

**A STUDY OF
COPING SKILLS FOR 21ST CENTURY
AT SECONDARY SCHOOL LEVEL**

*Summary of
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Summary of the Thesis

INTRODUCTION

Worldwide interdependence and globalization are major forces in contemporary life. They are already at work and will leave a deep imprint on the twenty-first century (UNESCO, 1997). In 21st century, the globe is becoming a small village through technological advancement, global trades, ideographical change and economical acceleration. These changes in the Global era are termed as globalization. However, the process of globalization has remained lope sided as economic development is emphasized, causing many global challenges, such as, balancing economic growth with environmental sustainability, prosperity with social equity, health and hygiene, peace, educational. To meet such global challenges, UNESCO (2010) has emphasised on Education as it is a major catalyst for human development and rapid advances in education can realize the sensitivity towards culture, environment, economy and changing needs of the global society. Further Nivedita (2010) elaborated another aspect of 21st century and needs arising due to it as, “In this increasingly complex world, where differences need respects, mixture of culture needs understanding and acceptance, learning to live together needs international cooperation and exchange, the world should be seen as an educational laboratory that analyze the factors explaining educational needs, and the learning process will enhanced.” It suggests that the curriculum inputs of education, should be reframed in the light of prevailing and future conditions in 21st century and instructional strategies should help in achieving sustainability in the 21st century. As outcome of such reforms, skills should be developed that are essential to cope with the challenges in 21st century and to meet the aroused need.

21ST CENTURY CHALLENGES AND EDUCATION

21st century is highly influenced with globalization, which has created many changes at local level and global level. These changes can be seen in a globalization of economic systems, in the rapid development of science and technology, in the age structure and mobility of populations, and in the emergence of an information-based and knowledge-based society. The world is also experiencing major changes in patterns of work and unemployment, a growing ecological crisis, and tensions between social groups based on culture, ethnicity, gender roles, religion and income (Confintea, The Hamburg declaration, 1997). As a result of such changes, today societies and their individuals are facing many challenges. Rychen and Salganik (2003) have comprehensively illustrated the challenges, “Technology is changing

rapidly and continuously, and learning to deal with it requires not just one-off mastery of processes but also adaptability. Societies are becoming more diverse and compartmentalized, with interpersonal relationships therefore requiring more contact with those who are different from oneself. Globalization is creating new forms of interdependence, and actions are subject both to influences (such as economic competition) and consequences (such as pollution) that stretch well beyond an individual's local or national community.” These challenges have inflicted many challenges also on students of the fast changing global society in terms of learning various subjects, busy school curriculum, adjustment, creativity and health. Further students' aspiration for high achievement also emphasized, which has caved between students profile and parents expectation.

COPING SKILLS FOR 21ST CENTURY

21st century has posed many challenges to the individual and societies. No organism can remain in healthy state under adverse condition for long. DeSeCo (2001) opined, “Coping with today's challenges calls for better development of individuals' skills to tackle complex tasks.” Coping with these challenges implies to recognize and fulfill own needs as a member of local society in particular and global society in general. Good coping also implies knowledge of one's physical and social environment that lets an individual to achieve what is important to societies and their individuals, at the same time it demands to understand global nature of needs and transfer of local knowledge to global setting.

The essential skills are requisite to meet the needs and hence to cope up with the challenges of 21st century are called ‘Coping Skills for 21st Century’. The Coping Skills for 21st Century will make an individual efficient, productive and able to meet the aroused need and cope up with the challenges of 21st century. The core aspects of Coping Skills for 21st Century are

1. These skills could not be developed in isolation it should have cultural, moral and value base.
2. These skills are interdependent and interconnected constellation of the skills that are required to cope up with the challenges and to meet the needs.
3. These skills are required to cope with the individual, local and global challenges and to meet the aroused needs. Such expression could transfer to attitude and wisdom.
4. These skills are adaptive and could transform from specific skills to general skills, from individual skills to social skills.

TAXONOMY OF COPING SKILLS FOR 21ST CENTURY

Rychen & Salganik (2001) have defined competencies to cope up with the challenges and to meet the needs of 21st century under Definition and Selection of Competencies (DeSeCo) Project with three focuses: First, individual can function in socially heterogeneous groups i.e. relate well to others, co-operate, work in teams, manage and resolve conflicts. Second, act autonomously i.e. understand the pattern, have ideas of system in which they exist, form and conduct life plans and personal projects and defend and assert rights, interests, limits and needs. Third is, use tools interactively i.e. Language, communication and Technologies.

Defining Coping Skills for 21st Century have concern as per Rychen & Salganik (2003) i.e. function in socially heterogeneous groups, act autonomously, and using tools interactively. Each aspect may contain set of skills or constellation of sub skills defined under life skills and 21st century skills and may include many other skills depend on the need.

NATURE OF COPING SKILLS FOR 21ST CENTURY

21st century is likely to be more and more complex with passage of time. As a consequence new challenges will emerge and hence an individual will have to cope up with the emerging needs. Coping skills are required to meet the need of 21st century, to cope up with the prevailing challenges but along with it requires to be prepared for emerging challenges and to adjust with the changes. The nature of Coping Skills for 21st Century could be...

- **Preventive:** To prepare for prevention of crises by to meet future challenges
- **Corrective:** To manage problematic situations due to emerged needs
- **Adaptive:** To adapt with the changing conditions
- **Perfective:** For enhancing the quality of life

ROLE OF EDUCATION IN DEVELOPING CS21C

UNESCO Bureau of strategic Planning (2003) has defined aim of Education is to Promote experimentation, innovation and the diffusion, sharing of information and best practices as well, as policy dialogue in education to improve the quality of education through the diversification of contents, methods and the promotion of universally shared values.

Education should play multitask role, it should not only confine to content knowledge but content should have relevance with life (Wagner et al 2006, NCF 2005). Education should realize the sensitivity towards culture, environment, economy and changing needs of the local, as well as, global societies that require knowledge of it and transmission of such

knowledge. It should provide means to cope with the challenges. This indicates scholastic subjects should have interconnection, and subject matter should have relevance with - the local culture, environment, economy and changing needs of local as well as global societies, introduce plurality of curriculum inputs, and it should be supported by instructional approach. As a result of instructional approach skills and learning to learn aspects should be developed. It will enable an individual to construct own knowledge rather learning the facts by memorizing or assimilating and accommodating with previous knowledge. The construction could be done by employing critical pedagogy that provides opportunities to enquire, question, debate, reflect, and arrive at concepts or create new ideas (NCF, 2005). As a result of social and cognitive construction Coping Skills for 21st Century could be developed.

RELATED LITERATURE REVIEWED & ITS IMPLICATIONS FOR THE PRESENT STUDY

The review of related literature has been classified in into five categories, namely, Programs developed for Skills, Instructional Framework for 21st Century Learning, Skills introduction and Integration within Curriculum, Teachers' Perception on Skills for 21st Century and Evaluating School Initiatives, Education in Multi-Cultural Setting. Reviews are followed by emerging research scenario and implications.

The researcher attempted to review literature related to skills essential to cope with emerging needs and to meet challenges in adolescents. In doing so, ten studies viz. Morton (1993), Bhave (2008), Chatrah (2008), Kenneth (2008), Prasad (2008), Azad (2008), Shrinivasan & Padmavathi (2009), Galagali (2008), Singh (2008) and Zimmerman (2010) are focusing on life skills; fourteen studies of Jacqueline (2007), Greenhill (2009), Miller (2009), Patrick (2009), Geiselhofer (2010), Olsen (2010), Sardone & Scherer (2010), Larson & Miller (2011), Tingen et al. (2011), Hillman (2012), Hughes (2012), McLachlan (2012), Missett (2012) and Colacino (2013) are focusing on 21st century skills; two studies of Thurman (2009) and Strom (2010) are exclusively focus on critical thinking skills; whereas study of Shenoy (2005) is focusing on crisis management.

Study of Jacqueline (2007) expressed scope of education in 21st century i.e. education for "Perfect Storm" of economic change, global competition, shifting labor market and technological advancement.

Out of the nine studies on life skills, three studies of Bhave (2008), Chatrah (2008) and Kenneth (2008) were found for coping with stress and an educational programme was

developed for the same. Five Studies of Morton (1993), Galagali (2008), Singh (2008), Strom (2010), and Zimmerman (2010) advocated innovative methods for life skill education wherein Morton (1993) found cooperative education is effective in developing Interpersonal skills compared to career and life effective skills for grade 12 student, Galagali (2008) used experiential and participatory learning for life skill development, Singh (2008) advocates experimental learning for life skill within the existing subjects, Strom (2010) emphasize on performance-based approach over seat-bound approach for critical thinking skills and Zimmerman (2010) found Project based Learning (PBL) as effective Instructional approach for life skill education.

Out of the fourteen studies on 21st century skill nine studies of Miller (2009), Olsen (2010), Sardone & Scherer (2010), Larson & Miller (2011), Tingen et al. (2011), Hillman (2012), Hughes (2012), Missett (2012) and Colacino (2013) found in developing 21st century skills. Miller (2009), Tingen et al. (2011) and Missett (2012) has integrated online social network tool and online course into traditional learning environment to foster 21st century skills. Miller (2009) has used Facebbok, Diigo, Google sites, Google Docs and twitter for one semester to enhance 21st century communication, collaboration and digital literacy skills. Tingen et al. (2011) gave importance to classroom websites and web 2.0 tools to enhance students' learning by targeting 21st century skills, such as, collaboration, media literacy, interpersonal & self-directional skills and thinking & problem solving skills, whereas, Missett (2012) observed enhancement in learning outcomes in students who participated in online courses and further emphasized on accountability, creative problem solving skills, creative and critical thinking skills through evidence-based educational practices. Sardone & Scherer (2010) found video games as a learning approach for developing 21st century skills, such as, Creative Thinking & Innovation, Critical Thinking & Innovation and Communication and Collaboration. Olsen (2010) and Hillman (2012) advocated inquiry-based instructional approach and Hughes (2012) advocated authentic and active learning strategy, such as, project based learning (PBL) to assist and acquiring 7-Cs of 21st century skills: critical thinking and problem solving; creativity and innovation; collaboration, teamwork, and leadership; cross-cultural understanding; communications and information fluency; computing and information & communication technology fluency; and career and learning self-reliance. Larson & Miller (2011) emphasize in engaging students in learning opportunities in authentic contexts. Study of Colacino (2013) suggest that using multiples means to represent information and assess knowledge and skills, relating content to real-

world issues and student interests, and fostering positive interactions among culturally diverse student populations can increase student engagement in acquiring the 21st century skills of communication, collaboration, critically thinking, and creativity.

Studies of Shenoy (2005) and Patrick (2009) have introduced skills that are essential for crisis management and for workplace and green economy respectively. Wherein, Shenoy (2005) defined skills, namely, skills to understand the problem, skills to apply knowledge in problematic situations, and skills to act and solve the problem situations under crisis management skills, whereas Patrick (2009) defined skills under three pillars of sustainability i.e. environmental, economical and social.

Four studies of Galagali (2008), Singh (2008), Strom (2010), Hughes (2012) and Missett (2012) focus on inclusion of subject matter for skill based education, wherein Galagali (2008) discussed topics to be adopted for life skill training, Strom (2010) developed critical thinking skills within the English literature, Hughes (2012) suggested agricultural programme for 7-Cs of 21st century skills, whereas, Missett (2012) advocated environmental science as a base subject for skill development.

Four studies of Shenoy (2005), Singh (2008), Sardone & Scherer (2010) and Larson & Miller (2011) have emphasized on integration of skills within the curriculum. Wherein, Singh (2008), Sardone & Scherer (2010) and Larson & Miller (2011) emphasized upon fostering skills within the present curriculum & scholastic subjects, whereas, Shenoy (2005) had designed model curriculum that encompasses skills for crisis management that cut across all the school subjects. Sardone & Scherer (2010) integrated video-games with the curriculum those are potent to develop 21st century skills and Larson & Miller (2011) suggest to engage students in learning opportunities in authentic contexts.

Studies of Patrick (2009), Geiselhofer (2010) and Hillman (2012) identified curriculum components for 21st century learning. Patrick (2009) introduced “Compass to 2015” acknowledging sustainability of environment, economic and society as a curricular component and develop skills for the same, further he asserted career and technical education will be helpful to develop new academic approaches to sustainability and continue to explore alternative curriculum paradigm and career pathway application. Geiselhofer (2010) identified curricular components for ‘New Literacy’ through Delphi Study. He suggested New Literacy is central to full civic, economic and personal participation through multiple, multimodal and multifaceted instructional approach. Hillman (2012) suggested global

focused curriculum should be transected through inquiry based instruction and wide use of technology.

Researches of Jacqueline (2007), Greenhill (2009), Geiselhofer (2010), Olsen (2010), Hillman (2012) and McLachlan (2012) laid importance of school administration, role of school & teachers and teacher preparation for meeting the challenges of 21st century. Wherein, Greenhill (2009), Geiselhofer (2010), Hillman (2012) and McLachlan (2012) have exclusive focus on advancement of curriculum aspects, empowering teachers and schools' enterprise for 21st century. Greenhill (2009) focused on preparing skills embedded teacher through faculty training and resource pilot initiatives and test 21st century instructional models among educational institutions i.e. schools. Geiselhofer (2010) suggests 'New Literacy' requires new social practices, skills, strategies, dispositions by schools. Further the researcher suggests redefining the nature of literacy and reform of teacher preparation programme, technology infused professional development. Hillman (2012) shed light on best practice for implementing 21st century learning at a school is; a clearly articulated vision for global learning and 21st century skills, fidelity of vision with school practice and community support, internal capacity for developing curriculum, school culture that is centered on both student and adult learning, a dual focus on core academic achievement and to 21st century skills. McLachlan (2012) identified International Baccalaureate as standard 21st century curriculum through validating collected data with 21st century literature. Further the researcher emphasized upon individual determinism for the advancement of the curriculum.

Researches of Jacqueline (2007) and Olsen (2010) reflects role of administration in developing 21st century skills. Olsen (2010) used grounded theory approach to develop model instructional design for 21st century skills that includes planning and preparation, the classroom environment, instruction, professional responsibilities and assessing students' proficiency in 21st century whereas research of Jacqueline (2007) evident of positive attitude of high school teachers, administration and counselor toward change despite sense of powerlessness about mounting demand on the educators and frustration with contradictory message about learning versus performance, further through empirical evidences the researcher expressed threat of adapting ever-changing world and top-down decision-making process of administration to 21st century education. Thurman (2009) also expressed threats to teaching critical thinking skills. Empirical evidences depict that class size, improving scores on standardized test, lack of planning time, limited professional development opportunities and lack of knowledge of critical thinking to be great obstacles for teaching critical thinking.

Studies of Greenhill (2009), Patrick (2009), Larson & Miller (2011) and Tingen et al. (2011) were found exclusively in area of 21st century skills, which proved to be essential to prepare the students and teachers for future.

From the reviews, it can be concluded that programme to enhance skills were developed and implemented for managing the stress among adolescents, for 21st century skills. Further, curriculum was also designed for the same. The researcher could locate one study that focus on designing curriculum for crises management skill by identifying the crises that adolescents are facing but the study is not reflecting on teaching-strategy to be used.

The reviewed literature implies that

- Websites, online social networking sites, podcast and Web 2.0 tools can also be used for exploring Coping Skills for 21st Century.
- Educational activities can be planned for exploring skills to cope with the challenges within the scholastic subjects and adopting subject matter, such as, environmental science, agriculture, ethnography, literature.
- For exploring the skills, the instructional process can be designed that involves students and provide opportunities to share their knowledge and experiences.
- Project-based approach, evidence-based approach, performance-based approach, research-based approach and inquiry-based approach could be used for transecting educational activities.
- Large classroom size is a threat to exploring skills.

RATIONALE

21st century is likely to be more and more complex in passage of time as it is a period where profound changes are taking place both globally and locally that is leading and will lead to various challenges. Coping with today's challenges calls for better development of individuals' skills to tackle complex tasks. Good coping means to recognize and fulfill own needs as a member of local society in particular and global society in general. Rycken and Salganik (2001), have defined 21st century needs of society and their individuals i.e. the need to realize one's identity and set goals in complex world, the need to exercise rights and take responsibility, the need to understand one's environment and its functioning, the need to deal with diversity in pluralistic societies, the need to keep up to date with technologies, the need to adapt tools to own purposes, the need to conduct active dialogue with the world, the

importance of empathy, and the importance of social capital. Good coping also implies knowledge of one's physical and social environment that lets an individual to achieve what is important to societies and their individuals, at the same time it demands to understand global nature of needs and transfer of local knowledge to global setting. Thus, there is a need of instantaneous Coping Skills for 21st Century each individual in varied time to survive under complex/adverse conditions, to function smoothly in meeting demands. These skills are defined under three basic concerns i.e. functioning in socially heterogeneous groups, acting autonomously and using tools interactively.

“Education has continued to evolve, diversify and extend its reach and coverage since the dawn of human history. Every country develops its system of education to express and promote its unique socio-cultural identity and to meet the demands of the times” (NPE, 1992). Education is a highway to cope with the challenges and to fulfill the emerging needs and it should be grounded in an individual's physical and social environment. NCF (2005) presents, “fertile and robust education is always created, rooted in the physical and cultural soil of the child, and nourished through interaction with parents, teachers, fellow students and the community.” UNESCO (1997) said, “The formal education systems tend to emphasize the acquisition of knowledge to be detriment of other types of learning, but it is vital now to conceive education in a more encompassing fashion in the light of opportunities of 21st century.” Such a vision should inform and guide future educational reforms in relation to both contents and methods.

Framework for 21st Century learning (2007) emphasized that to develop 21st century skills, the scholastic subjects of school i.e. Science, Mathematics, Languages and Social Science and their integration with the environment, society, health and hygiene, and global awareness. Researches of Shenoy (2005) and Larson & Miller (2011) are also evident of integrating skills within the curriculum. Further, Shenoy (2005) had designed model curriculum that encompasses skills for crisis management that cut across all the school subjects. Study of Singh (2008) emphasized the life skill programme within the existing school subject whereas; Galagali (2008) discussed topic to be adopted for life skill development. From these researches, the Researcher arrives at the view that to develop coping skill for 21st century, the subject matter of scholastic subjects in formal education should have integration with the local needs but the perspective should be global. As the knowledge of scholastic subjects without understanding its relevance with other subject and life, results that, an individual will fit for neither field nor life. NCF (2005) recommends interconnectedness of scholastic

subjects by softening of subject boundary, plurality of curriculum inputs and subject matter that could incorporate local knowledge and traditional skills.

The transaction of such subject and subject matter should be in such a way that an individual can relate it with life and other subjects and as a result desired skills can be developed which indicates that the instructional process should be based upon construction of knowledge i.e. cognitive construction and social construction through active dialogue with teachers, fellow students, parents, and community members. Further, Morton (1993) found cooperative education is effective in developing Interpersonal skills compared to career and life effective skills, Galagali (2008) used experiential and participatory learning for life skill development and Zimmerman (2010) found Problem based Learning (PBL) as effective Instructional approach for life skill education, Olsen (2010) and Hillman (2012) advocated inquiry-based instructional approach, Hughes (2012) advocated authentic and active learning strategy, such as, project based learning (PBL). Whereas Tingen et al. (2011) developed Classroom Web sites and found that it has potential to support and enhance students' learning by targeting 21st century skills, such as collaboration, media literacy, interpersonal skills and self-directional skills, as well as thinking and problem-solving skills, further Web 2.0 tools such as blogs, wikis, and podcasts enhance teacher Web sites to prepare students for the future. Sardone & Scherer (2010) suggest content of scholastic subjects could be coupled with Video games, and such a learning approach is helpful to develop 21st century skills, such as, Creative Thinking & Innovation, Critical Thinking & Innovation and Communication and Collaboration. Further Helaiya (2011) used various activities to develop life skills with the hunch that Activity based learning is the most effective way to develop skills. In addition to this, skills can be developed if the instructional process gives multiple & diverse means and learning opportunities to an individual to get engaged and practice their knowledge to its relevance (UNESCO, 2004; NCF, 2005; Larson & Miller, 2011 and Colacino, 2013).

Research reveals that life skills education should be given at the secondary level as this stage is very crucial for adolescents because it is transition phase and where adolescents undergoes physical and mental changes and it is required to channelize their energy in particular direction. Further, most of studies are being conducted in area of development of educational programme for life skills.

For this, the experiences of the practitioner of various educational institutions at higher education level such as teacher education institutes, institutes of mass-media education, institutes of environmental science, etc would be considered as they have vast experience of

field and knowledge base. The programme could be developed by considering the innovative practices followed in some of the schools affiliated to State Board of Secondary Education, Central Board of Secondary Education (CBSE) and International Boards. National Council for Educational Research and Training (NCERT) has recommended life skill education and construction of knowledge as a part of curriculum and it was adopted in CBSE affiliated schools. Various International Boards affiliated schools have their own curriculum and its transaction procedure e.g. Schools affiliated with International Baccalaureate follow different curriculum and its transaction process based on learning to learn such as Discovery learning approach, collaborative approach, co-operative approach and experience based learning.

For coping with the challenges and to meet the demands, it is essential that an individual should be able to explore one's own physical and social environment and education provides means to explore one's own physical and social environment by sensitizing towards the needs of 21st century and transaction of the means. Therefore, researcher strongly is in favour of using Problem based Activities that prompt further learning (Learning to Learn) within curriculum (by softening subject boundaries i.e. interconnected and interdisciplinary subject areas & integrated with multiple curriculum inputs) Coping Skills for 21st Century could be developed.

RESEARCH QUESTIONS

- a. What are the challenges students are facing in the 21st century?
- b. What are the educational needs aroused due to challenges of 21st century?
- c. What are the essential skills to be developed among students in 21st century?
- d. What kind of curriculum inputs could be integrated within the present curriculum to address the challenges of 21st century?
- e. What kind of learning experiences could be provided to develop Coping Skills for 21st Century?
- f. To what extent classroom size affects the learning?

STATEMENT OF THE PROBLEM

A Study of Coping Skills for 21st Century at Secondary School Level

Objectives of the Study

1. To explore the coping skills for 21st century expected in students of secondary level.

2. To develop an educational activities to explore coping skills for 21st century.
3. To implement educational activities for exploring coping skills for 21st century among students of secondary level.
4. To develop a Tracker on the Coping Skills for 21st Century.

Explanation of the Terms

Challenges of 21st Century

Challenges of 21st century are considered as illustrated by Rychen and Salganik (2001). The challenges are as follow

- Technology is changing rapidly and continuously, and learning to deal with it requires not just one-off mastery of processes but also adaptability
- Societies are becoming more diverse and compartmentalized, with interpersonal relationships therefore requiring more contact with those who are different from oneself
- Globalization is creating new forms of interdependence, and actions are subject both to influences (such as economic competition) and consequences (such as pollution) that stretch well beyond an individual's local or national community

Coping Skills for 21st Century

Coping skills for 21st century are clusters of behaviour, which express ease and precision in coping with challenges of 21st century in terms of functioning in socially heterogeneous group that comprise skills, such as, Adjustment skills, Human relation skills, Social Responsibility skills and Sustainability skills; Act autonomous that comprises skills, such as, Self-direction skills, Reflective skills, Thinking skills, Management skills and Emotional Maturity skills; and using tools interactively that comprises skills, such as, Info-savvy skills, Digital skills and Communication skills.

Educational Activities

Educational activities are a cluster of learning experiences for the students of standard IX based on learning to learn approach and will focus on identified Coping Skills for 21st Century. The learning experiences are designed for the integrated content of scholastic subject with the subject matter required for the skills. Further, the learning

experiences were comprised of power-point presentation, Moodle, demonstration and practices, activities, focused group discussions, narratives and descriptive, field visits

Tracker

Tracker on the Coping Skills for 21st Century is expected to have various skills for cope with the challenges of 21st century and their descriptor.

Delimitation of the Study

The study was delimited to students of standard IX.

DESIGN OF THE STUDY

The study was intended to study Coping Skills for 21st Century among the students of secondary level. The study was conducted into three phases i.e. identification phase, designing phase and implementing phase. In the identification phase, expected coping skills were identified based on the challenges faced by the students. In the second phase educational activities and tools & technique were designed. The third phase was implementation phase, where the designed educational activities and tools were implemented. The implementation phase was intended to provide various learning situations to the students and to explore Coping Skills of 21st Century among them. Thus, this is an exploratory cum intervention study, which is qualitative in nature.

Sampling & Participants of the Study

- For the piloting of the study, Ankur Vidhyalaya, Dasrath (2013-14) and for the implementation of the designed educational activities, Shannen School, Vadodara, Gujarat (2014-15) was selected purposively. All the students of standard IX, concerned teachers & principals of the selected school were participants of the study. There were forty students of standard IX, six teachers and a principal of Ankur Vidhyalaya, Dasrath (2013-14) & sixteen students, eight teachers and a principal of the Shannen School, Vadodara (2014-15) were selected as participant for the study.
- Parents of the selected students of standard IX of Ankur Vidhyalaya, Dasrath (2013-14) and Shannen School, Vadodara (2014-15) were selected through snowball sampling.
- The group of adolescents staying in Pratap Gunj, Vadodara was selected through purposive (judgment) sampling.

- Research scholars (2012-13) and prospective teacher educators (2012-13) of Centre of Advanced Study in Education (CASE) were selected.
- Teachers of Vadodara city were selected through snowball sampling.
- The visiting faculties of CASE and delegates of National Seminars were considered as Educationalist. They were selected through non-probability sampling i.e. incidental sampling.

Tools and Techniques for Data Collection

The data were collected through Semi-structured Interviews & Interview Schedule, Brainstorming Sessions, 6 Focused Group Discussion, Battery of Tests, Socio-metric, Moodle, Observations, Observation Schedules, Field Notes & Field Diaries and Profile of the Student.

Phases of the Study

The study was conducted into three phases as follow

- Identification of expected Coping Skills for 21st Century
- Designing of Educational Activities & Tools and Technique to Study Coping Skills for 21st Century.
- Implementing the Educational Activities and Exploring the Coping Skills for 21st Century among students.

Data Analysis Technique Employed

- The data collected through the battery of tests were content analyzed.
- Data collected through interview and FGDs were recorded and transcript was prepared. Content of the transcript was coded and categorized based on the theme of the responses.
- Data collected through observations were recorded as field notes. The field notes were analyzed qualitatively.
- The profiles of students were analyzed qualitatively.

FINDINGS OF THE STUDY

Objective wise findings are presented as follow

Findings for Objective 1

To explore the coping skills for 21st century expected in students of secondary level

The following challenges are faced by the students. The expected Coping Skills for 21st Century to cope with the challenges are also presented as follow

- To be appreciated, accepted & recognized: to meet this challenge they require reflective skills, critical thinking skills, social responsibility skills and communication & collaboration skills.
- Energy of students is not being channelized and student unrest: to meet this challenge skill of adjustment, critical thinking skills and social relationship skills are required.
- Suffering from superiority or inferiority complex: to meet this challenge self directional skills is required.
- Establishing Rapport with Parents: This challenge requires responsibility & respect on the part of the family members.
- Lack of Bonding between Students & Teachers: This challenge also requires mutual respect, cooperation and responsibility on the part of the adolescents, teachers and school authority.
- Finding leisure time out of the tight school schedule and then private tuitions: to meet this challenge reflective skills, creative thinking skills and self direction skills, management skills are required.
- Learning school subjects, such as, Social-Science, Mathematics, and Science: to meet his challenge study skills, learning skills, observations skill and communication skills are required. Further, providing learning environment is the responsibility of parents, teachers and schools.
- Language learning: to meet this challenge study skills and communication skills and required. Further, proving environment is added responsibility on the part of teacher.
- Absence of creativity culture: To meet this challenge study skills & creative thinking skills. Further, role of teacher is to provide congenial learning environment to nurture the skills.

- Wholistic adjustment with the changing educational needs and social needs: to meet this challenge skill of acceptance, adaptation and adjustment are essential.
- Pressure for high achievement: to meet this challenge skill of study and learning are required. Further, the focus should be on wholistic development.
- Gaps between parental expectation, children profile and career choice: to meet this challenge self-directional skills, info-savvy skills and communication skill. Further, parents also have the responsibility to understand and respect the potential of their wards.
- Underestimation of abilities of children: It demands development of rapport between students and their parents, healthy and meaningful communication, respecting and appreciating feelings of children and guidance & counseling facilities in Educational Organizations.
- Role of social networking in the digital communication age: There is a need to develop media literacy, info-savvy skills and communication skills. Further, networking tools, such as, moodle, classroom 2.0, C-Maps, Weblogs and Maharaja should be thoroughly introduced.
- Value dilemma among students: to meet this challenge reflective skills and self-directional Skills are needed.
- Devoid of the beauty of nature: Skills of acceptance and observation is essential to realize the nature.
- Child rights not fully observed: The rights of children ought to be integrated, observed and respected.

Coping Skills for 21st Century-Expected

The expected skills are classified in three major aspects, i.e. Skills required for Act Autonomously, function in socially heterogeneous groups and use tools interactively.



Fig: 7.1 Coping Skills for 21st Century- Expected

Findings for Objective 3

To implement educational activities for exploring coping skills for 21st century among students of secondary level

Student wise Coping Skills for 21st Century

- **Student 1** has limited circle but he is admired by most of the classmates. He has limited interaction with a few classmates. He is closely associated with Student 20 and both have mutual cooperation. He is leading Red House due to his expertise.

Student 1 is good at study skills, such as, reading skills, writing skills, info-savvy skills and information processing skills. He could analyze, synthesize, comprehend and identify the context of the read text, but he is not fond of reading. The knowledge he has is gained from Discovery and Net Geo TV Channels. Further, he can

paraphrase, summarize and express his ideas but lacks creative expression. He lags behind dictation as he is slow in writing. He lacks creative expressions. Same is the status on information processing. He can validate the collected information and analyze the information to check the relevance, but, lacks in presenting information in appropriate form.

- **Student 2** is star student of the class. He leads Green House as well as the class of standard IX. He has strong association with student 12 and student 17. The trio of Student 2, Student 12 & Student 17 is the strongest trio of the Standard IX.

Student 2 is good at study skills, such as, info-savvy and information processing skills. He collects and analyzes the data but very often he is not in a position to cast data into intelligible forms. He is not fond of reading, but explores knowledge and information from TV, educational channels and internet. He can transfer such knowledge to the similar situations for solving problems. He has creative as well as critical thinking skills. He takes up initiatives, sets goals and plans, but, lacks consistency. Though he is slow in decision making but his decisions are firm. He is excellent in social relationship skills, but his self concept hinders adjustment, acceptance and flexibility. He does not collaborate well. His social relationship skills are supported by communication skills. He is flexible in adaptation of new technologies, but, not flexible to the human relations.

- **Student 3** earns support from classmates, but, only three classmates admire her. She is strongly associated with student 18 and both share mutual cooperation.

Student 3 is good at reading skills and creative thinking skills. She is open to novel ideas as well as having original ideas. She can give creative expressions to her ideas in written form. But she lacks oral expression. Oral communication also hinders her collaboration with others. If she has been understood and accepted in diverse groups, then she exhibits social responsibility, synergy and management skills, that is, she can work dedicatedly and exhibit cooperation and fellow-feelings. Further, she can actively involved in problem solving and consolidate the solution.

- **Student 4** has restricted interaction in classroom. He receives support from number of classmates. He considers Student 1 as the best friend but both are not mutually connected at the same degree. He also seeks help from Student 2 & 14, but the cooperation received is rare.

Student 4 is good at the study skills, creative thinking and critical thinking skills. He is open for the new ideas and appreciates innovations, but lacks originality. His novel ideas are well thought out. He is good at analysis and interpretation. So, he can comprehend well. Further, he can express the comprehended data, ideas and viewpoints intelligibly, but lacks oral expression. He is good at research. He is quite sensitive and has knowledge of society around him. He is equipped with ICT skills. He understands his social responsibility and works with synergy.

- **Student 5** is acknowledged by most of the students. She makes trio with Student 8 & Student 22. She is a fastener of the trio.

She has operational study skills, reflective skills and thinking skills to meet educational ends. She is a conservative thinker which hinders her systems thinking. She exhibits adaptive skills and adjustment skills, but, rarely. She can communicate well in diverse groups and work actively and efficiently, which makes her able to collaborate with synergy within a group. She is weak at ICT and social networking skills.

- **Student 6** faces social ignorance. He stays in a particular group.

Student 6 has study skills, thinking skills, reflective skills, communication skills, collaborative skills and social networking skills at the operational level, but, not yet mastered these skills. He is poor at management skills and self-directional skills. But, he works responsibly, effectively and contributes to the best of his capabilities.

- **Student 8** has limited interaction with the classmates. She is third top choice for the classmates. She is the weakest link of the trio of Student 5, Student 8 & Student 22.

Student 8 is good at many as skills, but, she lacks creative thinking and system thinking skills. Among the social skills, she has social responsibility skills and adjustment skills up to some level. She lacks in skills of acceptance, adaptation, and skills of synergy. Sometime she lacks decency and decorum. She is good at communication but lacks collaborative skills.

- **Student 9** is one of the neglected students of the class. He tries to interact with others but others are ignoring him, because, he is not reliable.

Student 9 is good at reading skills. He has research skills at the level of information collection and information processing. He is a critical thinker and can come to a

solution of the formulated problem. He lacks study skills, creative thinking skills, critical thinking skills, problem solving skills, self-directional skills, self-management skills and social skills. He is not accepted by the peers because of maladjustment and malpractices with peers.

- **Student 11** does not have cooperation with all the classmates at the equal degree. She admires student 2 most, but, she is not even considered by him. She is not in a position to balance social interactions.

Student 11 is good at social skills, communication skills and collaborative skills. She can mingle well and work dedicatedly in the diverse groups. She has higher level of synergy. She functions as negotiator at the time of dispute among friends. She is sensitive enough and marks minute change in social interactions. She is adaptive to varied situations.

- **Student 14** has constrained his interaction with a few classmates. He is leading Green House and is admired by most of the students due to his expertise in subjects and management.

Student 14 has mastered many a skills to act autonomously. He is sensitive and adaptive to the change. He is empathetic, but, does not work with cooperation at optimum level. He lacks social responsibility. He can adjust well up to certain level. His fault finding and criticizing nature hinders in adjustment in the diverse groups. He is good at ICT and social networking skills.

- **Student 15** is a neglected student of the class. She seeks support for most of the students and tries to establish communication or interaction with other classmates, but, she is not being appreciated in the group.
- **Student 17** has higher degree of correlation. He has equal degree of mutual relationships. He has unyielding relations. He admires who admires him. He forms strong trio with Student 2 & 12. Students 17 & 19 are also intimate with him.

Student 17 has social skills and communication skills at the functional level. He can mingle well and meet the social ends. He is prominently lacking study skills, but, he is having knowledge of sources and resources of information. He tries to solve problems in the field of interest. He is using social media excessively, but, lacking ICT and social networking skills.

- **Student 18** shares strong bonds with Student 3.

Student 18 possesses study skills but has not achieved mastery level in those skills. She is good at creative thinking and creative writing skills. She possesses skills of reading, writing and info-savvy skills. She has reflective skills, self-management skills and self-directional skills up to certain level. She initiates & monitors the task, but, fails in planning and implementing. She also takes leadership in the groups of friends. She is good at all social skills. Due to such social skills she is good at communication as well as collaboration. She can work with synergy in any group.

- **Student 19** has balanced relations with all those who have mutual understanding. She shares strong bonds with Student 17.

Student 19 possesses practical social skills, communication skills and collaborative skills. She can connect well with a diverse group. She is sensitive to mark changes in patterns of interactions and emotions. She exhibits compassion and fellow feelings, which help her in working with synergy. She lacks management skills and leadership skills but she understands her responsibility and stands with the leader and extends all the possible help. She lacks reading skills, writing skills, reasoning skills, critical thinking skills, problem solving skills and research skills, but, she has creative thinking skills.

- **Student 20** has limited relations with a few classmates. He shares strong bond with Student 1. He leads Blue House and all the members of the house admire his expertise and content mastery. He is lower in general Socio-gram.

Student 20 is good at functional reading skills and writing skills. He can comprehend the written text. He can present his views in intelligible form. He is good at info-savvy skills and ICT skills. He is a critical thinker. He has mastered problem solving skills and research skills, but his personal biases hinders in the data interpretation. He has mastered management skills. He can manage multiple tasks at a time. He lacks self-directional skills and creative thinking skills. He lacks adaptive skills and adjustment skills, which hinders his collaborative skills and communication skills.

- **Student 22** has balanced relations with all the classmates. She shares strong mutual bond with Student 5. In the class of Standard IX, she is a second choice. Student 2, Student 8 and Student 22 forms a trio, but it is weak.

Student 22 has mastered almost all the identified Coping Skills for 21st Century, whether it is skill of acting autonomously or skills of functioning in heterogeneous groups or skills to use tools interactively. It has been observed that she is dedicated, disciplined and determined to complete any task. She has due respect for the teachers, parents and classmates. She hesitates in taking leadership. She rarely uses social networking tools.

Skill wise Performance of Students on Coping Skills for 21st Century

- Majority of the students were found lacking in reasoning skills, planning leisure time, creative thinking, critical thinking, system thinking skills, reflective skills, research skills, learning skills and skills of synergy.
- All the sixteen students have been found to have reading skills. Most of the students were found to have workable reading skills. Out of the sixteen students, seven students could analyze and comprehend the text. Out of these seven students, two students were found to be skilled in scanning, skipping and skimming. One student was excelling in reading skills.
- Eleven students out of the sixteen were found to have writing skills. Four students could keep pace with the dictation made by the teacher. Nine students could paraphrase and summarize the text. Out of these nine students three students could decipher connotative meaning out of the paraphrasing.
- Six students were observed giving intelligible expression to their ideas, observations and experiences. Out of six students, three students use lexicons in their writing. Two students were found giving creative expression to their ideas, observations and experiences. One student was found excelling at all the level of writing skills. Five students were found to have manageable writing.
- Out of sixteen students, four students were found to have reasoning skills, other ten students were not that good at reasoning and missing sharpness in argument and justifications were not supported with reasons. Two students were excelling reasoning skills. The student could justify all his actions and argue with logic. He could present progressive arguments logically and establish cause & effect relationship.
- Thirteen students were found to have info-savvy skills. All the thirteen students were having knowledge of various sources of knowledge and could access the information. Three students could assess the credibility of information resources through proper

procedure and assess relevance of the information. Four students used info-savvy skill to keep up-to-date with current affairs. Eight students could process the data and display the same in intelligible form. Out of these eight students, two students were found excelling in handling the data. The remaining three students were lacking info-savvy skills.

- Only two students were found to be utilizing leisure time for their interest based activities. Three students were facing Leisure time crunch. Rest of the students were having no concept of the leisure time activities.
- Two students were found to have both, creative thinking skills and critical thinking skills.
- Eleven students were found to have creative thinking skills. All were open for the divergent and innovative ideas. Five students were found to have divergent ideas. Three students exhibits originality of idea and follow brain-storming techniques to refine and elaborate the idea. Three students considered failure as learning opportunities, but at the same time wanted success. Five students were found to be close to the innovative ideas.
- Twelve students were found to have critical thinking skills. The skill level they exhibited was at argument level but they lacked sharpness of argument. They reflected critically on processes and decisions made by the authority.
- Three students were found to be at higher level of critical thinking skills and sought higher level of critical understanding and were found to have determination of accepting, rejecting or suspending the judgement. Rest of the students were not those critical thinkers.
- Two students were found to have system thinking skills. They could realise interconnection and interrelation of various systems and describe symbiosis. The remaining fourteen were found lacking in establishing interrelationship of parts to whole and vice-versa.
- Fourteen students were found to have problem solving skills, wherein most of them could contribute in solving the stated problem through causes & effect analysis. Six students could identify the causes of the problematic situation. Three students could identify, formulate, solve the problem and consolidate the solution. One student was

found to be excelling in all the levels of problem solving skills. Two students were found lacking in problem solving skills.

- Five students were found to have reflective skills. They could judge own actions and social interactions. Two students were found to have higher reflective skills, wherein, they formed realistic self-concept. The remaining eleven students were found to have faulty SWOT analysis.
- Three students were found to be good at detailed observation. Two students were found to have Research skills at all levels. They could identify variables, formulate research problem & hypothesis, collect relevant data, analyze and draw valid conclusion. Majority of the students were having research skills, but, the level was varying. They were found lacking in suspending judgement.
- One student was found to have learning skills to construct, connect, retain and transfer learning. Majority of students were exhibiting Study skills, Research skills, Problem Solving skill but lacking creation, construction and connection.
- It was observed that self-directional skills were present in a majority of students. Five students were fully devoted to the work assigned with accountability. One student was found to have leadership quality. One student was found to be proactive and taking initiatives for learning. Two students were found to have resilience and self-management skills. Others were found to be lacking initiatives, decision making and self-management skills.
- Thirteen students were found to be open, sensitive and having inter-personal awareness. Two students were found to be well adjusting and established harmonious relations with self as well as with the classmates. Majority of the students were lacking in the skill of adaptability and adjustment. The process of adjustment was found to be faulty.
- Five students were found exhibiting social responsibility skills. They were found to be quite aware of their rights, and their responsibility. Two students were found to have higher level of social responsibility skills. They were found observing ethical behaviour even in adverse conditions and could fight for the justice. The remaining twelve students were found to be generally responsible.
- Eight students were found to be quick in human relationships skills, they observed decency, decorum, discipline and interacted responsibly in maintaining relations.

They were found to be polite and exhibited ethical behaviour. Three students were found establishing peace and harmony in human relationship and having healthy competition. One student was found establishing harmonious relations even in adverse conditions. Remaining students were found facing difficulties in maintaining the relations.

- A majority of the students were working together collaboratively for a common goal. But majority of them were found to be lacking in exhibiting fellow feelings. Six students were found to be having higher level of synergy skills. Three students were found to be aware of potential of fellow students and exhibited fellow feelings. One student was found having understandings of situations and acted harmoniously. This student would politely stand with the person who was in need and tried his level best to help the person.
- All the students were found to have manageable communication skills. They could decode the message and mark the intention of the speaker and put forth their point clearly. Majority of the students were found lacking listening with concentration. Two students were found to be good in narration. Three students were found to be good in public speaking. Three students found to have skills of negotiation.
- One student was found to be excelling in communication skills at all the levels. She was found to be an original narrator and could clearly communicate with articulation and negotiate with authority.
- A majority of students were found to work together. Seven students were found to have skills of collaboration and were sharing responsibility in the assigned task. Out of the six students, three students were found to be accountable and value the contribution made by every entity.
- Out of sixteen students, twelve students were using social networking services. But, only two students found to have ICT & Social Networking Skills. The students lacked in media management skills.
- Nine Students were found to have management skills. They were found to be good at planning level. Four students could prioritize important work and set goals. Four student were found having leadership quality and could give clear instruction regarding planning, implementation and required resources. Three students were found to be having knowledge of peers and assigned task. Two students were found

excelling in management skills and could manage multiple tasks at a time. Other seven students did not exhibit management skills significantly.

DISCUSSION ON THE FINDINGS

There has been found a mixed scenario of students on various Coping Skills for 21st Century. Some are excellent on some skills some on the others, some mediocre, whereas, some are poor. Rarely a student has been found excelling in all the skills. The students ought to act autonomously. For acting autonomously they need to have Study Skills, Thinking Skills, Skills of Problem Solving, Reflective Skills, Research Skills, Learning Skills and Self Directional Skills. They should function proficiently in socially heterogeneous groups. To integrate with the socially heterogeneous groups they should have Skills of Acceptance, Skills of Adaptability, Skills of Adjustment, Skills of Human Relationship, Skills of Social Responsibility and Skills of Synergy. To use the tools skillfully they should develop Communication Skills, Collaborative Skills, Skills of ICT & Social Networking and Management Skills (Time-Space-Personnel-Material). All the skills need to be nurtured very patiently and scientifically. Skill of Reading demands thorough knowledge of the principles of analysis and synthesis of a given culture and context. In addition the skill of writing demands creative expression and synthesis. Skill of creativity demands divergent thinking and production. Critical thinking demands careful competent skilful convergence. Constructivist skill demands germination, incubation, creation & construction. Skill of synergy demands self awareness and awareness of the profiles of others. Creative-cum-critical thinking demands zooming out and zooming in. Systems thinking requires knowledge of all the subsystems and their interrelation and interdependence as an integrated whole. Info-savvy skills demand skills of asking, accessing, analysing, applying and assessing. The students ought to learn how to view wisely, listen deeply and speak critically & fluently, how to search information, wherefrom to access information, how to have access to the URL, how to examine the credibility of message & fidelity of media, how to differentiate fact and opinion, how to employ skills of skimming, scanning, switching, hyper-linking, authenticating with full immersion and how to relate data. To accept and to be accepted demands valuing & trust. In this age of stress & strain a large majority of the students are wanting in the coping skills. There ought to be focus on the development of wholistic life skills. Skills related to all the domains have their own place and relevance. It is high time that we do away with stereotyping and learn to appreciate the faculties and conditions of the 21st Century Children. They are residents of a highly complex world wide web of Physical-Socio-

Economic-Political-Cultural conditions. The life is not that simple as it used to be. They have to be skilled in all the domains. There is a need to realize skill, scale and speed to survive and live full, meaningful, happy, healthy and hilarious life. The energy of the adolescents needs to be channelized. They should be ethical, aesthetical, as well as, digital.

IMPLICATION OF THE STUDY

- Identification of the educational challenges of the 21st century can be done employing suitable approaches as evident through the study.
- The study guides the teachers in designing instructional strategy to develop 21st century skills.
- There should be in-service and pre-service programme for the teachers to cope-up with the challenges of 21st century.
- There should be emphasis on Skill Integrated Education.
- There should be Educational Determination and skill based actions to meet the challenges of 21st century.
- The tracker on Coping Skills for 21st Century could be utilized directly to study the status of students on various skills.

SUGGESTION TO TEACHERS

- Teacher should be proactive to address the changes in global society in general and local society in particular.
- Teacher should address the educational need of the students.
- Teacher should provide diversified learning opportunities, where, students could be engaged in discovering their potentials and expressing these in action.
- Teacher should integrate the scholastic subjects with plurality of curriculum inputs and the subject matter should address to changing needs of society, that is, social, economical, environmental, geographical and educational.
- Teachers should keep pace with the 21st century media-savvy & socially-networked adolescents. Thus, they must have media literacy, ICT skills and info-savvy skills.
- Teachers must have competency attributes
 - C: Compassionate, Caring, Curious & Change Agent
 - O: Optimistic, Observer & Thinker Out of Box

- M: Motivator, Manager, Marker of change
- P: Passionate, Patient & Philosopher
- E: Energetic, Ethical & Entertainer
- T: Thinker, Transformer, Transmitter and Transcended
- E: Ethical, Engaging, Exploring, Entertain every student, Equal opportunities to each student.
- N: Naturalist, Novelist & Nurturer
- C: Creative, Critical, Constructivist & Connectivist
- Y: Yielding quantity and quality, Divergent & Convergent thinker

SUGGESTIONS TO PARENTS

In 21st century parenting of adolescents is challenging.

- Parents should understand attributes of the adolescents.
- Parents should be aware of the challenges of 21st century adolescents.
- Parents should spend constructive time with their wards.
- Parents should respect the potential of their young ones.
- Parents should appreciate the efforts made by their adolescent children.
- Parents should give freedom for career choice.

SUGGESTIONS FOR FURTHER RESEARCH

- Studies of Coping Skills for 21st Century could be conducted at various levels of Education.
- Studies of Coping Skills for 21st Century could be conducted academic stream wise.
- Studies could be conducted to find out and enhance the status of students of professional programme on professional skills.
- Studies could be conducted on evolving taxonomy of Coping Skills for 21st Century.

CONCLUSION

Progressively the 21st century is full of challenges in every walk of life. Educational determination and action is required to meet these challenges. There is a need of Educational Renewal in the realm of skills. It is an age of skill, scale and speed. There is a need of

developing taxonomy of educational skills. There should be skill culture in our country with strong theoretical base. At the same time every person should find free social, educational, psychological and emotional space. The adolescents exhibit their own self-sustained mechanism to meet their ends, that is, ***Do the work that you like and demonstrate its worth and value to be liked by All or Make the work Liked.*** The students may employ various Coping Skills for 21st Century, that is, skill of adaptability, skill of adjustment, skill of time management, self directional skills, skill of problem solving, communication skills, human relationship skills and skills of synergy. There should be diversified curriculum inputs. Education should focus on decency, decorum, discipline, determination & dedication with all skills competency & proficiency. There should be pre-service and in-service Teacher Education Programs having due focus on Educational Skills.

The complexities of the living conditions demand skillful persons in various dimensions of life. All the skills have their on significance. Info-Savvy & Digital Skills are as important as Spiritual Intelligence and Yoga Skills. Self Awareness Skills are as important as Systems Thinking Skills. Production Skills are as important as Consumption Skills. Zooming out is as important as Zooming in. Personal Skills are as significant as Citizenship Skills. General as well as Special Skills have their own value. Research is as important as Construction. Downloading is as important as uploading. How can life be a network of arrays of numerous skills, where, ideas spring, feelings flow, motor creates, spirit reins, and the self resonates with the sphere in this digital age? Dancing crops, flowing wisdom, enchanting music, touching songs, resonating dance, immersing verses, speaking sculptures, enlightened learners, innovative researchers, skillful students and creative constructors are the wonderful springs of nature.

India ought to have skill, scale & speed to realize sustainable development. We need to be proficient on hard skills & soft skills, Science Process Skills & Digital Age Skills, Research Skills & Constructivist Skills, Laboratory Skills & Connectionist Skills, Self Direction Skills & Social Development Skills, Digital Age Skills & Spiritual Development Skills, Cognitive Skills & Emotional Development Skills, Micro-Specialist Skills & Wholistic Development Skills, Time-Space-Personnel Management Skills & Spiritual Development Skills, Production Skills and Marketing Skills, Human Development Skills & Universal Becoming Skills, Production-cum- Consumption Skills, Downloading Skills & Uploading Skills, becoming skills & de-becoming skills and above all Skills for living and leading full meaningful, happy & healthy life. There has to be added focus on Healthy Relationship Skills

realizing trust, transparency, cleanliness, honesty, patience, tolerance, truthfulness, compassion, forbearance, respect, controlling emotions and expression. Also we need to observe decency, decorum, discipline in every meeting by viewing wisely, listening deeply and speaking analytically and critically, also, agreeing to disagree at times.

REFERENCES

- Azad, N. (2008). *Address the HIV and Aids Issues and Empowering the out of school Vulnerable Adolescents through Life Skill Education*. New Delhi: D. U.
- Bhave, S. (2008). *Life Style Analysis and Assessment of Obesity and Hypertension in Junior College Youth of Mumbai participating in LSE Workshops*, Book of Abstracts, Sri Perumbudur: Rajeev Gandhi National Institute of Youth Development, p. 64.
- Chatrah, H. (2008). *Who is more stressed: A High School Student or a Medical Student?* Ph.D. thesis in Medicine, Delhi University, New Delhi.
- Colacino, T. M. (2013). Learning 21st century skills in a multicultural setting. (3598188, University of Southern California). ProQuest Dissertations and Theses, 92. Retrieved from <http://search.proquest.com/docview/1458632232?accountid=144497>. (1458632232).
- Confintea: *The Hamburg Declaration on Adult Education*. (1997). Retrieved May 14, 2011, from Confintea: <http://www.education.unesco.org/confintea>
- Definition and Selection of Key Competencies: Executive summary*. (2001). Retrieved from: <http://www.oecd.org/pisa/35070367.pdf>
- Framework for 21st Century Learning. (2007). *21st Century Curriculum & Instruction*. Retrieved September 14, 2010, from Partnership for 21st Century Skills: http://www.p21.org/index.php?option=com_content&task=view&id=352&Itemid=120
- Galagali, P. (2008). *Adolescent Life Skill Education Program the Bangalore Experience*. Book of Abstracts, Sri Perumbudur: Rajeev Gandhi National Institute of Youth Development, p. 61.
- Geiselhofer, M. A. (2010). A delphi study to identify components of a new model for teaching and learning 21st century literacy skills. (3426643, Walden University). ProQuest Dissertations and Theses, 222. Retrieved from <http://search.proquest.com/docview/763235834?accountid=144497>. (763235834).
- Government of India. (1953). *Report of Secondary Education Commission(1952-53)* New Delhi: Ministry of Education.
- Greenhill, V. (2009). *21st Century Knowledge and Skills in Educator Preparation*. Retrieved June 23, 2011, from ERIC: http://www.eric.ed.gov/...tartCount=1&ERICExtSearch_SearchType_0=kw&_pageLabel=RecordDetails&objectId=0900019b8046d4f3&accno=ED519336&_nfls=false.

- Helaiya, S. (2010). *Development and implementation of life skill programme for student teachers*. An Unpublished Doctoral Thesis, CASE, The Maharaja Sayajirao University of Baroda, Vadodara.
- Hillman, N. (2012). *Learning 21st century skills: Implementation of programs and practices*. (3513777, University of Southern California). ProQuest Dissertations and Theses, , 113. Retrieved from <http://search.proquest.com/docview/1026585651?accountid=144497>. (1026585651).
- Hughes, S. R. (2012). Exploring the 21st century skills used during a project-based learning experience at the secondary level. (3541668, Walden University). ProQuest Dissertations and Theses, 320. Retrieved from <http://search.proquest.com/docview/1115148990?accountid=144497>. (1115148990).
- Jacqueline, A. (2007). Breaking new ground: Cultivating 21st Century skills in secondary schools. (3299090, Indiana University). ProQuest Dissertations and Theses, 148. Retrieved from <http://search.proquest.com/docview/304855018?accountid=144497>. (304855018).
- Kenneth, K. (2008). *Effect of Life Skills Training on the Academic Stress of Tenth Standard Students*. Book of Abstracts. Sriperumbudur: Rajeev Gandhi National Institute of Youth and Development, p. 63.
- Larson, L. C. & Miller, T. N. (2011). *21st century skills: Prepare student for future*. Retrieved June 23, 2011, from ERIC: http://www.eric.ed.gov/ERICWebPortal/search/simpleSearch.jsp?newSearch=true&searchtype=advanced&pageSize=10&ERICExtSearch_Operator_2=and&ERICExtSearch_SearchValue_0=21st+century+skill&eric_displayStartCount=1&ERICExtSearch_Operator_1=and&ERICExtSearch_SearchValue_1=21st+century+skill
- McLachlan, K. (2012). *A case study of 21st century skills programs and practices*. (3513862, University of Southern California). ProQuest Dissertations and Theses, , 101. Retrieved from <http://search.proquest.com/docview/1027763543?accountid=144497>. (1027763543).
- Miller, R. D. (2009). *Developing 21st century skills through the use of student personal learning networks*. (3383118, Northcentral University, Arizona). ProQuest Dissertations and Theses, 201. Retrieved from <http://search.proquest.com/docview/305177755?accountid=144497>. (305177755)
- Ministry of Education. (1966). *Education and National Development: Report of the Education Commission 1964-66*. Reprinted in 1971 by NCERT, New Delhi.
- Missett, T. C. (2012). The development of critical and creative thinking skills for 21st century learning. (3525032, University of Virginia). ProQuest Dissertations and Theses, , 173. Retrieved from <http://search.proquest.com/docview/1037805099?accountid=144497>. (1037805099).
- Morton, L. L. (1993). *Interpersonal Skill Development through Cooperative Education*. Retrieved September 26, 2011, from ERIC: http://www.eric.ed.gov/ERICWebPortal/search/simpleSearch.jsp?newSearch=true&eric_sortField=&searchtype=basic&pageSize=10&ERICExtSearch_SearchValue_0=EJ497269&eric_displayStartCount=1&_pageLabel=ERICSearchResult&ERICExtSearch_SearchType_0=kw (EJ497269)

- National Curriculum Framework - 2005*. New Delhi: NCERT.
- National Policy on Education – Programme of Action*. (1992). New Delhi: MHRD, Government of India.
- Nivedita. (2010). Learning to live together: the key stone of education for 21st century. *University News*, 48 (43), pp. 11-14.
- Olsen, J. L. (2010). *A grounded theory of 21st century skills instructional design for high school students*. (3398651, University of Hartford, Connecticut). ProQuest Dissertations and Theses, 201. Retrieved from <http://search.proquest.com/docview/275989513?accountid=144497>. (275989513).
- Patrick, K. (2009). *Sustainability: The Next 21st Century Workplace Skill*. Retrieved September 26, 2011, from ERIC: http://www.eric.ed.gov/ERICWebPortal/search/simpleSearch.jsp?NewSearch=true&eric_sortField=&searchtype=basic&pageSize=10&ERICExtSearch_SearchValue_0=EJ868978&eric_displayStartCount=1&_pageLabel=ERICSearchResult&ERICExtSearch_SearchType_0=kw (EJ868978)
- Prasad, D. (2008). *Advocacy and Capacity Building through Life Skills Education – The peer educators approach*. New Delhi: I. I. T.
- Rychen, D. S. & Salganik, L. H. (Eds.). (2001). *The Definition and Selection of Key Competencies: Executive summary of DeSeCo project*. Retrieved May 21, 2011, from Definition and Selection of Competences [www.Deseco.admin.ch: http://www.deseco.admin.ch/bfs/deseco/en/index/02.parsys.43469.downloadList.2296.DownloadFile.tmp/2005.dskcexecutivesummary.en.pdf](http://www.deseco.admin.ch/bfs/deseco/en/index/02.parsys.43469.downloadList.2296.DownloadFile.tmp/2005.dskcexecutivesummary.en.pdf)
- Rychen, D. S. & Salganik, L. H. (Eds.). (2003). *Key competencies for a successful life and a well-functioning society*. Göttingen: Hogrefe & Huber.
- Sardone, N.B. & Scherer, R.D. (2010). Teacher Candidate Responses to Digital Games: 21st Century Skills Development, *Journal of Research on Technology in Education*, 42(4), 409–425. Retrieved from: <http://www.iste.org>.
- Shelat, P.H. (2013). *Developing an instructional strategy and studying its effectiveness for comprehension in science among Class VII Students*. An Unpublished Doctoral Thesis, CASE, The Maharaja Sayajirao University of Baroda, Vadodara.
- Shenoy, S. P. (2005). A Critical Study of Secondary School Curriculum with reference to Developing Skills for Crisis Management among Students of selected English Medium High Schools of Mumbai. *Abstracts of Research Studies Conducted by Teacher Education Institutions in India*, 2(1). Retrieved September 29, 2011, from Education in India: http://www.educationinindia.org/vol_2.pdf
- Shrinivasan, M. & Padmavathi, A. S. (2009). *Adolescent Health and Development Project*. RGNIYD, Sriperumbudur.
- Singh, A. (2008). *Life Skills for Enhancing Excellence in Education and Life Long Learning* NIOS, NOIDA: UP.
- Strom, B. (2010). "The strawberry grows under the nettle" how an integrated performance-based approach to the teaching of shakespeare at the secondary level affects critical

- thinking skills as measured by the California critical thinking skills test. (3456085, Loyola University Chicago). ProQuest Dissertations and Theses, 199. Retrieved from [http://search.proquest.com/docview/871194087?accountid=144497.\(871194087\)](http://search.proquest.com/docview/871194087?accountid=144497.(871194087)).
- Thurman, B. A. (2009). Teaching of critical thinking skills in the English content area in South Dakota public high schools and colleges. (3367643, University of South Dakota). ProQuest Dissertations and Theses, 118. Retrieved from [http://search.proquest.com/docview/304995933?accountid=144497.\(304995933\)](http://search.proquest.com/docview/304995933?accountid=144497.(304995933)).
- Tingen, J., Philbeck, L. & Holcomb, L. B. (2011). *Developing websites for 21st century learning*. Retrieved June 23, 2011, from ERIC: http://www.eric.ed.gov/ERICWebPortal/search/recordDetails.jsp?searchtype=advanced&pageSize=10&ERICExtSearch_Operator_2=and&ERICExtSearch_SearchValue_0=21st+century+learning&ERICExtSearch_Operator_1=and&ERICExtSearch_EDEJSearch=elecBoth&ERICExtSearch_SearchValue_1=and&ERICExtSearch_SearchValue_2=21st+century+learning
- UNESCO (1997). *Learning the treasure within: Report of the international commission on education for twenty-first century*. Retrieved from <http://www.unesco.org/delors/index.html>.
- UNESCO Bureau of Strategic Planning. (2003). *Medium Term Strategy for 2002-2007*. Retrieved March 8, 2011, from UNESCO Bureau of strategic planning: <http://www.unesco.org/bsp/eng/mts.htm>.
- UNESCO. (2001). *Education*. Retrieved April 27, 2011, from [www.unesco.org](http://www.unesco.org/new/en/education/themes/): <http://www.unesco.org/new/en/education/themes/>
- UNESCO. (2004). *Higher Education in a Globalized Society: UNESCO Education Position Paper*. Retrieved May 23, 2011, from UNESCO Documents: <http://unesdoc.unesco.org/images/0013/001362/136247e.pdf>
- UNESCO. (2007). *UNESCO action and the United Nations Millennium Developmental Goals*. Retrieved March 14, 2011, from UNESCO Bureau of strategic planning: <http://www.unesco.org/bsp/eng/mdg.htm>
- UNESCO. (2010). *Education and the Millennium Development Goals*. Retrieved April 17, 2011, from [www.unesco.org](http://www.unesco.org/new/en/education/themes/leading-the-international-agenda/education-for-all/education-and-the-dgs/): <http://www.unesco.org/new/en/education/themes/leading-the-international-agenda/education-for-all/education-and-the-dgs/>
- Wagner, T., Kegan, R., Lahey, L., Lemons, R., Garnier, J., Helsing, D., Howell, A. & Rasmussen, H. (2006). *Change Leadership: A Practical Guide to Transforming Our Schools*. San Francisco: Jossey Bass.
- Zimmerman, D. C. (2010). *Project Based Learning for Life Skill Building in 12th Grade Social Studies Classrooms: A Case Study*. Retrieved September 26, 2011, from ERIC: [http://www.eric.ed.gov/ERICWebPortal/search/simpleSearch.jsp?newSearch=true&eric_sortField=&searchtype=basic&pageSize=10&ERICExtSearch_SearchValue_0=ED510590&eric_displayStartCount=1&_pageLabel=ERICSearchResult&ERICExtSearch_SearchType_0=kw\(ED510590\)](http://www.eric.ed.gov/ERICWebPortal/search/simpleSearch.jsp?newSearch=true&eric_sortField=&searchtype=basic&pageSize=10&ERICExtSearch_SearchValue_0=ED510590&eric_displayStartCount=1&_pageLabel=ERICSearchResult&ERICExtSearch_SearchType_0=kw(ED510590))