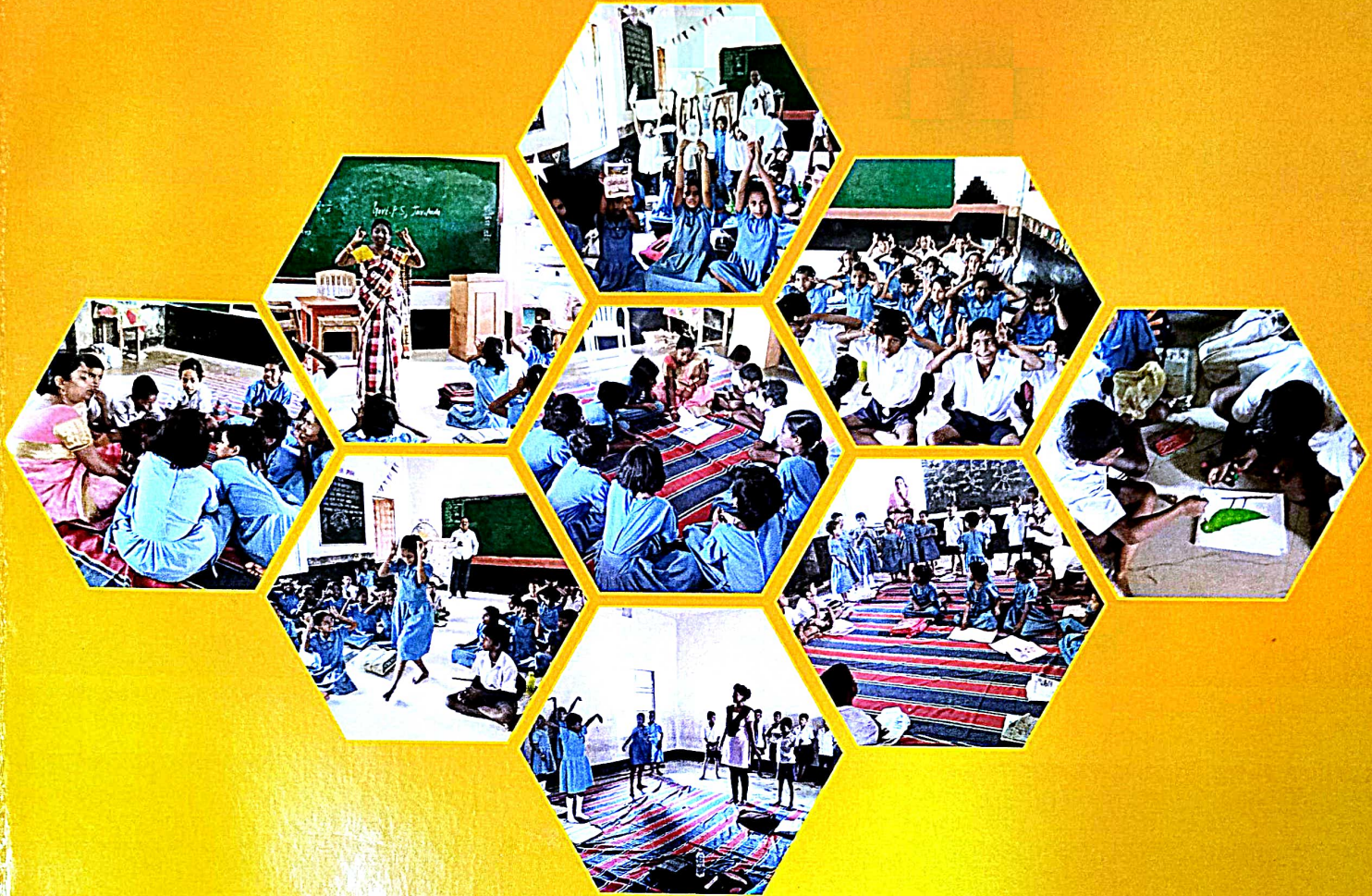# ART INTEGRATED LEARNING AT ELEMENTARY LEVEL PROBLEMS AND ISSUES IN IMPLEMENTATION: AN EXPLORATORY STUDY

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1. Introduction

The best education is that which gives the body and the soul all the beauty of which they are capable. Education needs to strike a balance between physical, mental and moral aspects of human personality. Tagore expressed, "I never accept that the object of education is simply accumulating knowledge. Education should produce an all-round personality in which the physical, intellectual, aesthetic and spiritual growth would be harmonized into an integral process". Gandhi also said, "I do not value literary education if it is not able to build an all round character". It is like a lifelong insurance for the transformation of an individual. In fact, education is an essential and powerful instrument invented by the human being to shape and mould him/her in a desirable manner for all round development of the learners. Art Education constitutes an important area of curricular activity for development of the personality of the learner. The aim of art education may be perceived as development of aesthetic sensibility among learners so as to enable them to respond to the beauty in line, colour, form, movement and sound. The study of arts and understanding of cultural heritage may go side by side and reinforce appreciation, and understanding of one another.

2. Importance of Art Education

Yehudi Menuhin has rightly said that "There is a lack of mediation and creativity everywhere, especially in schools. The arts are missing from our lives and we are giving way to violence". Students are like the wet clay they can be moulded in which shape the parent, teacher want to mould. According to Rabindranath Tagore "Literature, music, art, all are necessary for the development and flowering of a student to form an integrated total personality". Art education is constitutes an important area of curricular activity for the overall development of personality of learners. It is a process which goes through every aspect of life in a creative, productive and joyful manner. Different committees and commissions in India has emphasized on the arts education.

The Education Commission (1952-53) reported that "release of creative energy among the students so that they may be able to appreciate cultural heritage and cultivate rich interests, which they can pursue in their leisure and, later in life". It also recommended that art, craft, music and dance should be the part of the curriculum. Kothari Commission (1664-66) has given the idea that in an age which values discovery

and invention education for creative expression acquires added significance. "Adequate facilities for the training of teachers in music and the visual arts do not exist. The neglect of the arts in education impoverishes the educational process and leads to a decline of aesthetic tastes and values". In 1966 the Governing Body of the NCERT appointed a committee under the Chairmanship of Shri K. G. Saiyidain to examine the whole question of improvement of art education in schools. The committee submitted its report in 1967 with a set of recommendations emphasizing the aims and objectives of teaching art in schools, the critical role of art education in achieving the main educational goal, and the necessity of art education at all stages of education starting from the pre-primary stage. It also recommended that NCERT too should have an art education cell at the earliest.

The National Policy on Education 1986 emphasized on understanding of the diverse cultural and social systems of the people living in different parts of the country as an important objective of school education. The National Curriculum Frameworks of 1975, 1988, and 2000 emphasized art education by defining its aims and objectives in the school curriculum. The teaching of the different arts, dance, music, painting etc, should be based on the same fundamental principle of providing students opportunities for perfecting their own capacities and helping and encouraging them in the process. There was a paradigm shift in the objective of art education from dignity of labour by working on crafts to developing aesthetic sensibility and free expression.

Arts education is a worldwide phenomenon, which was taken up by UNESCO in the year 2000 with an appeal by the Director General for promotion of art education and creativity at school level as part of development of a culture of peace.

3. Arts Integration in School Education

Earlier in school education art education was not as important as it plays an important role today. At that time students just copy what was drawn on the board and colour. There was no space for creativity and innovation of expression. Students were limited to the fixed pattern and form as taught by the teacher. But in present scenario art has been considered as important part of curriculum where students are free to express their thought in different perspectives and in their own way. Art has gained a new form with new look. Students can use it for learning, for academic work and for entertainment. NCF

2005 recommended Art as a subject at all stages covering music, dance, visual arts and theatre. All the education at this stage should be through arts, drawing, painting, clay modeling, singing, actions or movements. It further emphasizes that 90% of the curriculum must be art oriented. NCERT has subsequently conducted capacity building programmes on AIL in 15 states and union territories by year 2017. AIL has successfully been introduced as pedagogy of experiential and joyful learning in its on-going initiative of block level research in five regions with the respective Regional Institutes of Education (RIEs).

It is clearly mentioned in the NCF 2005 that art education will be age appropriate. There are some common characteristics for each group and some are as per age.

- Pre-primary Stage (4-5 years): At this stage child has his own concepts, confusions etc. and the child has his own explanation for their work.

- Primary Stage (6-12 years): During this stage child is able to recognize his/her surrounding and relations with the person. They experience observation, perception which is reflected in their expression of emotions. At Upper primary stage, art education program should comprise, handling of the materials for drawing, painting, collage, clay modeling and construction of Puppets; creating artistic things by free expression method and specific topics method; handling and playing of simple musical instruments and sound producing bodies; movement, mime and simple dance forms; community singing; simple concepts of visual and performing arts; theatrical arts; stories of great personalities in the field of art; and storage connected with other countries. Theatre arts and dramatization may be suitably introduced. Emphasis should be laid on the user of learners own imagination and development of his/her concepts and expression to exploration. He/ she should be enabled to develop sense of organization and design, that is aesthetic arrangements permeating all life, and to feel a deep and lasting Joy of art.

- Secondary Stage (13-16 years): At this level child finds himself as self restricted over his expressions. At this stage references and methods must be can be helpful to motivate the child for being creative. The secondary stage is for refining aesthetic sensibilities and social values through Projects on conservation of

natural and cultural heritage by providing opportunities for study of Indian Culture working with artist/artistes in the community, organizing festivals and celebrations of the community at large, display of physical environment and surrounding landscape and the like. Art education at this stage should comprise, study of visual and aural resources and their exploration; projects leading to creative expression and Exhibition of the works in visual and oral form; intergroup inter school at activities; study trips and interaction with actors in the community; and exploration of traditional art forms including theatrical it's available in the community and neighborhood. Art education programme should concentrate on exposing the learner to folk arts, local specific arts and other cultural components leading to an awareness and appreciation of national heritage. Activities and programs and themes should also be chosen and design so as to promote values related to other core components like India's common cultural heritage, history of freedom movement and protection of environment. Learning by doing and wide exposure to art forms is a must for self expression and widening of the learners own experience. Art education should not be fragmented. It should adopt an integrative approach and all stages up to class 10th.

In the present context, the changing roles of teachers in the classroom are transforming himself/herself from controller to advisor, from instructor to guide, from transmitter to observer and listener, from evaluator and judge to researcher. Individual teachers often explore new ways of transacting the curriculum in addressing the needs of students within their specific classroom context. The sharing of teaching experiences and diverse classroom practices can provide opportunities for an academic discourse to develop within the schools as teachers interact with and learn from each other. This will also encourage new ideas and facilitate innovation and experimentation. The effort for innovative processes and practices is very much necessary. The NCF 2005 states that, "Aesthetic sensibility and experience being the prime sites of the growing child's creativity, We must bring the arts squarely into the domain of the curricular, infusing them in all the areas of learning while giving them an identity of their own at relevant stages. Therefore there is a need to integrate art education in the formal schooling of our students now requires urgent attention if we are to retain our unique cultural identity in

PROCESS OF IMPLEMENTATION OF LEARNING OUTCOMES; AN ANALYSIS

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Chapter-1

Introduction

1.0.   Overview: Learning outcomes (are) statements of what a learner is expected to know, understandand/or be able to demonstrate after a completion of a process of learning. Learning outcomes are statements that describe significant and essential learning that learners have achieved, and can reliably demonstrate at the end of a course or program. Learning outcomes means the ability demonstrate learning which involves a performance of some kind in order to show significant learning, or learning that matters. significant content is essential, but that content alone is insufficient as an outcome. Rather, knowledge of content must be manifested through a demonstration process of some kind. The adoption of a learning outcomes approach focuses activity on the learner and away from the teacher. It promotes the idea of the teacher as a facilitator or manager of the learning process andrecognizes that much learning takes place outside the classroom without a teacher present. Itfurther involves the idea that students should be actively involved in the planning andmanagement of their own learning and take more responsibility for this as the studentprogressively develops as an independent learner. It is important to note that student-centredlearning necessitates the use of learning outcomes as the only logical approach. This produces anautomatic focus on how learners learn and the design of effective learning environments. There is a cascade effect that links the learning outcomes, the selection of appropriate teaching strategies and the development of suitable assessment techniques. Therefore, at no stage or class do we start from 'no learning'.A teacher who is facilitator and mentor of student's learning, needs to be made aware about various pedagogy and in the process of child learning. This is providing quality Education for All. This concern has been reflected in the Right of Children to Free and Compulsory Education (RTE Act, 2009). The 12th Five Year Plan of India; and the Sustainable development goals at the global level.

Quality improvement in education encompasses the all-round development of learners. The system of education, therefore needs to ensure enabling conditions to allow each to learn and progress. This require a multi-pronged approach aiming at quality curriculum and its effective transaction in an enabling environment. Improving the quality of learning has consistently been

in focus under the SSA. The RTE Act 2009 emphasizedContinuous and Comprehensive Evaluation (CCE) to help teachers to develop an understanding on the learning progression of individual children, identify the learning gaps and bridge in time to facilitate their growth and development in a stress free environment. The NCERT developed exemplar packages on CCE both at the primary and upper primary level.

Student learning outcomes or SLOs are statements that specify what students will know, be able to do or be able to demonstrate when they have completed or participated in a program/activity/course/project. Outcomes are usually expressed as knowledge, skills, attitudes or values.Characteristics of Learning Outcomes Statements should:

- reflect broad conceptual knowledge and adaptive vocational and generic skills
- reflect essential knowledge, skills or attitudes;
- focus on results of the learning experiences;
- reflect the desired end of the learning experience, not the means or the process;
- represent the minimum performances that must be achieved to successfully complete a course or program;

Learning outcomes statements may be considered to be exit behaviors.Because learning outcomes focus on the end result of learning, regardless of how or where that learning occurred, their development serves to offer the potential for increased access to learning opportunities through prior learning assessment. Outcomes-based education is thought to provide greater:

- consistency - in course offerings across the educational system
- accountability - expectations for learning are clearly stated, and frequent assessment processes help both teacher and student identify progress toward meeting the outcomes
- accessibility - clearly defined outcomes enable learners to demonstrate achievement of those outcomes through prior learning assessment processes

Well-defined and articulated learning objectives are important because they: provide students with a clear purpose to focus their learning efforts. direct your choice of instructional activities. guide your assessment strategies.

1.1. Curricular Expectations and Learning Indicators in Social Science at Upper Primary Stage

The Social Sciences have been a part of 'Environmental Studies' before upper primary stage. Environmental Studies draw the child's attention to the broad span of time, space and life in the society, integrating this with the way in which she comes to see and understand the world around her. At upper primary level, we deal with social sciences that encompass diverse concerns of society and include a wide range of content, drawn from the disciplines of geography, history and social and political life. Social Sciences help to develop social, cultural and analytical skills required to adjust to an increasingly interdependent world, and to deal with political and economic realities. This is necessary for understanding the world in which we live.

In an inclusive classroom strategies have to be planned for teaching learning according to the need of children as there may be differently abled children in a classroom. Hence sign language, audio books, tactile maps etc. may be used for them.

Curricular expectations:

- View contemporary issues from multiple perspectives introducing the child to social and economic problems of society like poverty,illiteracy, child and bonded labour, class, caste, gender, environment etc.
- Develop a proper perspective related to their uses and concerns related to environment, resources and development at different levelsfrom local to global.
- To acquire a general idea of development in different periods of History
- Understand the formation and functioning of governments at the local, state and central level and the democratic processes ofparticipation.
- Making the perspectives of women integral to the discussion of any historical event and contemporary concern
- Develop ability to think independently and deal with the social forces that threaten human values, without losing her individuality
- The disciplines of social sciences have distinct methodologies that often justify, the preservation of boundaries. Hence, the discipline specificcurricular expectations, with exemplar pedagogical process and specific learning indication that can be visible among learners are providedbelow.

1.2. Need and Justification of the study:

As per the recent Global Monitoring Report(GMR)-2015, impressive gains in access to education have occurred in developing countries including India, but improvement in quality still remains a concern in India. Different achievement surveys such as the Annual Status of Education Report(ASER) reported wide disparities in students' achievement of basic skills across states, which was also affirmed by the National Achievement Survey (NAS) of class 3 (MHRD, 2014). Reports of joint review mission of SSA in the past few years also mentioned that the learning levels of the children are not up to the desirable level in spite of all the efforts made by the states/materials,teacher deployment and regular monitoring. These report a deadline in outcomes of reading ability as well as numerical and mathematical ability which is a major concern at present. Keeping this in view, quality, as measured by learning outcomes to be achieved by all, especially for literacy, numeracy and essential life skills is crucial. The focus of the 12th Five Year for basic learning as explicit objective of primacy education and the need for regular learning assessment to make sure that quality goals are met. It is also in consonance with the recommendation of GMR-2015 and the SDG. Thus, monitoring of quality through assessment of learning outcomes at regional, national,and international levels is important. At the same time a vigil at the ground level by different stakeholders such as parents and community, for their accomplishment makes the system informed and accountable to adopt corrective measures at appropriate levels.

It is very imperative to provide an understanding on CCE with suitable subject-wise example on how to implement and use CCE during the teaching learning process, however in the present scenario, besides students and teachers, parents, community members and educational administration are yet to fully know about the learning of students and thus, monitor the progress of their wards. For this they need and demand some criteria against which the extent of expected learning could be mapped or assessed. In view of the learning continuum, it is challenging to inform the system exactly what children has learnt. Thus, the present effort has been made on the understand the process of learning and its outcome in the social science subjects at the elementary stage, linking these with the curriculum expectation and the pedagogical processes.

1.3.   **Objective of the study:** To study the process of implementation of learning outcomes with regard to:

(i) Learning outcome indicators.
(ii) Pedagogical interventions to ensure achievement of learning outcomes.

Chapter 2

Review of related literature

2.0. Overview: Quality learning and improvement in education encompasses the all-round development of learners. This requires a multi-pronged approach aiming at quality curriculum and its effective transaction in an enabling environment. The National Policy on Education 1986, and the Programme of Action 1992 emphasised that Minimum Levels of Learning MLLs) should be laid down and children's learning should periodically be assessed to keep a track of their progress towards ensuring that "all children acquire at least the minimum levels of learning". The RTE Act 2009 emphasises Continuous and Comprehensive Evaluation (CCE) to help teachers to develop an understanding on the learning progression of individual children, identify the learning gaps and bridge them in time to facilitate their growth and development in a stress free environment.

The literature on 'Education for All' (EFA), in the last three decades emphasised on quality of education. It has been considered in terms of enrolment, retention and achievement. It further included desirable characteristics of learners, learning processes, facilities, learning materials, contents, governance and management and learning outcomes. Improving the quality of learning has consistently been in focus under the SarvaShikshaAbhiyan (SSA), and the Right to Education (RTE) Act. However, reports (Global Monitoring Report (GMR)–2015), achievement surveys (Annual Status of Education Report (ASER), National Achievement Survey (NAS) of Class III, (MHRD, 2014), report a decline in outcomes of reading, mathematical and numerical abilities of children. Keeping this in view, quality, as measured by learning outcomes to be achieved by all, especially for literacy, numeracy and essential life skills is crucial.

Most often, teachers are not clear about what kind of learning is desired and the criteria against which it could be assessed.They use textbooks as the complete curriculum and assess children using questions given at the unit end exercises. The contextual variations in textual material and variations in pedagogy adopted are generally not taken into account, for there are no criteria to assess them. The learning outcomes for each class not only help the teachers to direct their

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A Report of
COUNSELLING SKILL PROGRESSION AMONG THE DCGC STUDENTS OF RIE, BHUBANESWAR

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CHAPTER-I: INTRODUCTION

1.1.Overview:

Counselling is a concept that has existed for a long time. We have sought through the ages to understand ourselves, offer counsel and develop our potential, become aware of opportunities and, in general, help ourselves in ways associated with formal guidance practice. It is a learning-oriented process, which occurs usually in an interactive relationship, with the aim of helping a person learn more about the self, and to use such understanding to enable the person to become an effective member of society.The need for counselling has become paramount in order to promote the well-being of the child. Effective counselling should help to improve the self-image of young people and facilitate achievement in life tasks. Counselling should empower learner/individual to participate fully in, and benefit from, the economic and social development of the nation.

Professional counselling is a skilled activity that involves assisting others in managing and resolving psychological, emotional, behavioral, developmental, relational, vocational, and other personal challenges (chronic or acute) in order to facilitate adjustment to changing life circumstances that promote personal growth, needs attainment, and overall wellness throughout the life span; and prevent the development of more serious conditions. At its essence, professional counselling involves the formal application of theoretical and empirically supported psychological, developmental, and learning principles to facilitate desired change or growth within a larger system of ethical and professional practice standards. These principles are implemented through specifically tailored cognitive, affective, behavioural, and systemic strategies and interventions delivered through therapeutically oriented conversations and interactions. Counseling is the application of mental health, psychological or human development principles, through cognitive, affective, behavioral or

systemic interventions, strategies that address wellness, personal growth, or career development, as well as pathology. (http://counseling. org) The definition also includes these additional attributes:

- Counseling deals with wellness, personal growth, career, and pathological concerns. In other words, counselors work in areas that involve relationships (Casey, 1996). These areas include intra- and interpersonal concerns related to finding meaning and adjustment in such settings as schools, families, and careers.

- Counseling is conducted with persons who are considered to be functioning well and those who are having more serious problems. Counseling meets the needs of a wide spectrum of people. Clients seen by counselors have developmental or situational concerns that require help in regard to adjustment or remediation. Their problems often require short-term intervention, but occasionally treatment may be extended to encompass disorders included in the Diagnostic and Statistical Manual of Mental Disorders (1994) of the American Psychiatric Association.

- Counseling is theory based. Counselors draw from a number of theoretical approaches, including those that are cognitive, affective, behavioral, and systemic. These theories may be applied to individuals, groups, and families.

- Counseling is a process that maybe developmental or intervening. Counselors focus on their clients' goals. Thus, counseling involves both choice and change. In some cases, "counseling is a rehearsal for action" (Casey, 1996, p. 176).

The British Association for Counselling (BAC), now the BACP, may have been the first professional association to adopt a definition of professional counselling. In 1986 it published the following definition:

Counselling is the skilled and principled use of relationship to facilitate self- knowledge, emotional acceptance and growth and the optimal development of personal resources. The overall aim is to provide an opportunity to work towards living more satisfyingly and resourcefully. Counselling relationships will vary according to need but may be concerned with developmental issues, addressing and resolving specific problems, making decisions, coping with crisis, developing personal insights and knowledge, working through feelings of inner conflict or improving relationships with others. The counsellor's role is to facilitate the clients work in ways that respect the client's values, personal resources and capacity for self-determination.

Counselling skill:

Effective counselling practice is highly dependent on the skills and techniques of the teacher/counsellor. Though people can learn by reading, writing and talking about counselling, if they are to become competent counsellors, they have to learn by doing it. Trainees also need to develop their skills in practical groups, prior to being given responsibility for their own students.

Azy Barak (1998) said "skills such as interpersonal sensitivity, empathy, group facilitating, assessment procedures and their applications, or a specific counselling intervention technique—as advocated by different schools of therapist training—are more relevant and important for students to acquire in order to master their counselling conduct in a proficient way That is, the effects of the acquisition of these (and other relevant) skills to counsellors' professional growth are transparent, because they are directly related to the way we conceptualize counselling functioning and conduct. Actually, a good counsellor training program would be characterized by a constructively valid representation of counsellor-related functions in its course offerings"

Basic counselling skills are such as:-

> **Communication**

Since counselling is a conversation or dialogue between the counsellor and client, the counsellor needs certain communication skills in order to facilitate change. Attending refers to the ways in which counsellors can be "with" their clients, both physically and psychologically.

Listening

a. **Attending** - orienting oneself physically to the patient (pt) to indicate one is aware of the patient, and, in fact, that the client has your full, undivided attention and that you care. Methods include eye contact; nods; not moving around, being distracted, eye contact, encouraging verbalizations; mirroring bodypostures and language; leaning forward, etc. Researchers estimate that about 80 percent of communication takes place non-verbally.

b. Listening/observing - capturing and understanding the verbal and nonverbal information communicated by that pt.

> **Genuineness/Congruence**

Genuineness is at times referred to as congruence. It is the consistency or harmony between what you say, and what you are, as a teacher. This condition reflects honesty, transparency, and trust. This element is basic to a counselling relationship. Once it is established, open communication, warmth and respect for the client gradually develop.Genuineness is ability of counselor to be freely themselves. Includes congruence between outer words/behaviors and inner feelings; nondefensiveness; non-role-playing; and being unpretentious. For example, if the helper claims that they are comfortable helping a client explore a drug or sexual issue, but their behavior (verbally and nonverbally) shows signs of discomfort with the topic this will

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Report of Minor Research Project on
Challenges Faced and Process Adopted by Students with Visual Impairment in Learning Science at Secondary School

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1.1 Secondary Education

Secondary education serves as a link between elementary and higher education in the Indian education setup. It is only through secondary education that an individual becomes capable of functioning in a democracy by understanding the complexity of political processes and prepare to contribute to the economic and social progress of the country. 'Report of the Education Commission (1964-66) suggested the 'Secondary Education' for four to five years prior to university education. At present, in India it is four years of secondary education, class 9 and 10 as secondary; 11 and 12 as senior secondary.

1.1.1 Importance of Secondary Education

Secondary education is a critical stage in the educational hierarchy as it prepares the students for higher education and also for the world of work. The vision for secondary education in India is to make quality education available, accessible and affordable to all young students before entering higher education or the world of work. Universalizing Secondary Education implies (CABE Report on USE, 2005) that (i) all children of age group 15-16 years are enrolled in secondary classes (enrolment 100%); (ii) they remain in the system (retention rate, 100 per cent); and (iii) transit to the first grade of the next education cycle (either graduate program or vocational stream). In order to meet the challenge of Universalisation of Secondary Education (USE), there is a need for a paradigm shift in the conceptual design of secondary education. The guiding principles in this regard are; Universal Access, Equality and Social Justice, Relevance and Development and Curricular and Structural Aspects. Universalisation of Secondary Education gives opportunity, to move towards equity.

1.1.2 Aims and Objectives of Secondary Education

Aims and objectives of secondary education that are spelt out in the Secondary Education Commission (1952-53), is very relevant even for today. It speaks about the aims of the secondary education to be

A. Development of democratic citizenship, that includes inculcation of clear thinking, clearness in speech and writing, art of living with the community, sense of true

patriotism, development of sense of world citizenship among the citizens of the country.

B. Improvement of vocational efficiency, which involves creation of new attitude to work, promotion of technical skills and efficiency among the countrymen.

C. Development of personality, which would reflect on releasing the source of energy, cultivating rich interests among the people of the nation.

D. Development of the leadership qualities in the people of the country.

1.1.3 Initiatives at present to realize the aims and objectives

Several initiatives have been taken by the central government and respective state governments for improvement of the secondary education as well as to achieve USE all over India. These initiatives are: (i) Centrally Sponsored National Scheme of Incentive to Girls for Secondary Education. (ii) National Means Cum-Merit Scholarship Scheme (NMMSS). (iii) Scheme for Construction and Running of Girls' Hostel for Students of Secondary and Higher Secondary Schools. (iv) Information and Communication Technology (ICT) at Schools Scheme. (v) Innovation in Science Pursuits and Inspired Resource (INSPIRE) Award Scheme. (vi) Inclusive Education for Disabled at Secondary Stage (IEDSS). (vii) Vocationalisation of Secondary Education. These schemes were converged under flagship scheme *Rashtriya Madhyamik Shiksha Abhiyan* (RMSA) of GOI with an intention of providing quality secondary education to all. The integrated RMSA is a holistic and convergent programme committed to universalize quality education at Secondary Stage with a clear time frame. Good quality education ensures that there is equity and inclusion also in the provisioning of staff, facilities and resources for learning, including using technology as a key enabler in this endeavour. Needless to say, enrolment and retention of students with disability is one of the major thrust areas of this programme specifically with IEDSS.

1.2 Inclusive education at Secondary School Level

Knowing the importance of secondary education, it is a commitment of the nation that every child after the completion of elementary education should get enrolled for secondary education. In spite of the efforts there are an estimated 25 million children out of school in India (MHRD 2003 statistics, cited in World Bank, 2004), many of whom are marginalized by dimensions such as poverty, gender, disability, and caste. In such scenario, inclusive education policy caters the need of marginalized children and promotes the inclusion of all

categories of students in school education. Inclusive Education is a process for increasing participation and reducing exclusion, in a way that effectively responds to the diverse needs of all learners. It takes into account the individual teaching and learning needs of all marginalized and vulnerable children and young people, including street children, girls, children from ethnic minorities, children from economically disadvantaged families, children from nomadic/refugee/displaced families, children with HIV/AIDS and children with disabilities. Inclusive education applies to learners of all ages, both children and adults. Inclusive education is necessary to realise the civil, political and economic rights of all children and young people. Inclusive education is an approach which values diversity as an essential part of the teaching and learning process and which promotes human development. Inclusive education aims to combat the marginalization of individuals and to promote difference. It is based more on evolving inclusive practices that can be adapted to different contexts. Inclusive education is the central means for achieving the goals of 'Education for All ', promoting a child-centred approach to teaching and learning throughout the life course. Globally, more than 1 billion people live with a disability (WHO and World Bank Report on Disability, 2011), 20% of the world's poorest people have disabilities and nearly 80% of people with disabilities live in low-income countries. It is estimated that 72 million children are excluded from education globally, and among those, one third are children with disabilities. In India, a 2007 World Bank study found that disability is a stronger correlate to non-enrolment than gender or class. United Nations observes that 10% of the population has disability and there are about 120 million people with disabilities in India. The National policy on Education (NPE), 1986 and the Programme of Action (1992) gives the basic policy framework for education, emphasizing on correcting the existing inequalities. It stress on reducing dropout rates, improving learning achievements and expanding access to students who have not had an easy opportunity to be a part of the general education system.

1.2.1 Education of children with Disabilities

In 2005, the Central Advisory Board of Education (CABE) observed that all children experience special needs at some point of time and it may not arise from disability only, thus the philosophy of inclusion is a gain for all. It further recommended Universalisation of Secondary Education (USE) for girls and those with disabilities on the grounds of equity and social justice. After the implementation of the flagship programme of SSA for elementary level, the centrally sponsored scheme of inclusive education of the disabled at secondary

schools (IEDSS, 2009) was merged under RMSA (2009) to enable students with disabilities to continue secondary education in an inclusive environment. Another significant move at the international level, united nations convention on the rights of persons with disabilities (UNCRPD, 2007), to which India is a signatory, mandated to implement the provisions by harmonizing Indian laws with it. In addition, education of Children with Disabilities is now an integral part of the international discourse, as noted in the Sustainable Development Goals (United Nations 2015a) and the Incheon Declaration (UNESCO, World Education Forum 2015, Ministry of Education, Republic of Korea 2015).

Students with disabilities, whether physical, emotional, or cognitive in nature, respond to the curriculum differently from other students. For example, depending on the disability itself and other factors affecting their ability to succeed academically, students may need modifications such as advance and graphic organizers, instructional scaffolding, additional practice and time to complete assignments, and/or alternative media (e.g., large-print materials, audiotapes, or electronic materials). Without specific modifications, the standard curricular materials can be inadequate for these students, and too frequently they can find themselves blocked from access to essential aspects of the curriculum. Teachers must adjust the materials or their presentation to break down the barriers and assist these students in learning.

To meet the goal of equal access to the curriculum for everyone, to enable each student to engage with his or her lessons in a meaningful way, teachers must be prepared to provide useful alternatives in terms of both curricular materials and instructional delivery. Well-adapted materials without an effective method of teaching are practically useless, but with the proper tools and instructional methods, a good teacher encourages each member of the class to participate directly in the learning experience.

Individuals with physical disabilities often encounter barriers to one of modern society's most important rites of passage. It is that crucial process of obtaining a good education, so natural and uncomplicated for most people—that opens the door to productive employment and full participation in society. Today's barriers are rarely physical or architectural. More often, they involve perceptions and misperceptions of not just disability but also ability. One misperception is that a physical disability somehow disqualifies a person from a career in science, engineering, or mathematics. Well-intentioned but misinformed adults still discourage students with disabilities from pursuing careers in these fields. Often it

Enhancing the Conceptual Understanding of the Various Angles Formed by a Pair of Lines and Transversal in Class VII : A Classroom Based Research

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Let no one ignorant of geometry enter my doors

... Plato (inscription he carved above the entrance to his academy).

1. INTRODUCTION

Mathematics occupies an important place at upper primary level. Mathematization of child's thought processes is the main goal of teaching-learning mathematics. The narrow aim of school mathematics is to develop 'useful' capabilities, particularly those relating to numeracy-numbers, numbers operations, measurement, decimals and percentages. The higher aim to develop child's resources to think and reason mathematically, to pursue assumptions to their logical conclusion and to handle abstraction (NCF 2005). It includes a way of doing things, and the ability, and the attitude to formulate and solve problems. But our education system fails to achieve these aims. NCF2005 stated that mathematics is the subject of fear and failure.

General education of India is not in a very good position in comparison to other developed countries. Various policies were adopted and many commissions had been appointed to improve Indian education. But desired result has not been achieved. Even though some of Indian students excelled in the world in different fields. Reference to mathematics education the scenario is very pathetic. It is matter of concern to see a fall in the number of youngsters seeking career in mathematics. It is disturbing to have a situation where mathematicians of excellence are hard to find. It is essential to utilize our young brains in various fields especially in mathematics. In every sphere of life nobody can deny the importance of mathematics. World is progressing day by day in the field of health, engineering, agriculture, electronics, architecture and telecommunications, nuclear science, bioscience etc. To cope up with the world progress a large number of our children have to study mathematics. Therefore it is essential that our school children should be provided proper knowledge of mathematics in their school level so that they can prepare themselves for future study in mathematics.

As mathematics is a compulsory subjects at secondary stage, assess quality education is the right of every child (NCF- 2005). In the context of universalisation of education, the first question to ask is, what mathematics can offered in 8 years of schooling that will stand every child in good stead rather than be a preparation for higher secondary education alone? Most of the skills taught in primary school mathematics are useful. A reorientation of curriculum towards addressing the 'higher aims' will make better use of time that children spend in school in terms of the problem solving and analytical skills that it builds, and in preparing children to better meet a wide variety of problems in life. Also the tall shape of mathematics (where mastery of one topic is pre-requisite for the next) can be emphasized in favor of a broader-based curriculum based curriculum with more topics that start from the basics. This will serve the needs of different learners better.

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2. WHAT IS MATHEMATICS?

The word mathematics has been derived from the Greek word 'Mathema' which means science. The Oxford Dictionary defines mathematics as "The science of space, numbers and quantity". Primarily mathematics is a method of inquiry. The method contains a careful formulation of definitions of the concepts to be discussed and an explicit statement of the assumptions that form the basis of reasoning. From these definitions and assumptions conclusions are deduced by application of rigorous logic.

2.1 Nature of Mathematics

Mathematics is precise and accurate. In mathematics the results are either right or wrong. There is no mid way possible between rights and wrong. For example, sum of all the angles of a triangle is 180°. It can never be less than nor greater than 180°.

i. **Mathematics is a sequenced subject:** The learning of mathematics is different from learning of other subjects in the sense that in mathematics for example one cannot understand multiplication and division unless he / she has learnt addition and subtraction. Simple Interest and Compound Interest, Profit and Loss cannot be understood by a student unless he / she has learnt the concept of percentage.

ii. **Mathematics has its own language and symbols:** Specificity of language and symbolism of mathematics is the most important characteristics which distinguishes it from the other subjects. Mathematical language and symbolism cut short the lengthy statements and help the expression of ideas or things in exact and precise form. For example, area of a rectangle is expressed as $A = l \times b$

Mathematics language is free from verbosity and helps to make the sense clear. For Example, the statement "the age of father is three time that of a son" can be expressed as $y = 3x$, where y is the age of father and x is the age of his son.

iii. **Mathematics is abstract**

Mathematics is abstract in the sense that it does not deal with actual objects, as in the case of Physics.

In mathematics, idea of numbers is abstract. The concept of infinity is something that we can never experience and yet it is the central concept of mathematics. In geometry a triangle drawn on a paper is not a triangle. The concept of triangle is abstract.

iv. **Mathematics is full of patterns and relationship**

Looking for patterns and relationship is very much a part of Mathematics. Through patterns we make conjectures and generalizations.

v. **Mathematics has rigor and logic**

Logic is an important fact in mathematics. It governs the pattern of deductive proof through which mathematics is developed.

The presentation of mathematics in rigorous form is not advisable at this stage. Mathematics must be understood at this stage in visual or geometrical terms.

3. MATHEMATICS AT SCHOOL STAGE

Mathematics at school stage is a major challenge. It has to perform a dual role of being both close to the experience and environment of the learner and also moving towards the formal structure of mathematics. Learners at this stage often are not able to work in terms of ideas alone. They need the comfort of context or models linked to their experience to find meaning.

This stage presents before us the challenge of engaging the learner while using the contents but gradually moving them away from such dependence.

3.1 Mathematics Curriculum

The National Curriculum Framework (NCF) 2005, while placing the learner as the constructor of knowledge, emphasizes that curriculum, syllabus and textbooks should enable the teacher to organize classroom experiences in consonance with the learner's nature and environment, and provide meaningful learning opportunities for all learners. Significant changes are recommended with a view to making education more relevant to the present day issues and concerns and future needs. The major focus is on reducing the stress and pressure faced by our learners. The NCF recommends that we should treat the subjects, in such a way that learners can get a taste of integrated knowledge and joy of understanding. To realize this, teachers are required to follow the guiding principles given below:

- Connecting knowledge to life outside the school
- Ensuring that learning is shifted away from rote methods,
- Enriching the curriculum to provide for overall development of learner rather than remain textbook centric,
- Making examinations more flexible and integrated into classroom life,
- Respecting the identity of the learner and providing caring concern based on the democratic principle of our country.

The above mentioned guiding principles have been reinforced in all the curricular areas. At the early stage of learning, from pre- school to the primary school years an important place must be given to language and mathematics in all activities across the curriculum. The division at this early stage is not required as all the knowledge areas can be totally integrated and presented to

learner in the form of learning experiences related to their immediate daily environment. These experiences should include an enriching interaction with the natural and social environment, hands on experience, understanding of social interactions and developing aesthetic abilities. These early integrated experiences of natural and social environment should be taught as the science and the social sciences at the school stage of education.

3.2 Curricular Areas at Upper Primary Level

The upper primary School or middle school period may be the place for the emergence of better defined subject areas. At this stage it should be possible to create to spaces across subjects in which learner engage in the process of data collection, natural social, mathematical or linguistic, to classify and categories, and also analyse the same through certain knowledge areas such as ethical understanding and critical thinking. The creation of a space for explorations into social issues and knowledge without boundaries could at this stage go a long way in encouraging rational thinking.

In the area of Language learning the focus is to prepare learners to express their views clearly and confidently about any language, person, object, place, and structure by analyzing and explaining them at school stage. In mathematics, at the school stage the focus is paced on number system, algebra, geometry, mensuration and data handling. They are meaningfully woven around Situations, which permit learning to proceed from concrete to abstract, consolidating and expanding the experiences of learner and engaging the learner through problems. Sciences for school stage have been built around seven core themes- food, material the world of the living, moving things people and ideas, how things work natural phenomena, and natural resources. While integrating assessment into learning process it emphasizes on learner-friendly approach in the development of instructional materials. In social sciences, the curriculum center on activities and projects, this would help learners to understand society and its institutions, change and development. At the school level subjects like History and Geography provide inputs to the learner's growing grasp of Socio- economic and political institutions and impart to learner the ability to probe and explore.

4. LITERATURE REVIEW

Geometry: the oldest branch of Mathematics

Kepler (1571-1630) stated that "where there is matter there is geometry" (World Book, 1999), and using geometry and the astronomical observations of Brahe, he showed that the planets travelled in elliptical and not circular orbits around the sun and in doing so destroyed a belief that was more than 2000 years old. Osserman (1998), mathematician and author, stated in the video *Shape of the World-Exploration*: All the centuries of progress of mapping the earth and with the mathematics associated with it allows us to think about mapping the universe and understanding