(E)**	**(F)**	**(G)**	**(H)**	**(I)**	**(J)**	**Total**
1	Aswale Vishwajeet											
2	Awaghade Omkar	35	42	28	36	29	36	32	33	32	22	325
3	Balid Sandesh	37	41	25	32	29	34	33	31	29	23	314
4	Balmiki Aman	42	40	30	37	23	40	41	40	35	19	347
5	Bekellu Ajeet	34	36	36	37	27	41	30	38	37	26	342
6	Bidlan Vineet	47	38	37	42	24	41	40	35	37	22	363
7	Chavan Arjun	37	34	36	27	23	35	28	30	33	25	308
8	Chavan Rushabh	49	42	31	35	34	37	34	23	30	28	343
9	Chinchane Aniket	33	40	28	32	26	34	41	32	40	19	325
10	Chnaliya Amit	38	34	27	36	30	40	32	36	29	18	320
11	Choudhary Aman	35	38	27	37	24	29	30	28	37	23	308
12	Gaikwad Sushil	37	37	24	35	21	35	35	33	32	22	311
13	Gonewar Sagar	35	29	24	32	23	35	38	28	31	24	299
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ABOUT AUTHOR

Dr. Bhagyashree Dudhade is working as the Principal of Swami Vivekanand College of Education, Wakad, Pune – 411 057. She has been awarded the degree of Doctor in Philosophy from Savitribai Phule Pune University. She has completed her Masters in Education at Dept. of Edu. & Ext., Savitribai Phule Pune University; acquired Masters degree in Subject communication – Chemistry from YCMOU; acquired Masters degree in Human Resource Management from Assam Downtown University and acquired Masters degree in English literature from Savitribai Phule Pune University. She has completed Post Graduate Diploma in Business Management from MIT, Pune and Diploma in School Management from YCMOU. She has qualified National Eligibility Test (NET) in Education. She has authored two books – 'Education SET/NET' and 'Life Skills Education'. She has published more than 30 Research papers at State/National/International levels. She is the Recipient of various awards, medals and certificates. She has actively participated and organized various Extension activities. She maintains interest in cultural activities, sports, yoga, aerobics, swimming, trekking and various adventurous activities.

ABOUT BOOK

It gives me immense pleasure to introduce the book titled, 'Life Skills: Self-awareness, Effective communication, Critical thinking, Problem solving, Decision making'.

Life Skills have often been looked at only from the reproductive health perspective and as a means of addressing specific issues related to adolescents' sexuality, HIV/AIDS and drug abuse. But Life Skills development must also be seen in the context of preparing individuals for livelihood to face their daily challenges. A composite approach to Life Skills, that embeds within it concerns of health, livelihood and social development offers a holistic framework for personality development. Exactly, keeping this point of view, an attempt has been made to throw light in the various facets of few Life Skills.

This book will prove extremely useful for the teachers and students of Primary level and also to all the faculties of Teacher Education i.e. M.Ed., B.Ed. and D.Ed. and valuable for teacher educators in teaching, for educationists and policy makers. It is hoped that the book will serve as a model of modification in preparing instructional materials for teacher training, practicing teacher, teacher trainers, curriculum developers and administrators.

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