

Part – I

Chapter – 1

Relevance of adolescence education in human development

Introduction:

Adolescence education is referred to body and mind development during adolescence age. The physical changes play a very important role in the life of a child during adolescence. The formal school curriculum does include some part of it in different standards. This study is conducted to know the level of awareness through different sources of information to the adolescents as well as through school curriculum. The physical fitness and body image do motivate the youth today, but real development period, which is early adolescent pass without much effort on these aspects. The study is the most relevant to find the existing gap to impart the adolescence education. The parents, teachers and society at large take the adolescents easily in right direction.

Adolescence period is the bridge between childhood and adulthood. Puberty leads to an adult size body and sexual maturity. Thought becomes abstract and idealistic, and school achievement become more serious as young people prepare for the world of work. Defining personal values and goals and establishing autonomy from the family are major concern of this phase. (Berk, 2003). Adolescence begins with on-set of puberty, the process that leads to sexual maturity or fertility - the ability to produce. The term "Puberty" which is applied to period of physical changes for reproductive capability of boys as well as girls, derived from the Latin word, *Pubertas* meaning age of manhood. Puberty refers to first phase of

adolescence during which reproduction apparatus matures. Adolescence starts from age 11 or 12 and lasts till late teens or early twenties. There are legal definitions to adulthood like marriage age of 21 years for boys and 18 years for girls in India, and they can marry without the permission of their parents, as they become responsible and mature as per the Child Marriage Restraint Act, 1929. Sociological definitions of adulthood may be when self supporting or have married or chosen a carrier (www.bc.edu)

Adolescence period in human life prevailed since the birth of first human being in the world. The early years of life make impact on future life. Five major perspective define theory and research on human development (Appendix-1)

1. Psychoanalytic-which focuses on unknown emotions and drives.
2. Learning-which studies observable behavior
3. Cognitive-which analyze thought processes
4. Evolutionary-which considers evolutionary and biological under-pinning of behaviour.
5. Contextual-which emphasizes the impact of the historical, social and cultural context.

1.1 Theoretical perspectives of human development

At the end of seventeenth century John Locke, a British Philosopher, viewed the child's experience and education as the fundamental determinants of his development (Mussen, 1969). He observed that "The great principle and foundation of all virtues and worth is placed in this, that a man is able to deny his own desires, cross his own inclinations and purely follow what reason directs as best, through the appetite learn the other way" (Locke, 1965).

The human beings have an ability to deny the desires, unlike other animals. Reasoning takes over desire. Locke's philosophy led to a change from harshness toward children to kindness and compassion. He regarded development as continuous, adult like behaviors are gradually built up through warm, consistent teachings of parents. Locke's view of the child is as '*tabula rasa*' a blank slate, which is written by others. One can agree to look at children with kindness. But child is not passive

In the later half of eighteenth century Jean Rousseau, a French philosopher, believed that child is endowed with an innate moral sense. He suggested, "No harm to the child or to the society will result if the child grows with little adult supervision and direction! The child will become increasingly fit to live in the world, not by virtue of ceaseless vigilance on the part of his governors, but because nature endowed him with an order of development that ensures his healthy growth. More than those typical interventions of parents and teachers mar and distort the natural succession of the changes of childhood; the child that man raises is almost certain to be inferior to the child that nature raises (Mussen, 1969). In Rousseau's thinking, the child responded actively to the world around him. He saw development as a discontinuous, stage wise process that follows a single, unified course mapped out by nature. One agrees to his child-centered philosophy in which adults should be receptive to the child's need at each of four stages: infancy, childhood, late childhood and adolescence.

The publication of "On the Origin of Species" was probably the single most vital force in the establishment of child psychology as a scientific discipline. Charles Darwin, a British naturalist, influenced the nineteenth century with his theory of evolution. The theory was based

on the principles of *natural selection* and *survival of the fittest*. The search for phylogenetic and societal shades in the child marked the beginning of a science of child behaviour. Man was not to be understood by the analysis of his adult functions, an analysis that was rational in conception and closely linked to logic; rather man was to be understood by a study of his origins – in nature and in the child (Kessen, 1965). Darwin's explorations observed that the early prenatal growth of many species was strikingly similar. The development of human child, from conception to maturity, followed the same general plan as the evolution of the human species. One agreed that effort for further observation of all the aspects of child's behavior needed.

1.1.1 Psychoanalytic approach to human development

A Viennese physician, Sigmund Freud, developed psychoanalysis, a therapeutic approach aimed at giving patients, an insight into unconscious emotional conflicts. Personality development takes place in childhood, as children deal with unconscious conflicts between inborn urges and the rules of civilized society. These conflicts occur in a five maturity-based stages of psychosexual development in which sexual pleasure shift from one body zone to another, mouth to anus to genitals. Freud's psychosexual theory emphasized that how parents manage their child's sexual and aggressive drives in the first few years is crucial for healthy personality development.

The 'id' is the source of basic biological needs and desires, the 'ego', is the conscious, rational part of personality and the 'super ego' is conscience, develops from interactions with parents (Freud, 1923,). According to him, the relations established between the id, ego and

superego determine the individual's basic personality. He believed that over the course of childhood, sexual impulses shift their focus from the oral to anal to the genital regions of the body.

At each stage, the behaviour showing the gratification or frustration changes. The oral stage is feeding. The second stage is disposal of waste from the body, in the form of bladder and bowel movement resulting into expelling urine and feces. It is a substitution of voluntary control, which was initially involuntary, reflex process. And last stage is sexual activity. The genital stage, which starts with puberty, and last throughout adulthood plays an exciting phase in adolescents. In each year of puberty, parents draw a fine line between permitting too much or too little gratification of their child's basic need. He made us aware of the importance of unconscious thoughts, feelings and motivations in forming personality, the ambivalence of emotional responses, especially to parents, and ways in which early relationships affect later ones. The relations established between the id, ego and superego during the pre-school years determine the individual's basic personality. Freud's psychosexual theory underscores the importance of family relationships for child's development. But the theory overemphasized the influence of sexual feelings in development and focused on the problems of sexually repressed.

Erik Erikson, a German psychoanalyst, modified and extended Freudian theory, by emphasizing influence of society on the development of personality. His psychosocial development covers eight stages (Appendix-1.1.1) across the whole life span beyond the adolescence (Erikson, 1982). The fifth stage, adolescence period was in search for identity

versus identity confusion. Its sixth stage of psychosocial development, intimacy versus isolation is the major issues of young adulthood. He described that if they cannot make deep personal commitment to others, they may become isolated and self-absorbed. However, they do need some isolation to reflect on their lives. As they work to resolve conflicting demands of intimacy, competitiveness and distance, they develop an ethical sense, which he considered the mark of the adult. He pointed out through clinical research that normal development must be understood in relation to each culture's life situation.

1.1.2 Behaviorism and learning perspective of human development

Psychologists were interested in whether behaviorism might better explain the development of children's social behavior than the less precise concepts of psychoanalytic theory.

Ivan Pavlov, a Russian physiologist, through his famous experiments showed that dogs learned to salivate at the sound of bell that rang before feeding time. This was termed *classical conditioning* learning, in which response to an external stimulus is evoked after repeated association with a stimulus that automatically elicits it. Learning or behavior theory points that the most important aspect of behaviour are learned: precisely that behavior which is widely felt to characterize man as a rational being or as a member of a particular nation or social community is learned rather than innate (Papalia, 2004).

John Watson, an American behaviorist has applied stimulus-response theory to children, which were observable events rather than the unseen workings of mind. His study suggested that a child could be conditioned to fear things he had not been afraid of before (Watson,

1920). By learning events which go together, children anticipate what is going to happen. Such conditioning makes their life more orderly and predictable. Classical conditioning is a natural form of learning that occurs even without intervention. By learning what events go together, children can anticipate what is going to happen, and this knowledge makes their world a more orderly and predictable place.

Operant conditioning learning from the consequence of 'operating' on the environment, involves voluntary behaviour. B.F. Skinner, an American Psychologist worked primarily with rats and pigeons on operant conditioning. He found that an organism would tend to repeat the response, which is reinforced, and suppress the response, which is punished. What is reinforcing for one person may be punishing for others. Positive reinforcement consists of a reward and praise. Reinforcement is most effective, when it is backed by behaviour immediately (Skinner, 1938). The major difference between classical conditioning and operant conditioning is that in classical conditioning the response already exists and connected to new external stimulus. In operant conditioning, the response is gradually developed through external stimulus.

Observational learning or modeling maintains that learning appropriate social behaviour mainly by observing and imitating other persons. Parents and popular celebrities become role model to imitate. Albert Bandura, an American psychologist, experimented about imitation learning draw an important distinction between the factors affecting acquisition and those affecting performance. Observational learning activates learning of language, emotional relation, moral sense and gender appropriate behaviour. He used social learning theory. He

observed, “motivational factors or the anticipation of positive or negative reinforcement may augment or reduce the probability of occurrence of observing responses” (Bandura, 1963). Children gradually form standards for evaluating their own action through feedback on their behavior. Children become more selective who match those standards. He observed that subjects are more likely to behave in socially disapproved ways frequently after they have observed models doing so. Bandura stressed the importance of cognition, so that children’s ability to listen, remember, and abstract general rules from complex sets of observed behavior affects their imitation and learning. The behavior and social learning theory underestimate children’s contribution to their own development. It also does not take into account the environmental influence and influence of role model and celebrity behavior.

1.1.3 Cognitive development of human being

The term ‘cognition’ refers to the processes of perceiving, learning, thinking, concept formation and problem solving. The critical development includes the rapid growth of language and cognitive capacities, the beginning of sex typing, identification with parental models and emergence of superego or conscience.

Jean Piaget, a Swiss cognitive theoretician, described cognitive development in four stages of qualitative life as under (Piaget, 1972):

1. Sensorimotor (birth to 2 years). Infant gradually becomes able to organize activities in relation to the environment through sensory and motor activity.

2. Preoperational (2 to 7 years) child develops a representational system and uses symbols to represent people, places and events. Language and imaginative play are important manifestations of this stage. Thinking is still not logical.
3. Concrete operations (7 to 11 years) child can solve problems logically if they are focused on the here and now, but cannot think abstractly.
4. Formal operations (11 Years through adulthood) person can think abstractly, deal with hypothetical situation and think about possibilities

A stimulating linguistic environment, one that is offering good language models, together with variety, novelty, and rewards for verbal responses, enhances learning and cognitive development. A dull and unstimulating environment inhibits development. Piaget's clinical method combined observation with flexible questioning. Piaget followed children's answers with more questionings. In the fourth stage of formal operations, adolescents integrate what they have learned in the past with the challenges of the present and make plans for future. Emotional implication of abstract thinking on behaviors is also observed. Adolescents can have freedom or hate exploitation (Ginsburg, 1979). Piaget's classic pendulum problem suggested that adolescents can design and experiment to test all the possible hypotheses, varying one factor at a time: first the length of string, next the weight of the object, then the height from which it is released, and lastly, the amount of force used. Each time, keeping the other three variables constant.

Piaget attributed cognitive development to a combination of brain maturation and expanding environmental opportunities. Adolescents' neurological development has advanced enough to permit formal reasoning, they can attain it only with opportunities situation available through

opportunities in the social environment, culture and schooling. Piaget's theory has influenced on education and continued research. Parents and teachers could fix benchmark for adolescents at every age and design curriculum accordingly. Although he paid less attention, to individual differences as well as to variations due to social and cultural influences in a child's performance. (Flavell, 2002)

Starting from infancy through adolescent, mental thought process evolve from learning based on simple sensory, motor activity to logical and abstract thinking. It creates organized pattern of behavior. Children adopt assimilation of new information and incorporation in existing cognitive structure as well as accommodating by even changing one's cognitive structure. A calculated shift from assimilation to accommodation makes way for equilibrium. If parents know how their children think, it becomes easier for communications.

Cognitive development takes place simultaneously in adolescents, which increases the efficiency to acquire and to utilize knowledge. It uses mathematical reasoning, logical and analogies. The level of intellectual excellence achieved during late adolescence will determine future adult cognitive functioning. The difference in interests and social conditioning, rather than mental abilities plays on boys and girls. Science and mathematics are superior with large section of boys compare to girls. The sophistication of reasoning is limited with preadolescent child compare to adolescent.

Adolescent start thinking abstract, more general and more divorced from immediate experience. Young child's thinking is concrete, while adolescents deal with metaphors.

Cognitive development helps in mastering academic skills, preparing for a vocation, and gaining factual knowledge of the environment around. The preoccupation with values, dissatisfaction with environment in general and with parents in particular are some features of capacity for formal operational thought acquired by the adolescent. Adolescents become introspective, analytical and self-critical.

There is perhaps reassurance of interest in cognitive processes (thinking, reasoning and problem solving) and their development. In Piaget's cognitive theory, the active participation of the child in his environment and his innate tendency towards adoption are fundamental in effecting development in understanding and in basic knowledge. The child's own resources, his built-in self generating mechanism determine behavioral development (Mussen et al op cit, 1969)

Piaget considered children as active learners whose minds consist of structures of knowledge and reasoning about social world. Information processing researchers infer what goes on between a stimulus and a response. Although use of "computer" model for information processing theory, people are active thinkers about their own world. Unlike, Piaget, the view is of age related stages. The neo-Piagetian approach brings individual differences in cognitive ability and for uneven development in various domains, which emphasis on efficiency of processing. Piaget cognitive theory is helpful for future research.

Neo-Piagetian suggest that cognitive development in adolescents is closely related to specific content in the thought as well as to the context of a problem and the kinds of information and

culture. Adolescents create their own slang words to demonstrate their independent identity from adults. They speak differently with parents and peers. Understanding of others point of view as well as level of knowledge increase with adolescents. Vocabulary continues to grow and reach to around 80,000 words for 16 to 18 years old adolescents (Owens, 1996).

1.1.4 Evolutionary perspective of human development

Evolutionary psychologists are concerned in how individuals learn. Learning lends flexibility and greater adaptiveness to behaviour. They recognize that today's life styles differ so radically from those of our evolutionary predecessors that such evolved behaviors such as adolescent life threatening risk taking and male-to-male violence are no longer adaptive (Geary, 1999). Ethologists have shown that many aspects of children's behavior, including aggression, cooperation, and emotional expressions etc. resembles those of their primate relatives. The adaptive values of species wise cognitive, emotional and social competencies are studied over time. *Imprinting*, the early following behavior that the young will stay closer to the mother and be fed and protected from danger takes place during an early restricted time period. This period is known as critical period, when the child is biologically prepared to acquire certain adaptive behaviors but needs an appropriate stimulating environment (Lorenz, 1952).

A sensitive period is a time that is optimal for certain capacities to emerge because the individual is especially responsive to environmental influences (Bornstein, 1989). However its boundary is less defined than those of critical period. The imprint of mother or caretaker

will remain strong input in development. It deals with organism-environment system. One can agree that such imprints remain powerful in future life.

1.1.5 Socio-cultural theory of human development

The development that makes comparisons, across the cultures and between ethnic groups within culture, provide insight into environment influence. Cross culture and multi culture help to understand biological as well as environmental factors to the timing, order of appearance and diversity of children's behaviors (Greenfield, 1994).

Lev Vygotsky, a Russian Psychologist, made major contribution in examining the relationship of culturally specific practices to child development, which is called socio-cultural theory. It focuses on the values, beliefs, custom and skills of a social group, which is transmitted to the next generation. According to Vygotsky, social interactions are cooperative dialogues between children and more knowledgeable members of the society. It is necessary for children to acquire the ways of thinking and behaving that make up a community's culture. (Vygotsky, 1930)

Vygotsky theory was influential in study of cognitive development of children; He agreed with Piaget that children are active, constructive beings. But unlike Piaget, who emphasized children's independent efforts to make sense of their world, he viewed cognitive development as a socially mediated process, as dependent on the support from more mature peers provide for trial of new tasks. He emphasized more on culture and social experiences, which led him to neglect the biological side of development (Rogoff, 1998).

Urie Bronfenbrenner, an American psychologist, offered contextual influences on children's development. This ecological systems theory views the child as developing within a complex system of relationships affected by multiple levels of the surrounding environment. The child's biological dispositions attach with environmental forces to mould development. He characterized this perspective as bio-ecological model (Bronfenbrenner, 2000)

Home, school, and neighborhood settings in which child spends daily life had powerful impact on children's development. The micro-system includes relation between the developing individual and the immediate environment. The meso-system is connections between immediate settings. The exo-system is social settings that affect, but do not contain the individual. The macro-system has the values, laws, customs and cultural resources. It is a very complex learning of behavior by child and adolescent. The factors affecting are biological as well as social and environmental. The components of environment are many and which has affected the most on any individual is different from the other individual. The different cultures, belief and customs have imprints on the development of adolescent. Such impacts motivate one to study more on the development aspects of adolescent in India.

The social scientists were working on adolescence development during human life, while in India also, person like Ravindranath Tagore stressed on natural development of human being during adolescence.

1.1.6 Education as seen by Ravindranath Tagore

Shri Rabindranath Tagore envisioned an education that was deeply rooted in one's immediate surroundings, pleasurable learning and individualized to the personality of the adolescent. He felt that a curriculum should revolve around nature to appreciate the fluidity of the plant and animal kingdoms as well as seasonal changes. Nature walks and excursions were considered a part of the curriculum. Class schedules were made flexible to allow for shifts in the weather and natural phenomena. He created seasonal festivals for the adolescents. He was one of the first in India to argue for a humane educational system that was in touch with the environment and aimed at overall development of the personality in coeducational setup.

The establishment of Visva-Bharati and Shanti-niketan led to pioneering efforts, in providing Indian higher education and mass education for making life in harmony with all existence. "We rob the child of his earth to teach him geography, of language to teach him grammar. His hunger is for the Epic, but he is supplied with chronicles of facts and dates. Child-nature protests against such calamity with all its power of suffering, subdued at last into silence by punishment" (Tagore, 1917). In his philosophy of education, the aesthetic development of the senses was as important as the intellectual. Music, literature, art, dance and drama were given great prominence in the daily life of the school. In terms of curriculum, he advocated a different emphasis in teaching; a teaching system that analyzed history and culture for the progress that had been made in breaking down social and religious barriers. Art would be studied for its role in furthering the aesthetic imagination and expressing universal themes.

Along with such research on human life development during adolescence, the international organizations were spending time, money and human resources to spread adolescence education all over the world.

1.2 International concern on adolescence education

International agencies are working on educating adolescence for better life. They have different programmes, which are concerned with adolescent issues like, AIDS (Acquired Immuno Deficiency Syndrome) awareness, reproductive healthcare, malnutrition, teenage pregnancy etc. These agencies fund such projects in various countries for upliftment of underprivileged.

United Nations in recent times has made efforts towards the operationalization of the United Nations Development Assistance Framework (UNDAF). The constitution of the Inter-Agency Working Groups (IAWG) on important subjects promoting joint action and initiatives by sister UN organizations is a step in this direction. The UNDAF is aimed at increasing the effectiveness and efficiency of UN operations by bringing about greater synergy in action. The development of the UNDAF has also set in motion a process of further strengthening UN collaboration in India by forging critical partnerships and promoting collective action. The IAWG acts as a secretariat and platform for synergizing the interventions of UN agencies in the area of P&D ('Population and Development') with special emphasis on its theme 'Adolescents'.

1.2.1 International Conference on Population and Development (ICPD)

Around the period 1990s, the policy environment has begun to recognize the need to address the sexual and reproductive health needs of young people. Notably the Programme of Action of International Conference on Population and Development (PoA- ICPD) at international level and the shift away from targets towards a client-centered approach at the national level have had considerable direct and indirect consequences for programmes for youth. The ICPD Programme of Action, underscored the importance of providing information, counseling and services to youth, recommended universal access to primary education, raised attention to closing the gender gap in primary and secondary school education; and, more generally, promoted respect for the reproductive rights of adolescents and youth. Indeed, by 1999, the recommendations of ICPD+5 included the recognition of young people's vulnerability to HIV (Human Immunodeficiency Virus) and recommended action to reducing HIV prevalence in this age group.

1.2.2 Life-Skills Education Modules for Adolescents by UN IAWG-P&D

The UN Inter Agency Working Group on Population and Development (UN IAWG-P&D) comprising UN sister agencies have identified 'adolescents' as a thematic area and have been promoting adolescent development and Life-Skills Education (LSE). A document entitled 'Adolescents in India: A Profile', prepared by the IAWG-P&D (2000), has been used as reference material by the Working Group on Adolescents for the Tenth Five-Year Plan, Government of India. The UN IAWG-P&D's initiative of empowering adolescents by building their life skills started through the support to NGOs.

1.2.3 UNFPA- United Nations Population fund

Adolescents have been identified as a priority group by UNFPA in the Sixth Country Programme (2003-2007). A total of 27 projects/initiatives were supported by UNFPA in the last five years. These projects varied in terms of coverage and content. While the Population Education projects were exclusively for adolescents, the IPD projects in six states only incorporated some interventions for adolescents. Seven NGOs were supported for pilot projects through the Support to Gender Issues (SGI) projects. UNFPA provided support for the universalization of elementary education through the *Janshala* project, which has been selected this year as a best practice for the UN Economic and Social Commission (ECOSOC). The printed material published in India on adolescent issues as detailed at (Appendix-1.2.3A) and UNFPA supported projects in India during the UNFPA Fifth Country Programme (1997-2002) are listed at (Appendix-1.2.3B)

1.2.4 Adolescence, the picture in India by UNICEF

United Nations Children's Fund (UNICEF) has been working in India since 1949, the largest UN organisation in the country. UNICEF has its network of ten state offices in India. UNICEF develops innovative interventions to ensure that women and children are able to access health and educational facilities. The organisation also works with an array of celebrities, from the Indian cricket team and the Indian film industry.

The literacy rate had reached to 65 per cent in India as per census-2001. The gross enrolment in Government-run primary schools increased from over 19 million in the 1950s to 114 million by 2001 (census, 2001). The education sector faces a shortage of resources, schools, classrooms and teachers. 20 per cent of children aged 6 to 14 are still not in school. Issues of

‘social’ distance – arising out of caste, class and gender differences – deny children equal opportunities. Teachers’ training, the up gradation of the curriculum, assessment of learning achievements and the efficacy of school management need attention. Many children drop out before completing five years of primary education. Girls belonging to marginalized social and economic groups are more likely to drop out of school at an early age.

An estimated 4.58 million HIV positive cases in India, this accounts for 11.4 per cent of global HIV infections. A Behaviour Surveillance Survey (BSS) conducted in 2001 by the National AIDS Control Organisation (NACO, 2001) indicated the increased levels of awareness, but also revealed that very few people correctly understood how to prevent transmission. Fewer than half of all people interviewed were aware of the two important methods of prevention of transmission: consistent condom use and sexual relationships with faithful and uninfected partners. The survey found that while 70 per cent of men were aware of the protective value of a condom, only 48 per cent of women knew about this.

Malnutrition limits development and the capacity to learn. About 50 per cent of all childhood deaths are attributed to malnutrition (UNICEF). In India, 47 per cent of children below the age of three are underweight. Anemia affects, more than 90 per cent of adolescent girls and 50 per cent of women. Iodine deficiency, which reduces learning capacity by up to 13 per cent, is widespread because fewer than half of all households use iodized salt. Malnutrition in early childhood has serious, long-term consequences because it impedes motor, sensory, cognitive, social and emotional development. Malnourished children are unable to perform well in school and at greater risk of disease and early death.

1.2.5 United Nations Programme on HIV/AIDS (UNAIDS)

UNAIDS is the main advocate for global action on HIV/AIDS working to prevent the transmission of HIV, provide care and support, reduce of the vulnerability of individuals and communities to HIV/AIDS and alleviate the impact of the epidemic. The Joint United Nations Programme on HIV/AIDS (UNAIDS) is a joint venture in the United Nations family comprising of:

United Nations Children's Fund (UNICEF)

United Nations Development Programme (UNDP)

United Nations Population Fund (UNFPA)

United Nations Educational, Scientific and Cultural Organization (UNESCO)

World Health Organization (WHO)

World Bank(WB)

United Nations Drug Control Programme (UNDCP)

UNAIDS also collaborates with other NGOs, the private sector and religious organizations at global, regional and national levels.

The International Council of AIDS Service Organizations (ICASO) works through a networking process that seeks to strengthen networking at a national level. Developing partnerships and collaborative initiatives between civil society organizations is essential to broaden the impact of our respective activities. ICASO has experience and expertise in developing, implementing and evaluating HIV/AIDS programmes at the global level (fhi.org, 2004).

- Of the 33 million people worldwide who have HIV, at least one-third is between 10 years to 24 years.

- Nearly 3 million new infections occur annually among young people, including 1.7 million in Africa and 700,000 in Asia and the Pacific.
- Some 10.4 million youth under age 15 have lost one or both parents to AIDS. Many of these AIDS orphans live on the streets and suffer abuse and exploitation.

People who are HIV-positive may face ostracism in their communities. Adolescents may be forced out of school or home. They are typically less aware of their legal rights, more vulnerable to financial hardships and less able to find and purchase care. They may be angry that they were infected so early in life and confused about their future and the risk of spreading the disease to others.

1.2.6 Boys Scouting Movement

Boys Scouting of America (BSA) was formed in 1910. Several of the training games of "Scouting for Boys" were taken from Seton's book, "The Birch-bark Roll of the Woodcraft Indians." Baden-Powell is rightly considered the founder of Scouting. Robert Baden-Powell's (1857 - 1941) observed that the entire scout teaching is to form character in the boy is to make them manly, good citizen and a useful member of society (Powell, 1908).

It practices responsibility and the qualities of leadership. The elements of self-denial and self-control is involved in the team spirit of cooperation and good comradeship. Giving responsibility to the boy is the very best of all means for developing character. Baden explained that educators should become the students, and study the boy-life, which they try in vain to curb and repress. Baden placed emphasis on adventure, on encouraging young boys to enlarge gradually their experiences designed around camp life.

Ernest Thompson Seton, aggrieved at the plaudits conferred on Baden-Powell as the inventor of Scouting, a grievance obviously exacerbated by the enormous popularity of Baden-Powell's

movement as opposed to the substantially more modest success of his own Woodcraft Indians. Seton based many of the symbols and activities of the Woodcraft Indians on the cultures of Native Americans (Rosenthal, 1986).

The key to successful education is not so much to teach the pupil as to get him to learn for himself. Encouraging a child in its natural desires, instead of instructing it in what you think it ought to do, one can educate it on a far more solid and far-reaching basis. It is only tradition and custom that ordains that education should be a labour. (Robert Baden-Powell manuscript circa 1913-14) quoted by Jeal 1989: 413)

Daniel Carter Beard, brought his 'Sons of Daniel Boone Boys' organization into BSA. He promoted woodcraft, camping, and hiking. The purpose was to show outdoors life and fun to boys, to teach good citizenship, and to promote conservation. Beard suggested that the boys make their own uniforms in frontiersman style.

James E. West, the fourth of the fathers of Scouting, who appealed to boys, like two hours of homework. James West's desire to run the BSA in a businesslike manner did not always sit well with Ernest Seton and Daniel Beard. The BSA has shaped the lives of millions of young people. It continues to do so today.

1.2.6.1 Woodcraft Indians by Seton

Ernest Thompson Seton, created the Woodcraft Indians in 1902 and was designed for boys aged 12 to 15 years, based on outdoor life. Woodcraft Indians contributed to the Boy Scout movement. Seton withdrew from the movement in 1915 over disagreements about younger

boys below the age of 12 years (cubbing) and what he perceived as militarism. The Birchbark Rolls of the Woodcraft Indians published as a guide for the program. Seaton felt that an experience with nature would have a kind of cathartic impact upon the soul. He was especially opposed to regimentation. A Woodcraft Indian outing was an informal camping experience with evening campfires, dances, and storytelling. It was not a children's or youth organization, but as a coeducational organization serving all ages (histclo.hispeed.com, 2004) The coeducational movement is needed for better respect of both the gender and to minimize the bias.

1.2.7 World Association of Girl Guides and Girl Scouts (WAGGGS)

In 2003, the World Association of Girl Guides and Girl Scouts celebrated its 75th anniversary. Approximately 10 million girls and young women belong to the World Association in 144 Member Organizations worldwide. It is one of the largest international youth organizations in the world and the largest voluntary organization for girls and young women. Its mission is 'to enable girls and young women to develop their fullest potential as responsible citizens of the world' (WAGGGS, 2004). It offers high quality, non-formal educational programmes concerning girls and young women, such as HIV and AIDS, adolescent pregnancy, peace in Africa and adolescent health (Appendix-1.2.7).

Robert Baden-Powell, officially founded the Boy Scout Movement in 1908. The Guide Movement was formally founded in 1910, with the establishment of the Girl Guides Association (United Kingdom). The Movement spread rapidly, and was even established in some countries without the Founder's knowledge. This rapid growth was due to the efforts of

many enthusiastic women who saw the Movement as a wonderful opportunity for the education of girls.

Juliette Low founded Girl Scouting in the United States of America in 1912, her vision of worldwide Girl Guiding/Girl Scouting making a powerful contribution to its development. In the United States of America, the term 'Guide' was unacceptable, as it already had a widely accepted application to Indian hunters. The first groups were therefore called Girl Scouts, and several other countries adopted the same name. The World Association of Girl Guides and Girl Scouts, WAGGGS was established at the Fifth International Conference in Hungary in 1928, with 26 founder member countries and a World Bureau as its secretariat. In 1966, WAGGGS' fourth World Centre, Sangam, was opened in Pune, India.

1.2.7.1 Health of Adolescent Refugees Project (HARP) in the world

The Health of Adolescent Refugees Project (HARP) was an innovative health education programme, implemented jointly by WAGGGS with Family Health International (FHI) and UNFPA. The project was run in three countries - Uganda, Zambia and Egypt. The HARP project was so successful that UNAIDS recognised it as an example of International Best Practice (HARP, 2004). Adolescents are neither children nor adults feel like refugees from both the group, and so the existing health programmes often overlook them. HARP provided education on a range of health issues such as: nutrition, preventing unwanted pregnancy, sexually transmitted diseases, physical and emotional changes through adolescence, hygiene and self-esteem. These topics were taught through the use of the Girl Guide/Girl Scout method. The trained girls to propagate further the messages they had learned to the local community through peer education.

HARP project implemented in the refugee settlement of Pakelle in the north of Uganda. Camps took place, funded by UNICEF, to introduce participants to Girl-Child issues and also included training in life skills (UNICEF, 2004). Resource centres were also set up, making material available for girls and leaders to use. HARP project was implemented in the Meheba settlement of the North Western Province of Zambia, where the participants were from a variety of countries including Angola, Congo, Rwanda, Burundi and Zambia. Through HARP, health talks have been delivered to out-of-school adolescents and health providers have reported that demand for reproductive health services increased following the start of the project. HARP in Cairo (Egypt), based around schools and churches. Parents felt that there were very few places and youth organizations, where children could go out, meet and spend their free time and so parents saw HARP as a valuable opportunity. Cultural taboos resisted mothers in communicating to their daughters about reproductive health issues. Parents and the community believed their daughters' new knowledge had benefits for the whole community. The girls had become much more self-assured, assertive and confident could perform their role-plays in front of an audience and passed on their learning to others. The knowledge on health had improved, especially in areas of nutrition, sanitation, personal hygiene, puberty and family planning.

The Egyptian Association has pledged to integrate the refugee groups into the normal Association structure, thus giving refugees the permanent opportunity to be Girl Guides. In Zambia, further funding has come from UNAIDS and the Reproductive Health for Refugees Consortium to continue the project, and to include more HIV/AIDS education. The Association are also working in partnership with the Scouts so that boys can benefit from the

project. In Uganda, funding has been received from UNHCR and the Reproductive Health for Refugees Consortium for HARP to continue in Adjumani settlement area.

1.2.8 Skills For Adolescence (SFA) programme by Lions- Quest international

Mr. Rick Little, founded the International Youth Foundation in 1975. The mission was to empower and support adults throughout the world, in their efforts to nurture responsibility and caring in adolescents by actively involving the family, school, and the local community. Since 1984, Lions have partnered with Quest International to teach life skills to youth. In June 2002, Lions Clubs International Foundation (LCIF) purchased the Quest program from its owner, the International Youth Foundation. They now fund local programs, coordinate training of teachers, arrange meetings for parents, and undertake projects with students all over the world. They have developed special Asian version for seven books (Appendix-1.2.8).

1.2.9 INTERACT, Rotary International's service club program

Interact, Rotary International's service club program for 14 to 18 years of adolescents (Young adult) at the secondary school level, was started in 1962. The foundation of Interact marked that Rotarians were not just serving youth, but through INTERACT, were empowering them to serve in their communities. An 'Interact 'club can be school-based or community-based. A community-based Interact club may draw members from several different schools within the territorial limits of the sponsoring Rotary club. Clubs can be single-gender or mixed, as well as large and small. The membership base can be drawn from the student body of a single school or from two or more schools from the same community.

Every Interact club has to carry out at least two service projects every year: one that benefits the school or community and the other one that furthers international understanding. Youth Exchange participation, visits to foreign Interact clubs, and projects that aided developing countries were among the most common projects recognized. The Interact program gives young people an opportunity to participate with fun, meaningful service projects while developing leadership skills and meeting new friends. It is one of the most significant and fastest-growing programs of Rotary service, with more than 8,600 Interact clubs in some 110 countries and geographical areas; Interact has become a worldwide phenomenon.

As world organizations were working for better life of adolescents, some Indian organizations were also putting efforts to spread the adolescence education in India.

1.2.10 Reproductive Health Education Projects by BBC World

Susannah Ross, in 1998, managed the training project on behalf of British Broadcasting Corporation (BBC) World service Education and World Service Training. The project comprised radio and TV in Hindi, English, and other regional languages. BBC World Service was approached by the Ford Foundation in India, to develop a capacity-building project in India, which gave people information - about puberty, conception, sexual intercourse, pregnancy, etc. The subject was linked with the issues of population, health, gender, religion and politics and how varied were the perceptions about its many aspects. Ordinary people conveyed the information, instead of doctors and social workers. Experts explained biological processes. It was easier for conveying information through people that the audience can identify with, supported by expert knowledge, so that people do not feel they are being

preached. The programmes from each of the main regions, or in each of the main languages of India were not possible (comminit.com,2002).

1.2.10.1 Radio and TV programmes for adolescents

Malabi Gupta's radio programme in Bengali was dealing on the sex determination of a child at conception and safe delivery, aspects of healthy pregnancy, spacing the children, and infant mortality. The programme emphasized that the sex of a baby is determined by the father and not by the mother. She demonstrated the implications of the belief that the mother is to be blamed for girl child. Different people talked about the consequences of this belief, then a doctor explained how the chromosomes in the man's sperm determine the sex of the child.

Simi Chakrabarti's developed radio series on sexual relationships called Sath-Sath, in Hindi, aimed at young people in urban areas. It explored various aspects of relationships apart from pregnancy and contraception, informing the audience about sexual health, sexual response and different sexual orientations.

Ramakrishnan's TV programme called Growing Up in English. It was found that the English-medium schools more receptive to the sex education for children - in other words before or during puberty, rather than after all the changes happened. Someone has to start somewhere to show what can be done. Mixture of entertaining devices to put across the messages starting with the idea that some aliens, represented by puppets, are looking at pictures of human beings and wondering how and why they go through this process of changing size and shape.

Neela Kapadia's TV topic dealt with adolescence, but the target audience was the parents of adolescents. Aim was to encourage parents to talk to their children more frequently as they go through puberty and beyond. The short documentary consists entirely of interviews, but without the questions. They showed a range of opinion among adolescents and parents and put in the views of experts, all leading to the conclusion "let's talk -- we can change the way we do things".

Chandita Mukherjee's TV topic targeted the adolescents. The adolescents talked together, under the guidance of an adolescence educator, explore issues of sexuality and examine their own attitudes. The programme was called 'a workshop-on- air'.

Sumit Chowdhury's TV film was named Love Story. The idiom of Hindi movie, music, songs and fantasy were used, but places the couple in a modern urban setting and had modern version of the traditional Suthradar preaching message about equality and compromise in relationship. The young couple go through courtship, marriage and the birth of their first child observed by a couple of magical figures whom they can't see and who comment on the difficulties the young couple have and how they could have overcome. In fact the magical couple represented a mature, warm and successful relationship, if only the young ones could see them.

1.2.11. Sexual and reproductive health (SRH) programs by (ICOMP)

The International Council on Management of Population Programmes (ICOMP) is committed to the achievement of excellence in the management of quality sexual and reproductive health

(SRH) programs. Established in 1973 by population program managers and management institutions, it serves the growing management and leadership needs of both the public sector and NGO managers. There was a shift from demographic targets to a more holistic approach of SRH. Population program. NGOs are faced with increased competition for funding, shifting patterns of donor priorities, greater expectations from various sectors, changing demand of services and increased call for transparency and accountability.

Two major projects where ICOMP was involved recently were:

1. Empowerment of Women by Strengthening Comprehensive Sexual and Reproductive Health Programmes of NGOs in Asia. Centre for Health Education, Training and Nutrition Awareness (CHETNA), India was one of the NGOs implementing this project, funded by The Department for International Development (DFID), UK.

2. Young People's Reproductive Health Programme Development, 2002, implemented by Child In Need Institute (CINI)- India, ICOMP, and other NGOs. The targeted project sites for implementation included the South District in West Bengal in India, in Indonesia and in Thailand.

Main activities included counseling, peer education, youth camps, Information, Education and Communication (IEC), training, advocacy and research. The demonstration models emphasized youth participation, gender sensitivity and community involvement.

1.2.12 Joint GOI-UN System Education Programme (*Janshala*)

The *Janshala* (GOI-UN) Programme is a collaborative effort of the Government of India and five UN agencies (UNDP, UNICEF, ILO, UNESCO and UNFPA) to provide programme support to the on-going efforts to achieve the universalization of elementary education (UEE). This is the first ever programme in the world where five UN agencies have collaborated and pooled resources to support an initiative in education. *Janshala*, a community-based primary education programme, aims to make primary education more accessible and effective, especially for girls and children of deprived communities, marginalized groups, SC/ST/minorities, working children, and children with special needs. A unique feature of the *Janshala* programme is that it is a block-based programme, with emphasis on community participation and decentralization.

Janshala programmes strategies are for strengthening community-based mechanisms for school management and support. Developing government and local body schools as 'empowered community schools' Improving teaching methodology for multi-grade classrooms through pre-service and in-service teacher development programmes to make them more interactive, child-centered, and gender sensitive. Developing a teacher-empowerment package for teachers of empowered community schools. Facilitating information exchange on the best classroom practices and policies and ways to improve community participation. Applying an integrated social development approach which converges educational and developmental activities and resource inputs by all agencies and ministries

Government also plays an important part in formulating school curriculum and providing content for school textbooks. At national level as well as at state level school curriculum is updated to suit the demand of changing environment and technological development.

1.3 The review of education curriculum in the state and central schools board

Adolescent age period passes mainly in the schools and maximum learning takes place in the school environment. Students also get trained easily in life skills at school. In view of this it was necessary to review the school curriculum with respect to adolescence education. As subject of human reproduction is generally not talked about in public, it was difficult even for teachers to teach the same. The books of science as well as books of health and physical education were reviewed. Moral science was a subject taught earlier, but it is no more taught in the schools as a subject. In Gujarat few schools are adopting state level curriculum and few schools are adopting central board curriculum, so textbooks from both the curriculum were reviewed.

Elementary education services were extended at free of cost in the government schools, but private schools had to mobilize financial resources. Private schools had to make provision for creation of a development fund and surplus to be appropriated annually. Government run schools and private aided and non-aided schools show distinct difference in level of education. The government or private schools have to follow the syllabi approved by the national and state boards only. Although a good amount of Government budgetary support provided to elementary schools, the results are not meeting the expectation of quality education to rural and poor people. The government run IIT, NIT and IIM are dream institutes

for higher education at university level, but government run elementary education schools are not so. More research needs to bring reforms in implementing National Literacy Mission. Accountability with respect to enrolment, attendance, retention, and results can help in achieving mission goal.

The secondary education is the most important at this stage, adopting a plan of education for teenagers with latest possible threshold barrier. The developments of social and cultural values get attention the most. The mix of formal and informal education emphasis on language, mathematics, science, history, sports and arts, while informal education emphasis on aesthetic sense, environmental, healthcare, population, culture and ethics.

The certification examination conducted by national or state boards select subjects in the face of national and global developments. The knowledge of languages is essential to develop reading, writing and perceiving skill. The science subjects deal with the development around the world till date. Sports, music and art find place in the formal education and develop team spirit and creativity. History brings the rich heritage and culture. The aesthetic sense help in preserving values and study on environment takes to sustainable co existence of natural resources. The awareness on health care and population lead to optimal and sound demographic structure (Jha, 1999). At national level National Council of Educational Research and Training (NCERT) and at state level Gujarat Council of Educational Research and Training (GCERT) are involved in developing school curriculum. The councils are also updating adolescence education in the textbooks. The current textbooks are reviewed here.

1.3.1 National Council of Educational Research and Training (NCERT)

NCERT is an autonomous organization to advise and assist the Ministry of Human Resource Development, Government of India and Departments of Education in States in formulation and implementation of their policies and major programmes in the field of education, particularly for qualitative improvement of school education (NCERT, 2004). Some of the major objectives of NCERT are:

- Undertake, promote and coordinate research related to school education;
- Prepare and publish school textbooks, materials, periodicals
- Develop and disseminate improved educational techniques and practices
- Collaborate and assist State Education Departments and educational institutions;
- Organize pre-service and in-service training of teachers;

Updating, designing and revision of syllabus for the different school subjects is a major responsibility of NCERT, reflecting as a research organization dedicated to educational reform and modernization of school curriculum, ensuring the highest quality standards. The states have been, subsequently, adopting or adapting NCERT curricular guidelines to develop their own detailed curricula, syllabus and materials.

1.3.1.1 Value education a recent initiative at NCERT

NCERT had been identified as the nodal centre for strengthening value education at school level in the India, by the MHRD (Department of Education), Government of India. Subsequently, a National Resource Centre for Value Education (NRCVE) had been set up in the Department of Educational Psychology and Foundations of Education in 2000. The value education programme had been visualized as a national level initiative to sensitize parents,

teachers, teacher trainers, educational administrators, and community agencies for promotion of moral value oriented education. The focus of the programme was on generating awareness, material development, teachers' training, promotion of research and innovations in the area of education of human values and development of guidelines for value education in the school system.

1.3.1.2 National Resource Centers on Value Education (NRCVE)

Regional Resource Centres on Value Education have been set up in cities of Ajmer, Bhopal, Bhubaneswar and Mysore during 2002-03. These centres are expected to liaison with institutions / organizations in their respective regions, as well as procure and compile the materials / journals / books / video / audios / CDs on value education. Regional Centres work for awareness generation about value inculcation in students and community. Educational Research and Innovations Committee (ERIC) of NCERT funds research proposals in priority areas like Value Education (Appendix-1.3.1.2.A). Seven Non Government Organizations (NGO)s have been identified as Resource Centres for Teachers' Training on Value Education (Appendix-1.3.1.2.B)

The five of the seven NGOs are in Delhi and one in Mysore, Karnataka and one in Anantpur, Andhra Pradesh. Gujarat state does not have such resource center. There is a need of research on value education in the schools and community in the state of Gujarat.

1.3.1.3 Programmes modules for values education

ETV programmes on value education have been developed during 2003 to provide educational modules for development of values in students in the schools. Four prototype video programmes on inculcation of values through posters, story telling, play and panel discussion were produced. The video package entitled, "Inculcation of Values through various activities in classroom" contains the following programmes: Poster Dwara mulayo ka vikas., Paricharcha dwara mulayo ka vikas., Mulya Shikshan Nukkad - Natak Dwara Kahani dwara, mulayo ka vikas. The NCERT have integrated components of value education in the textbooks and other teaching learning materials for schools (ncert.nic.in). NCERT funded research proposals on value education are listed at (Appendix-1.3.1.3).

The concept of value education through posters, debates, skit/drama and story telling is a welcome initiative. Although how far the teachers and schools make use of these tools will determine the success of implementation.

1.3.1.4 Gyandarshan educational TV channel

Gyandarshan is envisaged as a public co-operative in which institutions such as the UGC, NCERT constitute the major stakeholders. Gyandarshan, a major milestone in the field of educational TV in India is a joint venture of Ministry of HRD, Information & Broadcasting, the Prasar Bharati and IGNOU. It was launched formally on 26th January 2000. The Gyandarshan channel, started with 2 hours daily test transmission (5 PM to 7 PM), then was increased gradually it became a 24 hours channel with non-stop transmission daily offering a rich fare of multi-faceted programming.

The channel has earmarked time slots for curriculum-based as well as career based programmes targeting various groups of learners including adolescents. Special programmes on art, culture, science and technology, etc., having a wider appeal to adolescents are telecasted with high degree of interactivity. It inspires, instills hope and provides the means to adolescents. Gyandarshan is all set to usher in a learning society. The channel has lent support to the adolescents of Secondary and Senior Secondary School through specially designed programmes by NCERT and others. It also covers topics ranging from science and technology to environment, computer education to career counseling. The channel seeks to offer alternatives and substitutes to learners of various age groups and categories in the growing demand for quality education in the country. The 24 hour Gyandarshan channel is now accessible to an estimated 20 million viewers in 40 lakh cable homes spread all over India (ddindia.com).

1.3.1.5 Puberty education in school textbooks by NCERT

The science textbooks published by NCERT and used by CBSE schools in the state of Gujarat were reviewed for puberty education related material. The male and females have special and different system of reproduction of human beings. If there were no reproduction, all the life on earth would come to an end. All the living objects start their life as babies and grow into adults subsequently (CBSE-VI, 2003). The endocrine system coordinates the activities of human body. The glands store the chemicals called hormones. The hormones act as a messenger between the organs and the nervous system (CBSE-VII, 2003). Pituitary, the master gland produce growth hormone called anti-diuretic hormone (ADH), which regulates

tissue and bone growth. The hormones are secreted directly into the blood stream and cause specific changes like growth of the body, sexual maturation etc. There are special sex glands. Men have testes, while women have ovaries. Ovary produces estrogen, which regulates development of breast and other functions. Testis produce testosterone regulates masculine features such as growth of mustache and beard (CBSE-IX, 2003).

The textbooks were updated in 2004 and 2005 and the detailed material included in this new books on various subjects related to adolescence education is placed at Appendix.1.3.1.4. One can observe that the content of puberty changes as well as in which standard it is included. The layouts of textbooks have improved a lot. The font size of text matter is big enough now to read without strain. The placement of graphics, tables, diagrams and pictures are better and also colorful. It will be up to the teachers how they teach in the classroom to their students or give it as self-study lessons.

Personal hygiene including oral care, eye care, hair care, and community hygiene are covered in standard-VI science textbook. Hair care does not include pubic and underarm hair. Adequate details are covered, but mainly as advisory notes. The importance of all the good habits as described in the textbooks needs some motivation to practice. It will depend on teachers how they teach this lesson to make a permanent imprints on students' mind.

Human reproductive system is covered in standard VII science textbook. InVitro fertilization and Birth Control could have been in higher standards instead of in VII standard. Pubic hair

is not covered any textbooks. The journey of sperm up to ova could have been elaborated. Size of ova may be checked.

Again in the science textbook of X standard reproductive system is further described. Body hair and pubic hair are not described in detail. Ejaculation and wet dream could have been detailed. Female sexual cycle is detailed well, but mentioning the age 10 to 12 years for menarche that means IV to VI standard. But these details are given in X standard, which may have been included in VI standard or so for the benefit to majority of girls. Contraceptive methods are well explained. Sexually Transmitted Diseases (STD) are also explained in detail. The breast development in girls could have been described. Pimples and acne are not described in any standard, which affect the adolescents' psychologically.

1.3.2 National Cadet Corps (NCC) for character building

National Cadets Corps (NCC) activities are considered here as it helps in overall character building as well as physical bodybuilding. NCC training helps in personality development and national integration. NCC is functioning in the state of Gujarat since 1948. The NCC objective is to inculcate discipline, character, initiative, physical fitness, self-confidence, leadership and turn the educated youth of Gujarat State into useful citizens for the society. NCC is imparting basic Military Training, Adventure Training, Social Service, National Integration Schemes and undertake youth activities to achieve the overall developments of students. The NCC establishment is the only youth organization in the India imparting military training and discipline to the school and college students. Following the Chinese

Aggression in 1962, NCC training was made compulsory in 1963 but on resistance of students and teaching staff, the corps was again made voluntary

The boys and girls from class VIII to X can join Junior Division/Wing and from XI onwards can join Senior Division/Wing. It is observed that many students avoid joining NCC for want of adequate compensation and opportunity related to the jobs. The motto of NCC is "Unity and Discipline. The corps who started in small way with cadet strength of 1.67 lakhs have now grown to 13 lakhs. The network of 774 NCC Units is spread all over the country through 4880 colleges and 7783 schools (NCC, 2004). The Air Wing was added in 1952, followed by the Naval Wing in 1952. The Girls division was incorporated in 1949, to give equal opportunity to school and college going girls in India. The NCC curriculum was extended to include community development as part of the NCC syllabus in 1952. There are five distinct categories of training; viz Institutional training, Community Development, Youth Exchange Programme, Sports and Adventure Training.

The role of NCC is important for the development of the youth of the state of Gujarat. The trained and disciplined NCC cadets are capable of undertaking any challenging task and excelling. The NCC cadets have provided their dedication in flood control, riot control, antiterrorist acts, earth quack etc The NCC therefore needs to be encouraged by imparting the infrastructure facilities as well as the need to be felt by parents and adolescents for the same in character building Most of the schools do not have NCC training facilities. Even in universities it is voluntary, so many students do not opt for it.

1.3.3 Educational Satellite (EDUSAT) for interactive distant education

Two ways interactive adolescence education through EDUSAT technology can be made possible. EDUSAT has been successfully launched by ISRO on 20th September 2004. The power of EDUSAT lies in its ability to provide quality education to even difficult-to-reach target groups through:

- High band-width, two-way interaction
- Simultaneous multiple networks, and
- Small size, low-cost ground receive terminals

Making optimal use of this very powerful resource for promoting education in India - with special focus on Elementary Education, Teacher Training and Literacy - is a major challenge, and Central as well as State Governments have to rise to the occasion. At the National level, to meet this challenging task, Indira Gandhi National Open University (IGNOU) has been designated as the nodal agency to coordinate all activities concerning the utilization of the facilities offered by EDUSAT. A National Core Group has been constituted for this purpose with Vice-Chancellor, Indira Gandhi National Open University, as the Chairman and representatives of Indian Space Research Organisation (ISRO), University Grant Commission (UGC) and others (ignou.ac.in).

Adolescence education and specifically reproductive healthcare awareness can spread to length and breadth of India with the help of distant education system through the use of EDUSAT. As experts on the subject are centrally located, the sensitive issues can be dealt with ease and dependence on local faculty can be minimized.



Potential uses of EDUSAT

Chart 1.3.3A potential uses of EDUSAT

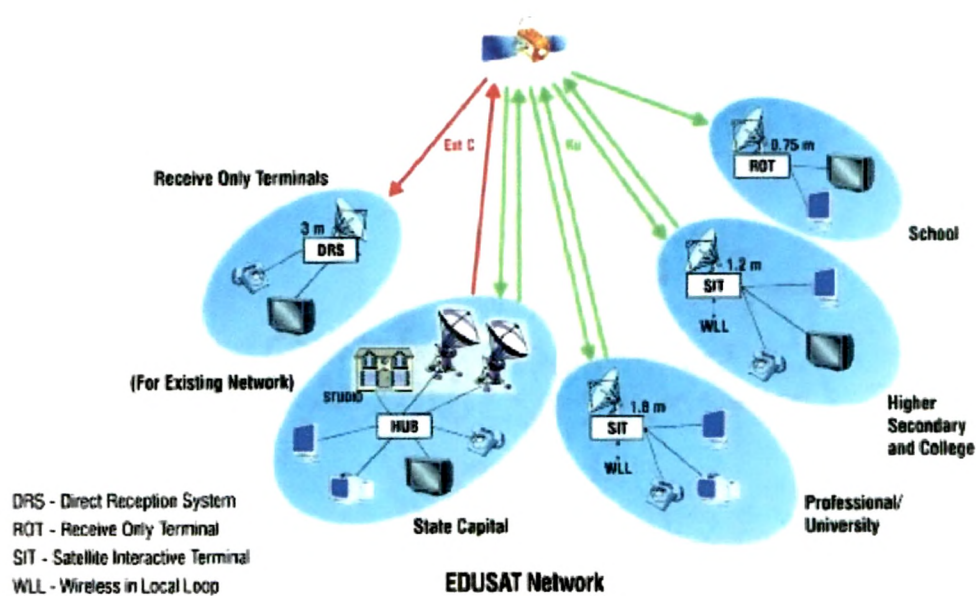


Chart 1.3.3B EDUSAT network

source: <http://www.isro.org/rep2005/SpaceApplications.htm>

1.3.4 Gujarat Council of Educational Research and Training (GCERT)

The GCERT works as an agency for implementing the policies, programmes and researches in school education for the state of Gujarat. It provides resource support and guidance to all the teachers and education institutions. It works in collaboration with the NGOs, subject experts, educationalists and brings about reforms in the under served areas of the state of Gujarat. It disseminates latest information on modern trends and approaches in primary education, pre-service and in-service education, pedagogical advances in the country, wide use of distance education as a mode of training, organizing community awareness programmes and updating of curriculum of primary education in view of emerging concerns. The GCERT committed to bring about qualitative improvement in school education particularly elementary education, development of curriculum syllabus, instructional material and evaluation strategies to explore suitable solutions to educational challenges with the changing time. Their website is updated well and very informative.

Source : Educational Statistical Information Primary Education published by Directorate of Primary Education

<http://gujarateducation.gswan.gov.in/parents/pri-standard-prim-students.htm>

1.3.4.1 Population Education Cell (PEC)

Population Education cell is in operation under GCERT since 1980, run by National Population Education Programme (NPEP) and funded by MHRD. PEC provides population education through scientific viewpoint for social upliftment, through training programmes for generating family welfare awareness in future generation in view of population explosion. PEC develops scientific understanding regarding mental and emotional changes occurring during physical growth and development of the adolescents. PEC is coordinating with school education, as adolescence education is sensitive and to bring out solution of the adolescents’

state of Gujarat, follow curriculum developed by Gujarat Secondary and Higher secondary Education Board (GSHEB). Review of school textbooks of Gujarat State Board as well as Central Board for the standards VI to XII was considered with respect to puberty and human reproductive system in the existing textbooks (Appendix-1.3.5). Moral science subject is not compulsory now, which was mainly on human value system as well as cultural and social ethics.

In the science textbook of standard VII, male and female internal reproductive system, as well as endocrine system is described. Again in the science textbook of standard IX, more details are provided. Menstruation details are given stating it starts in the age of 10-12 years. Here also like NCERT books menstruation could have been explained better in the standard VI or VII instead of standard IX for the benefit of majority of girls. Complete cycle of menstruation and its purpose could have been dealt further. Breast development is not described at all, although girls are conscious about their breast development. Pubic hair development and hygiene were not described at all. Gland, hormones and its functions are covered well.

The food nutrients, minerals are explained in X standard science textbook. The sexually transmitted diseases and public health education in general are also explained. In standard XI biology textbook, chromosomes and sex formation of embryo is explained well. Testosterone and estrogen, the male and female sex hormones are described in detail in the biology textbook of standard XII.

Harmful effects of tobacco and alcohol were included in Health and Physical Education (HPE) Textbook of standard VI. Various posture and effects of *yogasanas* were detailed well in HPE Textbook of standard VI, VII and VIII. Also. Concentration, attention and relaxation were explained well in VII standard. HPE textbook of standard VIII covered pregnancy, infant care and childcare in depth. Such details could have been given in higher standards.

The review of textbooks as detailed above suggests that more details needed on pubic hair, breast development as well as personal hygiene care. Also how the teachers in the school teach these subjects is more important. Life skills learning through participative projects as well as made compulsory for all the students or not will result into real learning. Peer educator concept as explained in earlier chapter in the school for better understanding as resulted in activities of many NGOs could have been experimented while teaching these sensitive issues.

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