CHAPTER II
REVIEWS OF RELATED LITERATURE
& RESEARCH
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2.1 INTRODUCTION:
This chapter is an attempt to review the literature and review the research related to the present study. For this purpose the chapter is categorized into three parts. The first part of this review focuses on literature review and secondary research resources, second part focuses on research review and third part is focuses on importance of the present study and knowledge bridge between previous and the present study.

2.2 NEED OF REVIEW OF RELATED LITERATURE:
The researcher should study the related literature to become acquainted with various research areas related to the research work she is doing. This is useful to eliminate the duplication of the work already done and provides useful hypothesis and helpful suggestions for significant investigation and reviewing the related literature provides the theoretical foundation for the research purpose. It helps the researcher to identify the gaps in the knowledge. A review of literature gives the researcher necessary insight into the problem widens knowledge of the researcher and helps in avoiding the unnecessary duplication. It gives the researcher a deep insight into problem chosen for research study. It also helps the researcher to decide the methodology, tools, sample and technique of analysis.

In this chapter effort has been taken to undertake the extensive review of related literature. The related literature shows the way to the sources of significant ideas, theories and hypothesis and valuable information regarding problem and evolution of current practice and empirical researches. A brief summary of previous research and writing of organized experts provide evidence that the researcher is familiar with what is already known and with what is still unknown and untested.” (Best J.W, 1986)

2.3 OBJECTIVE OF REVIEW OF RELATED LITERATURE:
The following are the objectives of the review of literature
1. To understand various aspects and scope of the research thoroughly.
2. To study the researches which have been done before the current research.
3. To decide proper hypothesis, objectives, methodology of the research.
4. To have a proof on the part of the investigator to show that the investigator knows what type of the study is done in the same field.
5. To have appropriate guidance to implement practical work.
6. To provide a vast outlook regarding the subject.
7. To broaden the researcher’s horizon of knowledge.
8. To find out the novelty of the present research.

2.4. STEP IN CONDUCTING A LITERATURE REVIEW:
Following are the steps in conducting review of related literature given by Cresswell (2012)
1. Identify the key terms to use in your research for literature.
2. Locate literature about a topic by consulting several types of material and databases including those available at an academic library and on internet.
3. Critically evaluate and select the literature for your review.
4. Organize the literature you have selected by abstracting or taking notes on the literature and developing a visual diagram of it.
5. Write a literature review and that reports summaries of the literature for inclusion in your research report.

2.5. LITERATURE REVIEW FOCUSES ON SIX MAIN THEMES:

2.5.1. Inclusive Education
2.5.2. Survival
2.5.3. Skills and Survival Skills
2.5.4. Collaborative Teaching and Learning
2.5.5. Science Education Approaches
2.5.6. Model Developments

2.5. LITERATURE AND SECONDARY RESOURCES REVIEWS FOCUSES ON SIX MAIN THEMES:

2.5.1. INCLUSIVE EDUCATION:
Inclusion: (noun)
1 The action or state of including or of being included. □ a person or thing that is included.
2 Chiefly Geology a body or particle of distinct composition embedded in a rock or other material.
DERIVATIVES: inclusionary adjective (Concise Oxford Dictionary (Eleventh Edition))
• **Definition of inclusive Education:**
Inclusive education means that all children, regardless of their ability level, are included in a mainstream classroom, or in the most appropriate or least restrictive environment (LRE), that students of all ability levels are taught a sequel, and that teachers must adjust their curriculum and teaching methodologies so that all students benefit. This also avoids wasting resources, and “shattered hopes,” which often occurs in classrooms that are “one size fits all.”

• **Typology of six ways of thinking about inclusion**
Susie Milesand, & Nidhi Singal, *The Education for All and Inclusive Education Debate: Conflict, contradiction or opportunity?*
In this article following reference and information is given, Ainscowet al., (2006:15). Have developed a **typology of six ways of thinking** about inclusion. These are:
- Inclusion as a concern with SEN, as a response to disciplinary exclusion, Inclusion in relation to all groups, Inclusion as developing the school for all, Inclusion as ‘Education for All’ and Inclusion as a principled approach to education and society.
UNESCO provided all materials related to inclusive education and all international polices uploaded in their site. Table 13 presented international policies and their goals and recommendations.

• **International Policies for Inclusive Education:**

<table>
<thead>
<tr>
<th>Policy/ Committee</th>
<th>Aim/ Goal/ Recommendations</th>
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</table>
| **World Declaration on Education for all** *(Jomtien Framework): 1990* | The *World Declaration on Education for All* and its companion *Framework for Action to Meet Basic Learning Needs*, adopted by the World Conference on Education for All (Jomtien, Thailand, March 1990), have provided useful guidelines for governments, international organizations, teacher educators and development professionals for improve basic education services to design and making policies and strategies *Education For All: The Purpose* of this framework is, Article 1. Meeting Basic Learning Needs Article 2. Shaping The Vision Article 3 • Universalizing Access And
| **The Salamanca Statement: 1994** | Promoting Equity  
**Article 4** • Focusing On Learning  
**Article 5** • Broadening the Means And Scope Of Basic Education  
**Article 6** • Enhancing The Environment For Learning  
**Article 7** • Strengthening Partnership  
**Article 8** • Developing A Supportive Policy Context  
**Article 9** • Mobilizing Resources  
**Article 10** • Strengthening International Solidarity |
|---|---|
| **This Framework for Action on Special Needs Education was adopted by the World Conference on Special Needs Education organized by the Government of Spain in collaboration with UNESCO and held in Salamanca from 7 to 10 June 1994** | This framework has three sections,  
**Section I**: New thinking in SNE  
**Section II**: Guidelines for action at the national level  
**Section III**: Guidelines for action at the regional and international level  
**Section I**: New thinking in SEN  
In section one fundamental principle of the inclusive education is given and special schools should serve as training and resource centers. This framework is given overall guideline to planning action in special needs education. The different regions and countries of the world must adapt to fit local requirements and circumstances. To achieve education for all national, regional and local plans of action must be supported by political power. |
| **The Dakar Framework for Action: 2000** | **Dakar, Senegal, in April 2000:**  
The Dakar Framework is a collective commitment to action. Governments have an obligation to ensure that EFA goals and targets are reached and sustained.  
In Meeting they, the participants in the World Education Forum, committed their selves to the achievement of education for all (EFA) goals and targets for every citizen and for every society  
**Educations for all Goals are,** |
Global Education for all (Muscat): 2014

1. More extensively and improving early childhood care and education,
2. Ensuring by 2015 complete free and compulsory primary education of good quality especially particularly girls, children in difficult circumstances and those belonging to ethnic minorities
3. Through appropriate learning and life skills programs ensuring that that the learning needs of all young people and adults are met
4. Levels of adult literacy by 2015, 50 percent improvement especially for women achieving through equitable access to basic and continuing education for all adults
5. Achieving gender equality in education by 2015 focus on ensuring girls' full and equal access to and achievement in basic education of good quality
6. Improving all aspects of the quality of education and ensuring excellence of all so that recognized and measurable learning outcomes are achieved by all, especially in literacy, numeracy and essential life skills

2014 Global Education for All Meeting Final Statement: The Muscat Agreement, UNESCO, Muscat, Oman, 12 – 14 May 2014

Global targets of the Muscat Agreement are minimum global benchmarks and relevant indicators will be identified/developed:

Target 1: By 2030, at least x% of girls and boys are ready for primary school through participation in quality early childhood care and education, including at least one year of free and compulsory pre-primary education, with particular attention to gender equality and the most marginalized.

Target 2: By 2030, all girls and boys complete free and compulsory quality basic education of at least 9 years and achieve relevant learning outcomes, with particular attention to gender equality and the most marginalized.

Target 3: By 2030, all youth and at least x% of adults reach a proficiency level in literacy and numeracy sufficient to fully participate in society, with particular attention to girls and women and the most
Education 2030 (Incheon Declaration): 2015

marginalized.  

**Target 4:** By 2030, at least x% of youth and y% of adults have the knowledge and skills for decent work and life through technical and vocational, upper secondary and tertiary education and training, with particular attention to gender equality and the most marginalized.

**Target 5:** By 2030, all learners acquire knowledge, skills, values and attitudes to establish sustainable and peaceful societies, including through global citizenship education and education for sustainable development.

**Target 6:** By 2030, all governments ensure that all learners are taught by qualified, professionally-trained, motivated and well-supported teachers.

**Target 7:** By 2030, all countries allocate at least 4-6% of their Gross Domestic Product (GDP) or at least 15-20% of their public expenditure to education, prioritizing groups most in need; and strengthen financial cooperation for education, prioritizing countries most in need.

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**Education 2030:** Incheon Declaration, 19 – 22 May 2015,

Towards inclusive and equitable quality education and lifelong learning for all. Their vision is to transform lives through education, recognizing the important role of education as a main driver of development and in achieving the other proposed SDGs. They commit with a sense of urgency to a single, renewed education agenda that is holistic, ambitious and aspirational, leaving no one behind. “Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all”

**Right to Education in Emergency Situations:** Principles Include:

1. Education is a fundamental human right and an enabling right.
2. Education is a public good,
3. Gender equality is inextricably linked to the right to education for all.

**Strategic approaches:** To achieve SDG 4 on education and the education targets included under other SDGs, it will be
necessary to mobilize national, regional and global efforts that are aimed at:

1. Achieving effective and inclusive partnerships;
2. Improving education policies and the way they work together;
3. Ensuring highly equitable, inclusive and quality education systems for all;
4. Mobilizing resources for adequate financing for education;
5. Ensuring monitoring, follow-up and review of all targets.

- Policies at National Level – India

Details of National Policies for Inclusive education in India:

<table>
<thead>
<tr>
<th>Policy/ Committee</th>
<th>Aim/Goal/Recommendations</th>
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<tr>
<td><strong>The Kothari Commission: 1964</strong></td>
<td>Recommendation of commission is “Integrated Education” should provide for PWD</td>
</tr>
<tr>
<td><strong>The Integrated Education of Disabled Children (IEDC) Scheme: 1974</strong></td>
<td>The program provided children with disabilities, financial support for books, school uniforms, transportation, special equipment and aids. This are for including children with disabilities using these aids in mainstream classrooms.</td>
</tr>
</tbody>
</table>
| **The National Policy on Education (NPE): 1986 and Plan of Action** | NPE:
1. Children with “mild” disabilities included in inclusive schools i.e. mainstream
2. Children with “moderate to severe” disabilities should be in special school i.e. segregated schools
2. The policy has given a provision of teacher training for all general education teachers i.e. mainstream teachers |
<p>| <strong>Program of Action (POA), 1992</strong> | The 1992 Program of Action (POA), created to implement the 1986 NPE, broadens the 1986 definition of who should be included in mainstream schooling, that “a child with a disability who can be educated in the general school should not be in the special school.” Once children with disabilities acquire generic living skills, in resource rooms or special schools, that they should be mainstreamed |
| <strong>The Rehabilitation Council of India Act and the People with Disabilities Act: 1990</strong> | The RCII Act provided standards as, One type of rehabilitation professional being special education teacher. |
| <strong>People with Disabilities Act (PDA) 1995</strong> | PDA defines disability quite narrowly, listing only seven categories of disability: blindness, low vision, leprosy cured, hearing impairment, locomotors disability and mental illness. Chapter five of the PDA focuses on the rights of people with disabilities and education. |
| <strong>District Primary</strong> | DPEP focused on inclusion of children with mild to moderate |</p>
<table>
<thead>
<tr>
<th>Education Program (DPEP). 2000: A joint venture between the Indian Government’s Department of Education and the World Bank, the goal of the District Primary Education Program was “education for all” by the year 2000</th>
<th>disabilities. The PWD act play important role in Teacher trainings through the District Institutes of Education and Training (DIETS), curriculum modifications, resource room, teacher support and integration or inclusion.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sarva Shiksha Abhiyan: “Education for All” 2000</td>
<td>SSA is not a disability-specific program, but it benefit people with disabilities rather than any program for SEN. There are three major parts that benefit people with disabilities. 1. 1200 rupees allocation per annum per child with a disability 2. Designed to include students with a disability is the policy that each district will formulate its own plan for children with disabilities; 3. Key institutions will be encouraged to collaborate to further support these students with disabilities. SSA has a “no rejection” policy, Children between ages 6-14 cannot be turned away from schools for many reasons, including for having a disability.</td>
</tr>
<tr>
<td>The Right to Education Act 2010</td>
<td>The Government of India decided to make Amendment 21A of the constitution, giving Children between the ages of 6-14 the right to a free, appropriate and compulsory education, into an act.</td>
</tr>
<tr>
<td>The Action Plan for Inclusion in Education of Children and Youth with Disabilities (IECYD).</td>
<td>For mainstream education, the government collaborating between the Rehabilitation Council and the National Council for Teacher’s Education will ensure that there are adequate numbers of teachers trained in inclusive education. For inclusion in schools assure that to facilitate the proper physical and ideological infrastructure.</td>
</tr>
<tr>
<td>Reforming past schemes: The Inclusive Education of the Disabled at the Secondary Stage 2008</td>
<td>Government reformed the Scheme of Integrated Education for Disabled Children (IEDC) and created the Inclusive Education of the Disabled at the Secondary Stage (IEDSS). It went into effect on April 1st, 2009. Objective of IEDSS: 1. To enable the disabled children who have completed eight years of elementary education 2. To continue their education at the secondary stage in an inclusive environment in regular schools.</td>
</tr>
<tr>
<td>The National Policy for People with Disabilities</td>
<td>The National Policy for People with Disabilities uses Sarva Shiksha Abhiyan (Education for All) as an agency for implementation. The Ministry of Social Justice and Empowerment, as their main mode of implementation of the policy. This policy make plan of action and (made official in 2009) bill by 1. Changing special schools in resource centers for people with disabilities and teachers. 2. Creating District Disability and Rehabilitation Centers.</td>
</tr>
</tbody>
</table>
**Why Focus on Disability?**

*Inclusive Education: An Introduction*, Leonard Cheshire Disability is a UK-based organization

In his article he has given statistic related to status of disability in India

**Why focus on disability in India:**

- In India, the number of children out of school fell by 15 million in just two years. In India, **children with disabilities are five times more likely to be out of school than the national average**, leading to an illiteracy rate among disabled people of up to 75%. Also in India, a *2007 World Bank study* found that disability is a stronger correlate to non-enrolment than gender or class.

**Enabling inclusive education:**


In her blog she gave statistical information and graphical presentation related to status of SEN. The enrolment at the elementary and secondary level is 200 million children and 37 million children respectively. This has resulted in Gross Enrolment Ratio (GER) of 95.34 and Net Enrolment Ratio (NER) of 79.14 at the elementary and GER of 76.64 and NER of 45.63 at the secondary level in 2013-14 (District Information System for Education (DISE), 2014).

**Percentage of out-of-school children, by disability (Between 2006 and 2009)**

CWD students out of school fell from 38% to 34%. The proportion of out-of-school children was higher among children with intellectual disabilities (48%), speech impairments (36%) and multiple disabilities (59%).

![Percentage of out-of-school children, by disability (2006, 2009)](image-url)
• **Status of Inclusive Model Practices in India:**


Based on analysis of the state of special and inclusive education and the documentation of inclusive model practices, the following key observations are made.

1. To improve enrollment, central and state governments have taken initiatives.
2. Services related to CWD are in big cities so the majority of CWD who live in rural areas do not get benefits.
3. There is no proper data available related to the magnitude and educational status of CWD so it is difficult to understand actual problems and to make problem-solving interventions.
4. Government and NGOs and also community promoting inclusive education.
5. Present scenario of Inclusive schools is, some have large numbers of CWD students and few teachers and some teachers are reluctant to work with CWD students. Teachers considering this are extra workload for them and this is duty of mobile teacher.
6. Different disabilities require different supports. The number of special teachers for supporting inclusive practices is not adequate to meet the needs of different types of disability.
7. Curriculum is not flexible to cater CWDs needs. Teaching-learning aids are not appropriate. The teaching-learning process addresses the individual learning needs of children in a limited way. Families do not have enough information about their child's particular disability, its effects and its impact on their child's capacity.

*Examples of Inclusive Education in Maharashtra: Sir Shapurji Billimoria Foundation, Mumbai, Maharashtra*

Examples of Inclusive Education: India, the United Nations Children’s Fund (UNICEF) Regional Office for South Asia, 2003 reported that in Maharashtra, the education of children with disabilities has been mostly in special schools; there are about 600 special schools. Government initiatives in Maharashtra include Janshaala, IEDC and SSA. The Sir Shapurji Billimoria Foundation in Mumbai is an example of an innovative teacher development initiative.

• **Building Inclusive Classrooms:**

*Building Inclusive Classrooms*, Cornell Faculty Institute for diversity in this article guideline given for Inclusive learning environments, inclusive teachings and ground rules.
Inclusive learning environments are ones in which students feel that their contributions and perspectives are equally valued and respected. Schools that are already involved in becoming inclusive and learning-friendly environment (ILFE)

- **Benefits of inclusive teaching**: In this writer suggested following benefits,
  - You engage with a normal as well as special educational needs student
  - You need to always ready for handling issues related to controversial
  - Students connect with course materials that are relevant to them.
  - Develop democracy environment in the classroom to ask questions and share their ideas and thoughts.
  - Conduct activity based program which support their learning styles, abilities, and backgrounds.
- **How can you teach inclusively?**
  - Writer suggested reflective practice and asking questions ourselves related to interactions with SEN, motivation, modification of course material, incorporate diversity, ground rules, about teaching and learning strategies, about accessible classroom and evaluation of SEN

- **Creating a Warm and Inclusive Classroom Environment**


  Writer suggested **The Self-Determined Learning Model of Instruction** (Agran, Blanchard, & Wehmeyer, 2000; Palmer & Wehmeyer, 2003). It is a teaching model educators can use to help students set educational and learning goals for themselves, develop plans to reach those goals, and monitor their progress toward those same goals.

  We can use this model for normal as well as for SEN students. There are three phases and each phase presents a problem for the student to solve. Students solve these problems by answering four questions for each phase.

  **Five Steps to Empowerment**

  As students get older they need to understand and be able to describe their strengths and weaknesses to their classroom teachers and other people with whom they work. **Jones (2006)** identified five steps to empower students and help them become self-advocates. A brief summary of the five steps described in detail by Jones can be found

  1. **Encourage disability awareness and self-discovery**: Support students to identify their own strength and their areas of need.
  2. **Teach students about special education services**: Aware students about services which are available to them based on their needs.

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A3S Model for Inclusive Classroom
3 Teach students to self-monitor their work: Make students habitual to see their own progress and identify areas they need to work on. This gives them rights for steps to achieve their goals.

4 Prepare students for participation: Make them active participant

5 Evaluate the effectiveness of your efforts: Teacher needs to use reflective practices to ensure that the students are getting our best.

- Checklist for an Inclusive Classroom Community

Checklist for an Inclusive Classroom Community, Adapted from a Guide to Effective Literacy Instruction

This guide suggested that to take the following considerations into account in planning classroom instruction and assessment:

- **Atmosphere**: Under this section following items are included, creation of democratic classroom, care for acceptance of all students, attitude and belief towards inclusion, scaffolding, motivation, social skills, collaboration with family and community, celebrate success for each individual, challenge stereotypical comments and inappropriate behaviours.

- **Environment**: Under this section following items are included,

  Providing information and experience for gender equity and diversity of society, related to ground rule classroom routines and opportunities for express thoughts and ideas

- **Community**: Under this section following items are included

  Develop multi culture environment and celebrate diversity in the community by organized activities such as storytelling and games from various cultures and include family literacy programs, Arrange leisure program for students and their families, involved community

- **Resources**: Under this section following items are included

  Use resources that value and reflect diversity, appeal to boys and girls, reflect the interests and perspectives of both genders, reflect the diverse cultures, reflect the history, and present both local and global images and perspectives, Provide dual-language books and books in students’ first languages.

- **Reading**: Under this section related to reading items are included

  Provide opportunities for reading experiences that enable students to build on their own experiences, language and culture, experiences in a variety of cultural settings, to create role-play opportunities that enable students to experience the world through the eyes of another.
• **Writing:** Under this section Related to writing items are included. Provide opportunities for writing experiences that enable students to build on their own experiences, language and culture, culturally diverse sources, writing model, opportunity to explore e.g., oral Storytelling, written stories, narrative techniques, language patterns., support for presentation and oral presentation

• **Language:** Under this section Related to language items are included
Respect and value the language students bring to school, Tap into students’ mother tongue language and culture as foundations for learning, Provide classroom activities that enable students to learn that different language forms and styles and structures are appropriate to different situations – e.g., home, church, business meeting, school council, interview, parent–teacher interview, telephone conversation.

• **Media/Popular Culture:** Under this section Related to media items are included
Guide students in examining stereotypes and bias in media works from a variety of sources, Use media texts to develop students’ awareness of diversity (e.g., in beliefs, values, traditions, gender roles, family structures) among cultures, faiths and people from different social backgrounds.

• **Teaching Practices:** Under this section Related to teaching items are included
Plan for differentiated instruction based on the different stages that students achieve their best, help student to select topics of high interest and engagement for independent reading, writing and inquiry, Provide appropriate opportunities to explore issues related to language, culture, ethnicity, faith, gender, sexual orientation, economic status, family structure, age and physical/cognitive ability.

• **Assessment:** Under this section Related to assessment items are included
Use assessment methods that reflect the diversity of students’ learning styles, language and culture, use of formative and summative assessments

**2.5.2. SURVIVAL:**

**Survival (noun)**
1 The state or fact of surviving.
2 An object or practice that has survived from an earlier time.

**PHRASES**

**Survival of the fittest** Biology the continued existence of the organisms best adapted to their environment; natural selection. (Concise Oxford Dictionary (Eleventh Edition))
• **History of Survival:**

Survival Wikipedia mentioned this as "The continued existence of the organisms’ best adapted to their environment, natural selection means survival". Darwinian evolutionary theory introduces a phrase "**Survival of the fittest**" which is a way of describing the mechanism of natural selection. In biology, fitness means reproductive success.

**Interpreted as Expressing A Moral Theory:**

**Social Darwinists:** It has been claimed that "the survival of the fittest" theory in biology was interpreted by late 19th century capitalists as "an ethical precept that sanctioned cut-throat economic competition" and led to the advent of the theory of "social Darwinism" which was used to justify laissez-faire economics, war and racism. Richard Hofstadter's Social Darwinism in American Thought published in 1944 he is the one who introduces the term "social Darwinism" referring to capitalist ideologies was introduced as a term of abuse.

• **Theories of Evolution and Discoveries of Strategies of Survival**

**Darwin** before Charles Darwin (1859/1974) published The Origin of Species in 1859; Darwin noted that species evolved through differential propagation of favorable variations, which Darwin called natural selection. Various functions including instincts and emotions could evolve if they favored survival.

• **Modern Evolutionary Theory and Expansion of Possible Strategies of Survival:**

Misinterpretation of Darwin’s (1859/1974) natural selection as survival of the fittest may blocked to discovery of more strategies of survival. This view allowed only struggle for survival, or competition, as a strategy of survival. Modern evolutionary theory held that it is genetic mutations which produce the variations which are then naturally selected according to Darwin’s theory. The “inclusive fitness” came to be seen as a vehicle of evolution (Scott, 1989), and it opened up possibilities of means of survival beyond competition to Behaviors such as protection, caretaking, and cooperation.

• **Survival Strategies:**


Survival to Fulfillment: a framework for the life-trauma dialectic, Philadelphia: Brunner/Mazel.

This chapter introduces the concept of Survival Strategies. Survival Strategies are suggested to facilitate the recognition, naming, and making sense of the varied sequelof
traumatic events. They are like the colors refracted by a prism of white light. The colors add depth and dimension to what is relived and avoided in Posttraumatic Stress Disorder (PTSD) (APA, 1994)

- **Definition and Description of Survival Strategies**

  Generic definition of SSs: Survival Strategies are specific stress responses which include specific adaptive and maladaptive, biological, psychological and social constituents.

- **Characteristics of Survival Strategies.**

  The following are suggested characteristics of SSs.

  1. Evolutionary adaptedness.
  2. Finite number with multitude potential combination.
  3. Level of operation.
  5. Adaptiveness and maladaptiveness.

  Paul Valent in 1998 wrote one chapter on “introduction to survival strategies” and wrote "Survival of the fittest" each one adapted some strategies for survival.

**The Eight Survival Strategies and Appraisals**

The eight suggested SSs and the appraisals

<table>
<thead>
<tr>
<th>APPRAISALS</th>
<th>SURVIVAL STRATEGIES</th>
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<tbody>
<tr>
<td>1. Must rescue others</td>
<td>1. Rescuing</td>
</tr>
<tr>
<td>2. Must be rescued by others</td>
<td>2. Attaching</td>
</tr>
<tr>
<td>3. Must achieve goals</td>
<td>3. Asserting</td>
</tr>
<tr>
<td>5. Must remove danger</td>
<td>5. Fighting</td>
</tr>
<tr>
<td>6. Must move from danger</td>
<td>6. Fleeing</td>
</tr>
<tr>
<td>7. Must obtain scarce essentials</td>
<td>7. Competing</td>
</tr>
<tr>
<td>8. Must create scarce essentials</td>
<td>8. Cooperating</td>
</tr>
</tbody>
</table>

- **Survival Strategies for Inclusive Classroom:**

  For survival in inclusive classrooms inclusive students needed survival skills. For adapting “cooperating survival strategy” we can create adequate resources which fulfill demands of inclusive. For survive in inclusive classroom both student needs survival skills so we need to know what are they? What is skill? With reference to reviews of literature following information describes survival skills and their details.
2.5.3. SKILLS:

**Skills:** The ability to do something well, expertise.

**Ability:** Possession of the means or skill to do something, skill or talent

**Competency:** The quality or extent of being competent. (Concise Oxford Dictionary (Eleventh Edition))

- **Skill:**

  Green, F (2011): *what is Skill? An Inter-Disciplinary.* In his paper he discussed about 'what is skill.' He define skill means,

  **Skill is a personal quality with three key features:** PES
  
  i. **Productive:** using skill is productive of value;
  
  ii. **Expandable:** skills are enhanced by training and development.
  
  iii. **Social:** skills are socially determined.

- **Survival Skills:**


  In Wikipedia definition of survival skills mentioned as follows,

  “Survival skills are techniques that a person may use in order to sustain life in any type of environment. Survival skills are often basic ideas and abilities that ancients invented and used themselves for thousands of years. Survival skills are most often self-implemented, but require many of the same skills”.

- **Survival Skills: Using life skills to tackle social exclusion:**

  Hannah Lownsbridge, Gillian Thomas, and Sarah Gillinson (October 2004). *Survival Skills: Using life skills to tackle social exclusion.* In this article they focus on survival skills, about acquiring of these skills and importance of survival skills.

- **Importance of Survival Skills:**

  In this article importance of survival skills mentioned as follows,

  Educators always have attention to the acquisition and development of particular skills. Once, they would have taken a far keener interest in their knowledge. They could then deploy, either as technical knowledge in a workplace, or as proof of their intellect which would in turn secure them a job.

  **For getting a job and managing our lives skills play vital role.** Life skills are the foundation for development of other skills, they are also vital for keeping a job and for inter personal and intrapersonal relations.
Interventions Targets Basic Skills:
“Survival Skills argues that, if policies to support people at risk of social exclusion are to be successful, then life skills must assume a central place in the provision of support and services. For skill development, traditional ways tend situations so interventions always target ‘basic skills’ such as literacy and numeracy. In this article, suggestions given for Life skills interventions,

The life skills facilitate integration and life skills are a critical part of breaking out of social exclusion.” Life skills interventions should be designed on the basis of client’s need.

What are life skills?
Life skills are those skills that are not related to a particular intellectual or vocational discipline, but rather describe the foundation skills for maintaining a fulfilling and independent lifestyle.

Why do life skills matter?
Van Lewis MP. (2004). Skills can uniquely unlock both a fairer society and a more successful economy. . . . Skills also represent a key ideological dividing line in the future of public policy. He described the importance of life skills: he said that life skills are foundation for other skills and given confidence to person about their abilities and change person’s perception of their own self-efficacy. According to traditional models of social and emotional development of children, the standard progression for children is to have increasingly challenging experiences as they become older and more competent at handling them.

The Benefits of Life Skills Interventions:
For people experiencing social exclusion can be divided into four categories:
1. Meeting basic needs.
2. Coping with more complex forms of engagement.
3. Building social capital.
4. Transforming identities and raising aspirations.

Personal and Social Development:
The Young Adult Learners Partnership: Explaining Personal and Social Development, Written by The Young Adult Learners Partnership on behalf of the Connexions Service National Unit: the Department for Education and Skills. In their research report RR 480,
they suggested and discussed some plans and strategies related to social development as follows,

Personal and social development is a new and slippery educational concept. May be curriculum content is not special for this and not with specified outcomes that people can readily identify.

This publication seeks to explain what personal and social development is by

1. Locating it in its contemporary context
2. Tracing its origins
3. Introducing some key ideas and characteristics
4. Exploring some of the factors that have to be considered in implementation
5. Illustrating its application with examples from the field

- The Theory of Personal and Social Development

1. The contemporary context

1.1. The risk society: In this following arguments are given about the risk society Beck (1992) argues that the change from an industrial to a technological society reduces certainty in the way structures frame social life.

Giddens (1991) argues that young people make decisions about risks being presented to them as a result of reflecting on their own past experience or that of people near or significant to them.

Furlong and Spearman (1989) suggest that the young people who have coped and been able to adapt to these new situations, even within the constraints of unemployment, have owed much to financial, social and emotional support from their families.

Coffield et al (1986) suggested that in addition the moral and emotional support of long standing communities has been a significant factor in supporting families in rapidly changing circumstances.

1.1.2. Resilience as a Response to Risk

A logical response to the growing risks is to develop resilience and coping strategies — an important dimension in personal and social development programmes. This characteristic is very important for those encountering severe risk factors in their daily lives. Where social and economic conditions foster an increased likelihood of poor outcomes in education, employment, health (physical and mental), offending behavior and so on, resilience becomes a crucial response.
1.2. The Sources of Personal and Social Development

1.2.1. Education as a Social Project:
In this definition of education and thinker’s view for education is discussed, each of whom in different ways has had a profound influence on both formal and informal education.

1. **Plato:** The greatest - work in the philosophy of education

He said that, “people educated in such a way that the outcome would be a just society.” He supported the idea with this about the building of ‘character’ as much as ‘intelligence’. So education is being directed towards creating a sense of social responsibility.

2. **John Dewey:** The 20th century American thinker said that “education is part of an overarching political and social project.” Meaningful education with the learner’s solved their problems by using social experience.

1.2.2. Experience and Relationship:


As the Report of the Review Group on the Youth Service in England (also known as the *Thompson Report*) explained in 1982, young people’s views on what it means to be an adult are interesting and important.

“To them it means responsibilities as well as freedoms, relationships as well as possessions. Both introspection and analysis suggest that they want change in relationship. This report reported that young people want to ‘grow up’ – they aspire to the stage next ahead of them. The stages of human development are defined in terms of progress in relationships, of which the more important are the following. Relationships with self; with parents and others; with friendship groups; with a particular partner; with peers in school, college, work or the community; to a wider society; with an ultimate of some kind.

This report reported about experience that, sometimes these experiences are failed and other side relationships with families, peer groups, education or work place, it is affected and sometimes changed. In this report examples of this type of experiences are given as below,

Being valued and accepted as a person, measuring oneself against others, making choices and decisions and seeing them through, accepting and enduring a difficult situation or major disappointment, being responsible for others and helping other people out, giving, receiving and sharing ideas, achieving a long-held goal.
How we support students for development of skills? This report suggested following way,

- Getting Connected with Curriculum Framework

In this report suggested the youth work curriculum which has following elements,

Emotional intelligence is one of four elements that comprise what Merton and Wylie refer to as the youth work curriculum. They also propose three other elements: Creativity and enterprise, Health and well-being, Active citizenship.

![Curriculum Model](image)

**FIGURE 4: Getting Connected Curriculum Model**

- Social Skills:

Wikipedia. (2016). Social skills. Wikipedia is given information about social skills, Social skills make interactions and communication easy. Verbal and non-verbal interactions and communications create and changes social rules. Learning social skills called as socialization. In Wikipedia definition of social skill is given as, “Social skills are the tools that enable people to communicate, learn, ask for help, get their needs met in appropriate ways, get along with others, make friends and develop healthy relationships, protect themselves, and generally be able to interact with the society harmoniously. (Wikipedia, 2016). For personality development social skills are play vital role and develop character traits like trustworthiness, respectful, responsibility, fairness, caring, citizenship. The important social skills identified by Employment and Training Administration are, Coordination, Mentoring, Negotiation, Persuasion, Service Orientation and Social Perceptiveness (Wikipedia, 2016)
• **Study Skills/ Academic Skills:**

Study skills are an array of skills which tackle the process of organizing and taking in new information, retaining information, or dealing with assessments. They include mnemonics, which aid the retention of lists of information; effective reading; concentration techniques; and efficient note taking. (Wikipedia, 2016)

• **Teaching Social Skills:**

*Classroom Management:* A California Resource Guide, for Teachers and Administrators of Elementary and Secondary Schools, produced and distributed by the Los Angeles county office of education division of student support services safe schools center

**Teaching Social Skills:**

In the guide in chapter fifth mentioned that social skills has two major areas; one is *“academic survival skills”* and second is *“peer relationship skills.”* Social skills play vital role in student’s success in school; students interact positively and also do well academically. The goal of social skills training is to teach students socially acceptable behaviors that will result in natural recognition and acceptance (reinforcement) from their teachers, classmates, and others.

• **Two Major Social Skill Areas**

The two major areas of social skills that influence academic performance are: *academic survival skills* and *peer relationship skills.*

• **Academic Survival Skills**

Academic survival skills include the following social skills: persistence, eye contact, compliance, and request, ask permission, feedback, nodding to communicate, appreciation and greeting. This article says that if *students have deficits these skills then they cannot survive academically and socially.*

• **Peer Relationship Skills**

Peer relationship skills included the following skills: Initiative for communication, Asks questions, Identifies common interests, Shares and participation, Provides compliments, Asks for permission, Assists others, introduces others, Invites others to participate, cares for physical appearance or grooming and takes turn with preferred items

• **Steps in Teaching Social Skills:**

*First step* is identifying missing skill and for this in this chapter writer suggested two ways of identification of missing/ deficit skill. One way is observation and second way is use rating scale. In those cases you should consider using a social skills rating scale.
Rating scales. There are many inventories available; however, parts of two are included here for illustration. The first, an illustrative rating scale developed by McGinnis and Goldstein (1997) for students to fill out. The second, a rating scale developed by Sulzer-Azaroff and Mayer (1994) that the teacher and the student’s parents can fill out another option is to prepare your own rating scale to target a specific social skill area.

- Example of Rating Scale for Students:

After instructions statements are given, e.g., 1. Is it easy for me to listen to someone who is talking to me? 1 2 3 4 5
2. Do I tell people thank you for something they have done for me? 1 2 3 4 5

Second step is selection of teaching methods, two types of methods used; one is informal and second is formal methods. No one method is better than another.

- Which Are The Survival Skills For Inclusive Classroom?

Michael, Phillip, Instructional Strategies for Co-Teaching & Inclusion, Millersville University, and University of Richmond EDUC 345U: Pat Parrott, M.Ed., Adjunct Instructor 2,

In his guide class 3 “collaborative working relationships” he suggested instructional strategies for co-teaching and inclusion. Bauwens, Hourcade, and Friend (1989) suggested three co-teaching arrangements though which co-teachers can share instructional responsibilities;
1. Complementary instruction, 2. Supportive learning activities and team teaching.

- For inclusive classroom:

Complementary Instruction: Probably the most important Teaching. Successful co-teachers plan to vary the arrangements chosen.

- Complementary Instruction

Probably the most important role of the special educator in the co-taught class is to identify and teach those academic and social survival skills necessary for students to be successful with the content material. Co teacher identifying needed skills. Students who are not disabled often need instruction in these areas as well. Complementary instruction specially used for small groups of students and when need to use for large group then one precaution is needed to take that ensure meets the needs of the students with disabilities.
• **Academic Survival Skills**
In this article following academic and social survival skills mentioned for inclusive classroom. Organization, Reading for meaning, Time management, Skimming, scanning Attentive listening Decoding Direction following Paraphrasing Note taking, Paragraph writing Outlining Memorization, Preparation for tests Test taking Self-questioning

• **Social Survival Skills**
Obtaining teacher attention, Accepting compliments, Accepting feedback/criticism, Brainstorming, Compromising Acknowledging others’ contributions, Cooperating with others, Debating ideas Disagreeing appropriately, Encouraging others Expressing appreciation, Giving a compliment, Giving constructive feedback Initiating conversations Making requests appropriately, Persuading others Sharing feelings Showing appreciation.

• **Definition of Survival Skills:**
Susan Nicolai: *What should children learn? A discussion of learning content during crisis*, Emergencies Education Officer, Save the Children Alliance.
In this article she given definition of survival skills and suggestions given as follows,

• **Definition of survival skills:**
Survival skills: ‘learning to live’ survival skills are a central part of education in emergency situations. Children must have access to the essential knowledge and skills that will enable them to cope with the emergency.

• **What makes learning effective?**
The methods used to convey new knowledge to children are critical. Essential aspects include: i. **Becoming child-centered**, ii. **Learning through activities** and iii. **Both structure and creativity**

2.5.4. **COLLABORATIVE TEACHING AND LEARNING:**

• **Collaboration and Models of collaboration:**
Patricia Montiel-Overall, *Toward a Theory of Collaboration for Teachers and Librarians*. Assistant Professor, the University of Arizona–School of Information Resources and Library Science
In his article he discusses about history and definitions of collaboration, **models of collaboration**.
Collaboration is a term which appears everywhere that has been defined in numerous ways across diverse fields. This paper draws on information from these diverse fields to begin to develop a theory of collaboration within library science for teachers and library media specialists. **In order to fully understand the meaning of collaboration and the relationship between collaboration and student academic achievement, an explanatory theory is needed.** It defines “**collaboration as a process in which two or more individuals work together to integrate information in order to enhance student learning**”. The author argues that various notions of working together have been confused with collaboration and proposes four models to distinguish collaboration from other joint efforts such as coordination and cooperation. **The models evolve from the literature and from the taxonomy for library media specialists and teachers developed by Loertscher (1982, 1988, and 2000).** The models are descriptive of the range of joint efforts involved in working relationships that can lead to fully developed collaboration. Numerous attributes—such as collegiality, respect, and trust—needed for collaboration to be effective are discussed. **These attributes contribute collaborative activities, such as shared thinking, shared planning, and shared creation of integrated instruction. Two enablers and inhibitors, time and administrative support, are identified from the literature and discussed in relation to collaboration.** “Collaboration is a promising mode of human engagement but in order to become more than a passing fad, a theoretical structure and framework are needed to guide individuals and groups toward successful collaboration”.—**Vera John-Steiner**

This phenomenon is described in a variety of ways: systems (Austin 2000b; Noam 2001), dialogue (Clark et al. 1996; Senge 1990), creative problem solving (John-Steiner 1992), and inter organizational relationships involved in information technology (Black et al. 2002). In education, collaboration is seen as an opportunity for school renewal (Fishbaugh 1997; National Council for Accreditation of Teacher Education 2000; Council for Exceptional Children n.d.) and an opportunity to involve many individuals in complex educational problems

- **Theoretical Background**

This paper draws on social constructivist learning theories of John Dewey, Jerome Bruner, Lev Vygotsky, and others who have written extensively about collaboration (Drucker 1999; John-Steiner 1992, 1998; Moran and John-Steiner 2003; Gray 1989).
Section A: Defining Collaboration

A definition proposed by Schrage (1990) is: "Collaboration is the process of shared creation: two or more individuals with complementary skills interacting to create a shared understanding that none had previously possessed or could have come to on their own. Collaboration creates a shared meaning about a process, a product, or an event."

- Section B: Models—Multiple Perspectives

These models evolve from Loertscher's Taxonomy (1982, 1988, and 2000) and an extensive review of the literature on collaboration. The models are Model A: Coordination; Model B: Cooperation/Partnerships; Model C: Integrated Instruction; and Model D: Integrated Curriculum.

The primary distinctions among the models are: (1) intent of the working relationship or reason for working together; (2) intensity or degree of involvement, commitment, or participation among participants (hereafter intensity); and (3) interest in improving student academic achievement or the extent to which the effort focuses on improving student outcomes.

- Collaboration and Inclusion:

Michael, Phillip, Instructional Strategies for Co-Teaching & Inclusion, Millersville University, University of Richmond EDUC 345U: Pat Parrott, M.Ed., Adjunct Instructor

In his guide class 3 “collaborative working relationships” he suggested instructional strategies for co-teaching and inclusion.

Collaboration is an ongoing process whereby educators with different areas of expertise voluntarily work together to create solutions to problems that are impeding students success, as well as to carefully monitor and refine those solutions. . . .

Collaboration is a process rather than a specific service delivery model. - Knackendoffel, Robinson, Deshler, Schumaker

He said that, Individuals who collaborate . . .

Do so voluntarily, have common goals for students and the collaborative relationship, share resources, share responsibility for developing/delivering instruction, share accountability for the outcomes, have a sense of parity – recognition of and respect for each partner’s contributions to the collaborative effort, even though their skills and expertise may be very different.
• Collaborative Structures:
In this guide collaborative structures are described as follows,

1. Collaborative Teaching
In this guide definition of collaborative teaching in inclusive classroom is given and as per this definition collaborative teaching means proactive educational approach and general, special educators and related service providers work in a coactive and coordinated manner and in which to jointly assess, plan for, teach, and evaluate academically and behaviorally

Following nut and bolts of co-teaching are given,

• The Nuts and Bolts of Co-Teaching:
1. Co-teaching is a proactive approach to education.
2. Co-teaching pairs general and special educators.
3. Co-teaching takes place in heterogeneous, integrated settings.
4. Co-teachers are simultaneously present in the classroom setting.
5. Co-teachers maintain joint responsibility for classroom instruction.
7. Co-teachers design instruction to meet the needs of all students in the class.

• Collaborative Teaching Arrangements
Bauwens, Hourcade, and Friend (1989). Suggested three co-teaching arrangements though which co-teachers can share instructional responsibilities: Complementary Instruction, Supportive Learning Activities, and Team Teaching. Successful co-teachers plan to vary the arrangements chosen.

• Instructional Roles of Co-Teachers
This guide suggested that role of teacher depends on responsibility and role assumed by teacher and they may teach whole class or divided in groups

• Whole Group Instruction
Both Teach: In these both teachers are active role in instruction
One Teach, One Support
One teacher has primary instructional responsibility while the other supports the instruction
One Teach, One Observe One teacher has primary instructional responsibility while the other gathers observational information on students in the class.

---

A3S Model for Inclusive Classroom
One Teach, One Drift This approach is an extension of the above. One teacher has primary instructional responsibility while the other assists students with their work, monitors behavior, correct assignments, etc.

One Teach, One Shadow
One teacher has primary instructional responsibility while the other rephrases or re-explains information to students as appropriate.

For small group instruction following types are given,
- Small Group Instruction

Station Teaching
In this type teachers divided content into two parts (e.g., spelling and literature). Each teacher instructs half the class in one of these areas; then they can exchange groups so that all students get the same instruction.

Parallel Teaching
Again, each teacher instructs half the student group, but they are addressing the same instructional model.

Remedial/Extension Instruction
One teacher re-teaches material to students who have not met mastery, and the other teacher does extension activities with those who have. It is very important to pair remediation with extension. Remedial students usually are not able to “catch up” if they work on remedial skills while other students move ahead with the regular curriculum.

Supplemental Instruction
One teacher presents the lesson in the standard format to the majority of students in the class. The other works with those students who cannot master the material, simplifying it and otherwise adapting it to meet their needs.

Collaborative Consultation:

![Collaborative Consultation Diagram]

FIGURE 5: Collaborative Consultation
• Five Key Elements Of Collaborative Teaching

4. Collaborative Problem Solving, 5. Collaborative Processing

Co-Teaching: Self-Evaluation Checklist

Below is a list of questions that help you to evaluate the effectiveness of your collaborative teaching, e.g. is,

Collaborative Presence

1. Have you both volunteered to collaboratively teach together? YES/NO
2. Is collaborative teaching a part of your scheduled time? YES/NO

TABLE 16

<table>
<thead>
<tr>
<th>Collaborative Teaching</th>
<th>Reactive</th>
<th>Proactive and Reflective</th>
</tr>
</thead>
<tbody>
<tr>
<td>In Inclusive classroom general teacher taught and special teacher help SEN students</td>
<td>General and special teachers share responsibility for identifying student’s needs, make plan and lesson plan and implementing classroom instruction and evaluating student performance and effectiveness of instruction</td>
<td></td>
</tr>
<tr>
<td>Only accommodate SEN in general classroom</td>
<td>Instruction objectives and goal is addressing IEP</td>
<td></td>
</tr>
<tr>
<td>Always use supplemental instruction for SEN because regular classroom instruction couldn’t appropriate for SEN</td>
<td>Whenever necessary supplemental instruction and provide re-teaching, drill and practice if SEN needed</td>
<td></td>
</tr>
<tr>
<td>Co-teaching always begins here and ends here</td>
<td>Always outer support involved in programming (administrators and other professional staff)</td>
<td></td>
</tr>
</tbody>
</table>

2. Collaborative Learning:


Collaboration: A Literature Review

The purposes of this literature review are to (a) explore how researchers have defined collaboration; (b) investigate how collaboration skills develop; (c) learn how teachers can encourage development of collaboration skills in their students; and (d) review best practices in assessing collaboration skills.
• Definition of Collaboration:
In this article definition of collaboration given in theoretical perspectives and historical perspectives

1. Theoretical Perspectives
Collaborative learning is broadly defined as “a situation in which two or more people learn or attempt to learn something together,” and more specifically as joint problem solving (Dillenbourg, 1999, p. 1). Dillenbourg (1999) In his definition he include studying together, jointly problem solving and lifelong acquisition of expertise within a professional community” (p. 4). Roschelle and Teasley (1995) define collaboration as “coordinated, synchronous activity Van Boxtel, et al. (2000) explain, collaborative learning activities allow students to provide explanations of their understanding, which can help students elaborate and reorganize their knowledge.

• Qualities of Collaborative Learning
Dillenbourg (1999) in his notes written that, there are several qualities that characterize truly collaborative interactions. First, it is a symmetrical structure; is the quality of interactions,

2. Historical Perspectives
Much of the research on collaborative and cooperative learning is rooted in the work of Piaget and Vygotsky (Dillenbourg et al., 1996). These different historical perspectives have led to different research paradigms. For example, Dillenbourg et al. (1996) characterize research stemming from the Piagetian, Vygotskian, and shared cognition approaches as the “effect” paradigm, the “conditions” paradigm, and the “interactions” paradigm, respectively. The latest variant of the interactions paradigm might be called the “computer-supported” paradigm.

• Cooperative Learning:
In this article definition of cooperative learning is given and elements of cooperative learning also given as follows,

Cooperative Learning:
Cooperative Learning is an instructional strategy where small teams of students, usually two to six members, work together to maximize their individual and collective learning.
Five Elements of Cooperative Learning:

1. Positive Interdependence
2. Individual and Group Accountability
3. Interpersonal and Small-Group Skills - Each team member must:
4. Face to Face Promotive Interaction - Students
5. Group Processing (Reflection) – Students

Essentials of Effective Cooperative Learning Groups:
Characteristics of cooperative learning groups: Participation, Trust and Communication

Collaborative learning Vs cooperative learning
Teresa Rafaie. (2010). Collaborative learning Vs cooperative learning: Understanding the nature of interactive learning

Many of the elements of cooperative learning may be used in collaborative situations.

Definition of cooperative learning:
"The structural approach to cooperative learning is based on the creation, analysis and systematic application of structures, or content-free ways of organizing social interaction in the classroom. Structures usually involve a series of steps, with proscribed behavior at each step. An important cornerstone of the approach is the distinction between "structures" and "activities"- Spencer Kagan in an article in Educational Leadership (Dec/Jan 1989/1990)

<table>
<thead>
<tr>
<th>TABLE 17</th>
<th>Difference between Collaborative learning and cooperative learning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collaborative learning</td>
<td>cooperative learning</td>
</tr>
<tr>
<td>Collaboration is a philosophy of interaction and personal lifestyle</td>
<td>Cooperation is a structure of interaction facilitate to complete the goal</td>
</tr>
<tr>
<td>Collaborative learning is general agreement of cooperation and competition with other group members. It guided way of dealing with others, consider every members abilities and responsibilities. A way of living life so <strong>not just a classroom technique</strong></td>
<td>It is a teacher centred and controlled by the teacher. It is a set of process for completing specific goal, group interact together and more directive than collaborative system</td>
</tr>
</tbody>
</table>
Cooperative Model:  
(www.bournemouth.ac.uk/.../eres_image.png)

**Role of Teacher**  
Facilitator, consultant, Director

**Role of student**  
The students develop a very strong ownership for the process

- The Models: While the basic principles of cooperative learning do not change, there are "structures" which have been studied extensively:

**TABLE 18**

Collaborative Consultation

<table>
<thead>
<tr>
<th>Cooperative Learning Methods</th>
<th>Time Period</th>
<th>Researcher</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learning Together</td>
<td>Mid 1960's</td>
<td>Johnson &amp; Johnson</td>
</tr>
<tr>
<td>TGT (Teams-Games-Tournament)</td>
<td>Early 1970's</td>
<td>Devries &amp; Edwards</td>
</tr>
<tr>
<td>Group Investigation</td>
<td>Mid 1970's</td>
<td>Sharan &amp; Sharan</td>
</tr>
<tr>
<td>Constructive Academic Controversy</td>
<td>Mid 1970's</td>
<td>Johnson &amp; Johnson</td>
</tr>
<tr>
<td>Jigsaw</td>
<td>Late 1970's</td>
<td>Aaronson &amp; Associates</td>
</tr>
<tr>
<td>STAD (Student Teams Achievement Divisions)</td>
<td>Late 1970's</td>
<td>Slavin &amp; Associates</td>
</tr>
<tr>
<td>TAI (Team Assisted)</td>
<td>Early</td>
<td>Slavin &amp; Associates</td>
</tr>
</tbody>
</table>
Individualization | 1980's
---|---
Cooperative Learning Structures | Mid 1980's | Kagan
Complex Instruction | Early 1980's | Cohen
CIRC (Cooperative Integrative Reading and Composition) | Late 1980's | Stevens, Slavin & Associates

- Cooperative Learning and Inclusion:

Mara Sapon-Shevin, Barbara J. Ayres, and Janet Duncan, *Cooperative Learning and Inclusion*

In their article they discussed about cooperative learning and inclusion.

In this article description about how to put the principles of cooperative learning together with the principles of inclusion involves extending the concept of heterogeneous grouping beyond more common notions of children who read at different levels or are at different math skill levels to thinking about and planning for students whose disabilities are more extensive (Sapon-Shevin, 1990, 1991).

This article says that Cooperative learning has used in regular classroom as well as in special education and they have references but because "inclusive classrooms" are a relatively recent phenomenon, there has not been extensive documentation of the use of cooperative learning strategies within classrooms that serve a range of students within the same environment.

This chapter addresses the principles of planning for, implementing, and evaluating cooperative learning within inclusive classrooms that serve all students within a common framework.

Writer said about beliefs about Cooperative Learning

- Beliefs about Cooperative Learning

In writing this chapter they were guided by three beliefs about the importance of cooperative learning and inclusion: 1) it benefits all students, 2) it is an integral part of current school reform efforts, and 3) it promotes collaboration between educators who have traditionally worked in isolation from others.

- Cooperative Learning Is Good for All Students

Cooperative learning makes sense in inclusive classrooms because it builds upon heterogeneity and formalizes and encourages peer support and connection.
• **Cooperative Learning Means Teachers Cooperating**

This article said that for cooperative learning to be successful in inclusive classrooms; teachers who have traditionally worked in isolation will need to find new ways of collaborating and sharing their expertise.

• **Principles of Inclusive Cooperative Learning**

If teacher has decided use cooperative learning in their classroom then teacher needs to take many decisions about how they co-teach, which content, form group, how promote active participation, how they evaluate group and individual learning.

• **Cooperative Learning Means Establishing a Cooperative Classroom Ethic**

In Johnson City, New York (Salisbury, Palombaro, & Hollowood, 1993), students and teachers employ a collaborative problem-solving process in which they identify issues, generate possible solutions, screen solutions for feasibility, choose a solution to implement, and then evaluate it. Cooperative Learning Facilitates Teaching Meaningful Content, Cooperative Learning Depends on Supportive Heterogeneous Groups, Cooperative Learning Provides Opportunities for On-going Evaluation.

There are several strategies that can be used to provide a more comprehensive examination of progress within cooperative learning activities (see Cullen & Pratt, 1992).

By creating a community that is cooperative and inclusive, children's acceptance and success in the general education environment will be greatly enhanced. Cooperative learning in inclusive classroom fosters learning, cooperation and caring.

• **Collaborative Classroom:**


This article included Characteristics of a Collaborative Classroom, Teacher and Student Roles in a Collaborative Classroom, Interactions in a Collaborative Classroom and Cooperative learning.

**Characteristics of a Collaborative Classroom**

Collaborative classroom has four general characteristics

1. Changing role of teachers
2. Changing role of students
3. Shared authority between both teachers
4. Changing composition of classroom i.e. Shared knowledge, Shared authority, Teachers as mediators, Heterogeneous groupings of students

---

*A3S Model for Inclusive Classroom*
• **Teacher Roles in a Collaborative Classroom**
  Facilitator, Model, and Coach

• **Student Roles in a Collaborative Classroom**
  Collaborator and active participator, Goal setting, Designing Learning Tasks and Monitoring, Self-regulated learning is important in collaborative classrooms

• **Interactions in a Collaborative Classroom**
  Two way interactions, mode is dialogue

• **Cooperative Learning**
  Cooperation, a form of collaboration, is "working together to accomplish shared goals" (Johnson & Johnson, 1989, p. 2).

### 2.5.5. SCIENCE EDUCATION APPROACHES

**Policies Related to Science Education in India:**

Sugra Chunawala & Chitra Natarajan. *A Study of Policies Related to Science Education for Diversity in India*, Homi Bhabha Centre for Science Education, TIFR, India

This paper presents the findings of a study concerning educational policies related to science education and diversity in India which is a geographically and socio-politically diverse country.

• **Policies Related To Science Education for Diversity in India**
  In this article researcher mentioned that educational policies of India is addressing diversity. School curriculum was under the jurisdiction of the State governments until 1976 and the role of the Centre was providing guidelines on policy issues. In 1976, the Constitution was amended to include education in the Concurrent List, whereby power is vested in the State and the Centre for legislative subjects contained in it.

• **National Curriculum Framework**
  In her paper she stated that, according to NCF 2005, at the primary stage the child should be engaged in joyfully exploring the world around it. To develop the basic language skills: speaking, reading and writing not only for science but also through science. Science and social science should be integrated as Environmental Studies (NCF, 2005). The NCF recommends the pedagogical use of activities and experiments at the primary levels as the main method for students to acquire scientific concepts, such as, group activities, discussions with peers and teachers, surveys, organization of data and their display through exhibitions, etc. in schools and neighborhood.
• **Brief Description of Indian Science Classrooms:**

1. In her paper she stated that, the most prevalent form of teaching across Indian classrooms is the traditional (direct instructional), teacher-centered approach with the classroom discourse mostly in the form of lectures (by teachers). Teachers always adapt traditional lecture in that textbook and black board are main resources and followed chapters and their sequence. Teacher explains chapter within 2-3 periods and demonstrate some activities and experiments which given in textbook. Then teacher or one student read loudly and other students taking notes and then students write down question answers and then chapter is finished

2. The first India Science Report (Shukla, 2005) was commissioned by the Indian National Science Academy (INSA) to National Council of Applied Economic Research (NCAER). The results presented in this report were primarily based on information collected through an all India field survey called the “National Science Survey- 2004” under taken by NCAER and supplemented by information available from various reliable secondary sources. The report found that mathematics remains the most preferred subject, with a third of students in classes’ six to eight rating it as number one. Subjects like Physics, Chemistry, and Biology are rated as the top subjects in classes 11 and 12 by about 30% of the students.

3. A centrally sponsored 'Scheme for Providing Quality Education in Madrassas' was launched in 2009 through the National Institute of Open Schooling to accomplish some qualitative change in the education being imparted in madrassas and maktabs to bring them up to the standard of the national education system.

4. The Jawaharlal Nehru National Science Exhibition, science museums, events of the National Children's Science Congress, National Science Day, etc. are all means and methods to inculcate and attract young minds to science. The **current formal system of education, however, does not espouse the exploratory way of learning science** (Indian National Science Academy, 2001).

• **Science Advocacy**

A centrally sponsored scheme since 1987-88, has the aim of promoting scientific temper and improving the quality of science education in the States, by providing assistance for provision of science kits to upper primary schools, upgrading the laboratories and library facilities for secondary schools and training of science teachers.
Science and Their Implications for Science Pedagogy:


In his article he discussed about basic learning theories, constructivism and science pedagogy and role of science teacher. A critical review of the three most influential learning theories and constructivist view of learning and discusses the foundation upon which the constructivist theory of learning has been rooted. It seeks an answer to the question of "What are some guiding principles of constructivist thinking that we must keep in mind when we consider our role as science teachers?" and this paper also describing the nature of students' alternative conceptions in science, the ways of changing cognitive structure, and cognitive aspects of learning and teaching science. It introduces implications for science education and science teacher education as well.

The Constructivist Way of Seeing the World

In his article he mentioned that, constructivism is more a philosophy, not a strategy. This way of seeing the world includes notions about:

- The nature of reality (mental representations have "real" ontological status just as the "world out there" does).
- The nature of knowledge (it's individually constructed; it is inside people's minds, not "out there").
- The nature of human interaction (we rely on shared or "negotiated" meanings, better thought of more cooperative than authoritative or manipulative in nature).
- The nature of science (it is a meaning-making activity with the biases and filters accompanying any human activity).

Cognitive Structure

Under this head he means that cognitive structure means power to know, recognize and conceive, concerning personally acquired knowledge. So cognitive structure concerns individual's ideas, meanings, concepts, cognitions, and so on (Pines, 1985).

Concepts

Under this head he means that concepts are packages of meaning; they capture regularities, patterns, or relationships among objects, events, and other concepts (Novak, 1996). Each concept is a human invention, a way of "slicing up" and organizing the world.
Effective Science Education for Innovation:

Robin Millar, *Effective Science Education for Innovation*, Department of Education, the University of York.

In his article he discussed about need of “context-led” Science courses and research findings related to this aspect.

**“context-led” Science courses:**
1. Start from contexts in which students are interested- Introduce abstract ideas only where they can be seen to be useful
2. Link science to students’ everyday lives

Why ‘context-led’ science courses?
- For students engagement with science
- Hold students interest
- Application of knowledge
- Activity based learning
- Relate with modern science

From ‘context-based science’ to ‘scientific literacy’
1. Context-based science’
2. Gives motivation to learn science as ‘traditionally’ conceived
   - A ‘scientific literacy’ concentrated on following two things,
   1. What is the contribution of science to a general education?
   2. What sort of understanding of science would we like everyone to have?

“The science curriculum from 5 to 16 should be seen primarily as a course to enhance general ‘scientific literacy’.”

Scientific literacy:

“Scientific literacy is the knowledge and understanding of scientific concepts and processes required for personal decision making, participation in civic and cultural affairs, and economic productivity.

A literate citizen should be able to evaluate the quality of scientific information on the basis of its source and the methods used to generate it. (National Research Council (1996). National Science Education Standards, p. 22.)

The central aim:
- To supply ideas and skills for solving every day life’s problem through scientific attitude
To provide opportunity to implement their knowledge

Some examples of recent research in CIRSE (Centre for Innovation and Research in Science Education):

• A Holistic Approach for Science Education For All:
  This article suggests that a genuine reform endeavor towards the “Science for All” paradigm should adopt a holistic approach. There are several countries around the world that adopted the "Science for All" paradigm at the beginning of the 21st century.

• The Holistic Framework Component
  Orion & Fortner (2003) have argued that the earth systems approach is ideal as holistic framework for science curricula. The study of cycles organizes earth systems education: the rock cycle, the water cycle, the food chain, and the carbon cycle. The study of these cycles emphasizes relationships among subsystems through the transfer of matter and energy based on the laws of conservation. Such natural cycles should be discussed within the context of their influence on people's daily lives, rather than being isolated to scientific disciplines.

• The Holistic Cognition- Emotions Learning Component.
  The earth systems approach emphasizes simultaneously on the development of thinking skills and on the students’ affective development (emotional intelligence).

• The Effectiveness of the Earth Systems “Science For All” Approach
  There are several studies that indicate the effectiveness of Earth systems approach in development of both general scientific literacy and thinking skills (Orion & Fortner, 2003; Dodick & Orion, 2003; Kali, Orion & Alon, 2003; Ben-zvi-Assara & Orion, 2005). Their studies suggested that an earth systems science program much powerful platform for any science program that claims to be "for all". And additionally such programs should include the following characteristics:
  • 1. Authentic and relevant context learning
  • 2. Provide concrete to the abstract content
  • 3. Accept differential ability learners
  • 4. Integrating the outdoor environment as an integral and central component of the learning process.
  • 5. Focused on both the cognitive and the emotional aspects of learning

A3S Model for Inclusive Classroom
Science through Activities:
Gupta, Arvind. (2010). *Science through Activities* Journal of Indian Education
In this article researcher focusing on science teaching, rural area and science through activities. The search for teaching science meaningfully to rural children has been a very challenging task for educators.

Primary School Science
This paper stated that over the years there has been a shift in thinking and schools are adopting more progressive measures. In many mainstream schools children in Class VII or VIII are taken to the laboratory where the teacher "demonstrates" certain experiments — how to make oxygen, etc. But still the children do not get a chance to do experiments with their own hands. Often the primary years are the most neglected phase where children seldom get a chance to mess around and do experiments.

The UNESCO Source Book for Science in the Primary School, authored by Winnie Harlen and Jos Elstgeest, was first published in the early 1990s. This book has never been reviewed but it is still in the fourth reprint. This reposes our faith in ordinary teachers—a good book, reasonably priced, will sell well. The book has two parts: theoretical section followed by four amazing science activity sections—Children and Water, Children and Balances, Children, Mirrors and Reflections and Children and the Environment. Believing that science and the scientific method of problem-solving should play a significant role in any modern educational scheme.

The Constructivist View in Science Education:
Reinders, Duit, *The Constructivist View in Science Education -- What It Has To Offer and What Should Not Be Expected From It*
This paper attempts to review the myths, the misunderstandings, the polemics and the serious critiques concerning constructivism. It will be argued in favour of a consistent and "moderate" constructivist view in science education that in fact may provide substantial progress in our field and which major features will be among the valuable views of science education even after the term constructivism will have gone out of fashion.

Table 19 stems from a holistic constructivist approach that Duschl and Gitomer (1991) call "portfolio culture". The "label culture is meant to convey an image of a classroom learning environment that reflects a comprehensive interplay between teacher, student, and curriculum" (Duschl & Gitomer, 1991)
### TABLE 19

**Difference Between Traditional and Portfolio Science Culture**

<table>
<thead>
<tr>
<th>Traditional Science culture</th>
<th>Science Portfolio</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>View of Science</strong></td>
<td></td>
</tr>
<tr>
<td>Hypothetical deductive method</td>
<td>Partial scientific method</td>
</tr>
<tr>
<td>Logical positivism Epistemology</td>
<td>Scientific realism and semantic epistemology</td>
</tr>
<tr>
<td><strong>Role of Student</strong></td>
<td></td>
</tr>
<tr>
<td>Low student input/ Passive</td>
<td>High student input/ Active</td>
</tr>
<tr>
<td>Low level of reflection</td>
<td>High level of reflection</td>
</tr>
<tr>
<td>Scientific meaning received</td>
<td>Scientific meaning negotiated</td>
</tr>
<tr>
<td>Use student developed strategies</td>
<td>Uses principled knowledge</td>
</tr>
<tr>
<td><strong>Role of Teacher</strong></td>
<td></td>
</tr>
<tr>
<td>Disseminator or scientific knowledge</td>
<td>Crafter of scientific knowledge</td>
</tr>
<tr>
<td>Passive in construction of knowledge</td>
<td>Active in construction of knowledge</td>
</tr>
<tr>
<td>Strict to follow curriculum</td>
<td>Adapt and make interactive curriculum</td>
</tr>
<tr>
<td><strong>Curriculum Goals</strong></td>
<td></td>
</tr>
<tr>
<td>Scientific knowledge what we know</td>
<td>Knowledge about science How and why we know</td>
</tr>
<tr>
<td>Emphasize fully developed form explanations</td>
<td>Emphasize knowledge growth and explanation development</td>
</tr>
<tr>
<td>Basic scientific knowledge</td>
<td>Depth of knowledge</td>
</tr>
<tr>
<td>Breadth of knowledge</td>
<td>Curriculum units connected</td>
</tr>
<tr>
<td>Curriculum units discrete</td>
<td></td>
</tr>
</tbody>
</table>

- **Characteristics of constructivist science instruction**

**Constructivism as part of a movement towards student-centred science instruction**

Constructivism becomes a part of a broad movement in science education towards "science for all" (Fensham, 1986), i.e. making science knowledge meaningful and the developments that take place under the label of STS (the interplay of science, technology and society; Fensham, 1991; Yager, 1993).


This report described, how to increase scientific interest and how collaboratively work for science education

- **The declaration of International Years on scientific themes or disciplines has a long history:** The goals of the International Astronomical Union (IAU)-UNESCO International Year of Astronomy 2009 (slogan: 'The Universe – Yours to Discover'), among others, were to:
1. Increase scientific awareness among the general public 2. Promote widespread access to the universal knowledge of fundamental science 3. Support and improve formal and informal science education in schools as well as through science centers, 4. reinforce the links between science education and science careers

This program was successful fulfill above goal.

- The Reform In The Teaching Of Science And Technology At Primary And Secondary Level In Asia:


This report is divided into five parts. In Part One, entitled ‘Science education for contemporary society: problems, issues and dilemmas’ Parts Two and Three deal with ‘Current trends and main concerns as regards science curriculum development and implementation in selected States in Asia’ and ‘in Europe’ Part Four, New approaches in science and technology education’, includes four contributions, focusing on key issues for science teaching today Part Five with an overview of ‘The challenges to be faced in order to progress towards a greater coherence and relevance of science and technology teaching’.

- Current trends and main concerns as regards science curriculum development and implementation in selected States in Asia'

Rajput, J.S. and Srivastava, V. P. Science Education in India:

In their article they stated the status with following numeric support,

- Science teaching should be linked to agriculture in rural areas and to technology in urban areas. But the levels of attainment and avenues to higher education should be the same in both types of schools.

<table>
<thead>
<tr>
<th>Primary or basic education</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Pupils enrolled (1996)</td>
<td>110,390,406</td>
</tr>
<tr>
<td>(Teachers (1996)</td>
<td>1,789,733</td>
</tr>
<tr>
<td>Pupil/teacher ratio</td>
<td>47:1(3)</td>
</tr>
<tr>
<td>Gross enrolment ratio (1996)</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
</tr>
<tr>
<td>Male</td>
<td>109</td>
</tr>
<tr>
<td>Female</td>
<td>90</td>
</tr>
</tbody>
</table>

A3S Model for Inclusive Classroom
Estimated percentage of repeaters 4 (1994)
School-age population out of school 28,564,000 (1995)


1. National Curriculum Framework:
A national curriculum framework was designed in 1975 to translate the avowed policy into action. It was suggested that, at the secondary stage, the science syllabus could be bifurcated under the titles Physical science, covering physics and chemistry, and the Life sciences, covering botany, zoology and human physiology.

i. Focus of Policy
In 1986 new educational policy was developed. The 1986 policy focused on science and mathematics should continue as compulsory subjects in the first ten years of school education. To develop scientific temper and to attain other goals, it is necessary to define the objectives to be fulfilled through science education and Involvement of community, non-government and voluntary agencies are required to pool resources by establishing networks among different institutions, Science education will be extended to the vast numbers who have remained outside the reach of formal education.

ii. Aims of Teaching Science
The general aim of science education is to develop well-defined abilities in cognitive and affective domains, besides enhancing psychomotor skills. It helps to foster scientific inquiry, creative, innovative and objective approaches.

The objectives of teaching science at the upper primary stage, namely Classes VI to VIII,
It covers; enhance abilities, to understand nature of scientific knowledge, Problem solving and decision making and to develop the skills required to operate ordinary laboratory/science equipment and do experiment and find explanations for natural phenomena.

A3S Model for Inclusive Classroom
iii. Content Outline

In Class VII and VIII, subject matter is dealt with at greater length. Themes like Science in everyday life; Things around us; Changes around us; Measurement; Separation of substances; The living world; The living body; Air, water and energy; Balance of nature and The universe, make up the course material that engage the students at Class VI. This is followed in Class VII and VIII by more subject oriented themes such as Mechanics; Heat; Electricity; Magnetism; Carbon and its compounds; Metals and non-metals; Life processes; Evolution, etc., Interdisciplinary topics like Health, Nutrition and Agriculture also constitute integral part of the subjects taught at this stage. Science, at the secondary stage, is introduced around ten themes, such as: Matter, nature and behavior; Motion; Force and energy; Ways of living; Human beings; World of work; Energy; Food and health; Environment; Natural resources and the universe. The time allotted for teaching science at primary, upper primary and secondary stage is 15%, 12% and 13% respectively of the total instructional time.

iv. Curriculum load:

Under this title writer said that there is botheration from parents and the general public alike who feel that the school curriculum is excessive and needlessly taxing. The problem of curriculum load is a complex one and has its roots in many related issues. NCERT is presently revising the national curriculum framework in an effort to resolve this contentious issue.

1. Preparation of teachers:

Under this head researcher mentioned that National Council of Educational Research and Training (NCERT), National Council for Teacher Education(NCTE), Indira Gandhi National Open University(IGNOU), along with State Councils of Educational Research (SCERT) and District Institutes of Education and Training (DIET) are agencies who has given pre and in-service teacher training through distance mode with collaborative approach

2. Methods of assessment:

In this head researcher mentioned that no significance is attached to the assessment of practical work, resulting in utter neglect of practical work in school education. The attitude, approach, criteria and yardsticks adopted to assess and evaluate performances in the field of science are woefully inadequate.
v. Recent Reforms

In this head researcher mentioned that,

1. **Improvement of Science Education in Schools**' Centrally sponsored scheme since 1987-88 has been one of reform. In this upgrading of science laboratories and library facilities in senior/secondary schools and training of science teachers. For innovative project scheme provides assistance.

2. **Environmental Orientation to School Education:**

Centrally sponsored scheme was initiated in 1988-89. The scheme provides grants to states and union territories for innovations and curriculum development at primary, upper primary and secondary levels. Main objective is aware about environmental issues and strategies are worked out for imparting environmental education at upper primary level

3. **Computer literacy and studies in schools:**

The Department of Electronics, in collaboration with the Ministry of Human Resource Development, initiated a pilot project, ‘Computer literacy and studies in schools’ (CLASS) from the school year 1984-85.

Under this head researcher mention about this project,

The project was modified and converted into a centrally sponsored scheme from 1993-94. The aims of the projects are:

1. To provide pupils with an understanding of computers and their use;
2. To provide hands-on experiences;
3. To ‘demystify’ computers to young school goers;
4. To familiarize pupils with a range of computer applications and with the computer’s potential as a controlling and information processing tool.

Meanwhile, the Information Technology Action Plan (1988), which makes significant provisions for integrating computers into the schooling process, has been adopted by the Government. As a consequence, the Ministry of Human Resource Development has launched a new school-computing programme CLASS 2000 from March this year.

**CLASS 2000** has the following three components:

- Computer literacy in 10,000 schools;
- Computer-aided learning in 1,000 schools;
- Computer-based education in 100 Smart Schools will become model centers for others.
NCERT developed the Blue Print for Smart Schools upon which the concept of computer-based education would develop. NCERT is committed to providing all possible on-line and off-line support to the above venture.

**Framework for School Education—**

A Discussion Document’ has been brought out in January 2000. This document provides a curricular framework for all stages of school education. On the basis theoretical and research materials, consulting and discussing various issues with faculty members, educationist sand experts it a variety of strategies included. In second phase workshops were conducted for discussion in order to evolve consensus on various issues raised in the document. In the third phase, based on the guidelines provided in the new Curriculum Framework, syllabi, textbooks and other instructional materials for all stages of school science education will be designed and developed.

The progress and development of science and technology in India and the enormous potential it holds for the future have been comprehensively summarized by Prof. R. A. Mashelkar, Director-General of Council of Scientific and Industrial Research in his Presidential address delivered at eighty-seventh Indian Science Congress, Pune, on 3 January 2000 as follows:

Let me sum up by recalling the new Panchsheel of the new millennium, that we should launch in the year 2000. It is simply:

- Child-centered education;
- Woman-centered family;
- Human-centered development;
- Knowledge-centered society;
- Innovation-centered India.

These principles, if put into practice, will help India to acquire a scientific temper, edge towards a ‘learning community, realize national dreams of being a ‘knowledge society’ and leave behind memories of underdevelopment.

- **Science Teaching In Inclusive Classrooms:**


This publication will blend research, theory, and practice to guide the classroom teacher in using teaching strategies that serve all students. It is designed as a resource book for practitioners. The primary goals are: 1) to instill in every teacher the patience, optimism, and generosity to bring out the best in his/her students, 2) to instill a commitment to

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A3S Model for Inclusive Classroom
make every child feel important and appreciated, and 3) to provide suggestions and checklists for self-analysis and reflection to assist any teacher seeking ideas in science teaching.

Chapter 1

Why Inclusive Education?
In this chapter writer provides following information about why inclusion? The role of teacher is important in developing student's personality and foster interpersonal development of students with disabilities. To address these needs one must consider not only the generally accepted norms of mutual cooperation and respect, but also other elements such as **Science Teaching in Inclusive Classroom set equity and cultural values**. Many students with disabilities (particularly those with physical disabilities, learning disabilities, and attention deficit disorders) have an input deficit or processing deficit which affects their ability to understand the subtle, and sometimes the obvious, messages in an interaction. Individuals with social-emotional anomalies are also more likely to experience inconsistencies in feedback concerning relationships.

Chapter 5

Blaisdell, Mary. Jean. A Collaborative View of the Science Classroom
In this chapter writer provides following information about a Collaborative View of the Science Classroom. Special education students have many difficulties when attempting to transfer skills learned in a pull-out setting to the regular class setting, regular education teacher don't have time to communicate effectively with special teacher and this impact on planning, curriculum design. Social difficulties students experience when integrated into subject areas such as science and social studies due to math or reading disabilities (Johnston, 1994). Due to its activity based nature, however, science has often been an area considered for integration of students with disabilities where possible.

- The Collaborative Viewpoint

Inclusive schools are those in which students with and without disabilities are learn together within one educational system (Stainback, S. & Stainback, W., 1990). Although an integral part of the inclusive school concept, collaboration in and of itself is a practice recommended among school professionals as a whole (Pugach & Johnson, 1990), and is described as a supportive system where teachers utilize the expertise of other educators to solve problems. While there is no one standard model of collaborative service, Bauwens (1991) described three common models:
• Teacher Assistance Teams, collaborative consultation, and cooperative teaching; these are the three basic models of collaboration.

Cooperative teaching seems to be a more frequently implemented practice in many school districts (Reeve & Hallahan, 1994). Cooperative teaching, also generically referred to as "collaboration," here regular and special teachers cooperate and jointly teach normal and special educational needs; i.e., heterogeneous groups of students in integrated settings to meet the needs of all students (Bauwens & Hourcade, 1997).

In one approach, the regular class teacher may provide primary content instruction while the special education teacher provides survival skills instruction on such study skills as note-taking, outlining, or finding the main idea. These survival skills might be taught to a small group or the entire class, but it is all done within the regular class setting.

• Cooperative teaching partnership:


A cooperative teaching partnership can benefit both students and staff. In some cases, some of these extensive benefits have been cited — a shared ownership and responsibility for meeting student needs

More....

1. Special educator involvement
2. Curriculum modification
3. Monitoring of low achieving students
4. Pre-referral interventions, and
5. Parent contacts

To assist with this process, consider the following steps adapted from Reisinger, Allbaugh, and Battersby. (1991). A collaborative model

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A3S Model for Inclusive Classroom
To determine "Ground Rules"

- Identify key issues
- Identify needs, priorities, and resources
- Start small and think big
- Enlist support
- Established planning team
- Setting Ground Rules:

For setting ground rules following suggestions are given,

1. Scheduling
2. Classroom Management
3. Planning Time
4. Assessment
5. Classroom Environment
6. Teamwork
7. Beliefs
8. Problem-Solving Together
9. Roles and Responsibilities
10. Partnership Goal Setting

Responsibilities of regular classroom teacher and special teacher in inclusive classroom at the time of instruction for example is given table20
### TABLE 20

**Sample Science Activities**

<table>
<thead>
<tr>
<th>Activities</th>
<th>Regular Teacher Role</th>
<th>Special Teacher Role</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conduction of heat</td>
<td>Content delivery</td>
<td>Academic skill development</td>
</tr>
<tr>
<td>Convection of heat</td>
<td>Conduct student groups</td>
<td>Brainstorm with students and introduce social skills</td>
</tr>
<tr>
<td>Radiation of heat</td>
<td>Explanation and demonstration</td>
<td>Assist students</td>
</tr>
<tr>
<td>Review and test</td>
<td>Test items developed from small objectives and Test divided into small sections.</td>
<td>Study guide created containing information covered on test. Conduct Game activity such as &quot;Jeopardy&quot; created to review concepts and information.</td>
</tr>
</tbody>
</table>

**Chapter 7**

Kelly Bohning & Greg Stefanich, *Best Practice: Curricular and Instructional Adaptations for Special Needs Students in the General Education Setting*

This chapter links curricular and instructional adaptations to the research on effective schools. Steps for setting up an inclusive science classroom are presented. Various adaptations in the science classroom are discussed. The findings of this research report indicate that there are a variety of instances where it is appropriate for teachers to make adaptations for students in the general education setting. Teachers can follow certain processes to help determine when these adaptations should be made, as well as choose from a menu of adaptation types. This chapter addresses five questions in adapting curriculum and instruction for students with diverse learning needs.

1. Why research says need of curriculum and instructional adaptations?
2. When need to make adaptations for students?
3. What types of adaptations needed to meet the needs of diverse learners in the general education setting?
4. To create an effective inclusive science classroom what attributes teacher needed?
5. For inclusive science classroom what specific adaptations can be made?

- **Creating an Inclusive Science Classroom**

According to Scruggs and Mastropieri (1994), classroom teachers can successfully include students with disabilities in science when the following are present:

Most commonly used approach is the content approach (Scruggs &Mastropieri, 1993). In this approach, textbooks are the primary source of curriculum and instruction and second
approach is contrasting approach which is the activity-oriented approach. The teacher may still employ direct instruction; however, students are being actively engaged in the exploration of science concepts (Scruggs & Mastropieri, 1993). Student scan apply the processes of science: observation, classification, measurement, comparison, predictions, and making inferences and this is beneficial for students with special needs (Patton, 1995)

FIGURE 8: Creating an Inclusive Science Classroom

Science Teaching in Inclusive Classrooms

Teachers want all students to be successful in their science classroom. This success can also be achieved in an inclusive science classroom. When creating an inclusive science classroom, Patton (1995) suggested the following guiding principles: When teachers apply these principles to create an atmosphere where all students belong and are engaged in quality teaching techniques, students will be successful in inclusive science settings.

FIGURE 9: Patton: strategies for creating a successful inclusive science setting.
Mastropieri and Scruggs (1995) suggested the following four strategies for creating inclusive science classrooms:

1. Choose appropriate curriculum.
2. Use effective instructional strategies.
3. Adapt specific science activities.
4. Use effective assessment strategies.

FIGURE 10: Mastropieri and Scruggs: strategies for creating a successful inclusive science setting.

- Adaptations in the Science Classroom

Under this head Scruggs and Mastropieri (1992) recommended adaptations for the inclusive science classroom:

When SEN students are included in general education settings, adaptations often need to be made to meet individual student needs. The inclusive science classroom is no exception. Patton (1995) and Mastropieri and Scruggs (1995) indicated that one of the steps in creating an inclusive science classroom is the need to make adaptations to curriculum, instruction, and materials. Scruggs and Mastropieri (1992) recommended the following adaptations for the inclusive science classroom: 1. Vocabulary, 2. Instructional Delivery, 3. Text, 4. Materials, 5. Assessment.

Chapter 8
Greg Stefanich, Pat Holthaus, & Louise Bell: The Cascade Model for Managing Students with Disabilities in Science Classrooms

- The Cascade Model = A Dynamic Approach

The Cascade Model can be likened to a journey in a raft moving down a cascading stream (the K-12 curriculum) to the sea (entrance to adulthood). The group about to take the classroom journey is the students and their science teacher. Just as there are four important aspects to consider in taking a raft trip, so there are four main steps to this model:

- Steps in The Cascade Model


- Underlying Management Principles

(From The Cascade Model: A Dynamic Approach to Classroom Discipline, Stefanich, 1987)
2.5.6. MODEL DEVELOPMENT


MODEL: noun
A three-dimensional representation of a person or thing, typically on a smaller scale. (in sculpture) a figure in clay or wax, to be reproduced in a more durable material.

1. a thing used as an example to follow. a person or thing that is an excellent example of a quality: she was a model of self-control.

2. a person employed to display clothes by wearing them. a person employed to pose for an artist, sculptor, etc.

3. a particular version of a product. a garment or a copy of a garment by a well-known designer.

4. a simplified description, especially a mathematical one, of a system or process, to assist calculations and predictions.

ORIGIN
C16: from French modéle, from Italian modello, alteration of Latin modulus (see modulus). (Concise Oxford Dictionary (Eleventh Edition))

MODEL:
1. Graphical, mathematical (symbolic), physical, or verbal representation or simplified version of a concept, phenomenon, relationship, structure, system, or an aspect of the real world. The objectives of a model include (1) facilitating understanding by
eliminating unnecessary components, (2) to aid in decision making by simulating 'what if' scenarios, (3) to explain, control, and predict (WebFinance Inc., BusinessDictionary.com)

Types of model on the basis of purpose:
1. Concept model
2. Phenomenon Model
3. Relationship Model
4. Structure Model
5. System Model/Process Model
6. Aspect of the real world Model

DEVELOPMENT: noun
1. the process of developing or being developed. a specified state of growth or advancement.
2. a new product or idea.
3. an event constituting a new stage in a changing situation.
4. an area of land with new buildings on it: a major housing development.

DERIVATIVES
Developmental adjective
Developmentally adverb (Concise Oxford English Dictionary, Eleventh Edition)

MODEL DEVELOPMENT:
The process of developing simplified description of a concept, phenomenon, relationship, structure, system, or an aspect of the real world that means model development.

PRODUCT: noun
1. an article or substance manufactured or refined for sale. a substance produced during a natural, chemical, or manufacturing process.
2. a result of an action or process. a person whose character has been formed by a particular period or situation: a product of the 1960s.
3. Mathematics a quantity obtained by multiplying quantities together, or from an analogous algebraic operation.

ORIGIN: Middle English: from Latin productum 'something produced', neuter past participle (used as noun) of producere (see produce). (Concise Oxford English Dictionary, Eleventh Edition)
WAYS OF MODEL DEVELOPMENT:

1. Educational Model:

   Educational Model Retrieved From Https://Educationguide....

   In this article focus on product and approach of product was described as follows, The educational program of Industrial Design distinguishes itself by its focus on interactive systems, products and related services as well as by its approach, namely self-directed and competency-centred learning. In order to strengthen this foundation, we stimulate professional identity building, expertise building and community building, which refer to both the individual level (student and staff) and the Department level (we as Industrial Design).

   Competency-centred learning gives equal weight to attitude, skills and knowledge, and stimulates you to learn by doing. Within their Department, a competency is defined as "an individual's ability to select, acquire, and use the knowledge, skills, and attitudes that are required for effective behaviour in a specific professional, social, or learning context". Therefore, the programs offer a holistic view of design, in which you integrate competencies towards the overall competency of designing.

   Suggestion given by them is for development of model is,

   1. The nature of design beautifully intertwines the different types of knowledge with different human skills, in this case cognitive, emotional, perceptual-motor and social. It is about learning and performing through practical application, while simultaneously acquiring theoretical skills.

   2. Skills and knowledge, competency development focuses on the designer’s attitude, such as taking responsibility and professionalism as well as being curious and empathic.

   3. Competency-centred learning is a highly person- and context-dependent process. A different context asks for different competencies and different students will prefer different competencies and develop them differently. Therefore, you take responsibility for and create your own program.

   4. You plan and direct your own learning by compiling a Personal Development Plans (PDP). In your PDP you describe your learning goals and intended competency development. Furthermore, you indicate which learning activities (e.g. projects or electives) best match your learning goals and required competency development of that semester. All this, of course, within the structure and content the Department provides and with the help of senior employees (staff) who support and challenge your learning.
processes from different educational roles (see Advisors and tutors in left menu for more information). Moreover, you work on projects with different (real) clients and experts, which tune your competency development.

2. Logic Models and Program Planning

After you have defined the Problem (Step 2a – Evaluation Guidelines) it is recommended that you construct a program Logic Model. The Logic Model depicts program outcomes, how the program is supposed to accomplish these outcomes and what is the basis (logic) for these expectations.

- **What Logic Models can do for you?**

Logic models link program inputs (i.e., resources) and activities to program products and outcomes (i.e., goals) while communicating the logic (theory) behind the program, its rationale for existing. Logic models can be used to:

A logic model will assist you in communicating the underlying theory (logic) that you have about why your activities are a good solution to the problem identified. Logic models can be displayed by varying methods. Some read left to right, others top to bottom with intermittent circles and squares. What are the links between resources, activities, products and outcomes? Why and how will your program work?

![FIGURE12: Logic Model](A3S Model for Inclusive Classroom)
Basic Program Logic Model:

**INPUT** → **ACTIVITY** → **SHORT TERM OUTCOMES** → **INTERMEDIATE OUTCOMES** → **DISTAL OUTCOMES**

Each component is connected to the others by the overarching logic or theory – thus establishing a foundation for evidence-based action – the “arrows” depict the logic.

**FIGURE 13: Basic Program Logic Model**

- **Logic Model Components**
  1. **Inputs**: Resources that go into the program
  2. **Activities**: Actual events or actions that take place
  3. **Products**: Direct tangible outputs of program activities
  4. **Outcomes**: Impact of the program; the sequence of effects triggered by the program, often expressed in terms of short-term, intermediate, and distal outcomes
  5. **Arrows**: Depict the logical links between inputs, activities and outcomes

<table>
<thead>
<tr>
<th><strong>TABLE 21</strong></th>
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</thead>
<tbody>
<tr>
<td><strong>Steps for Constructing a Logic Model</strong></td>
</tr>
<tr>
<td><strong>Step 1</strong></td>
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<tr>
<td><strong>Step 2</strong></td>
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<td><strong>Step 3</strong></td>
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<td><strong>Step 4</strong></td>
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<td><strong>Step 5</strong></td>
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<td><strong>Step 6</strong></td>
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- **3. Character-Centered Teaching: Six Steps to Becoming a Model Program**


**Character-Centered Teaching: Six Steps to Becoming a Model Program**

In this article six steps of model development (International Center focuses which are essential for developing a model program) are explained

- **Developing a Model Program**

Working with a school to develop a Character-Centered Teaching program, the International Center focuses on six important steps that are essential for developing a model program.
1. **Identifying Leaders.** The first step in the assessment and development of a Character-Centered Teaching program is to identify natural leaders in the school and in the community.

2. **Develop Partnerships.** The next important task is for the key players to develop a partnership with parents and the community.

3. **Determine Guiding Principles.** After the members of the Community Advisory Panel have learned about character education principles and programs, they focus their attention on guiding principles.

4. **Establish Plans.** The process of program implementation begins with the development of a mission statement and a vision for the program. A strategic plan is then written that will define the activities to be conducted and methods for involving students, parents, and staff. This plan is essential to ensure the development of a truly comprehensive program that will result in the integration of guiding principles into the curriculum and school wide activities.

5. **Implement Practices.** Of critical importance is a strong focus on how to help students adopt the guiding principles and transform them into guiding practices. The key to success is to help students develop a feeling of commitment to the guiding principles.

6. **Evaluate the Program.** Program evaluation is an essential step in the development of a model program. Behaviors and attitudes that will be evaluated for change should be related to the Key

4. **Six-Step Problem Solving Model:**

   **Problem Solving Overview Restructuring Associates Inc. © 2008 1: Six-Step Problem Solving Model**

   This article discussed about systematic approach to problem solving and describes steps of problem solving model.

   A systematic approach to problem solving allows for:
   - Decision making based on data
   - determining root causes of problem
   - devising permanent solutions
Six-Step the Problem Solving Model:

1. Define the Problem
2. Determine the Root Cause(s) of the Problem
3. Develop Alternative Solutions
4. Select a Solution
5. Implement the Solution
6. Evaluate the Outcome

FIGURE 14: Six-Step Problem Solving Model

5. Seven Steps for Developing a Prediction Model:
Ewout W. Steyerberg and Yvonne Vergouwe (4 June 2014). Towards Better Clinical Prediction models: Seven Steps for Development and an ABCD for Validation

This article discussed about development of model and validation process of mode

TABLE 22
Seven Steps for Developing a Prediction Model

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Problem definition and data inspection</td>
</tr>
<tr>
<td>2.</td>
<td>Coding of predictors Continuous predictors</td>
</tr>
<tr>
<td>3.</td>
<td>Model specification Selection of main effects?</td>
</tr>
<tr>
<td>4.</td>
<td>Model estimation</td>
</tr>
<tr>
<td>5.</td>
<td>Model performance</td>
</tr>
</tbody>
</table>
| 6.   | Model validation | Internal validation including model specification and estimation?  
**Validation**  
**Internal validation**: Assesses the validity of claims for the underlying population where the data originated from (‘reproducibility’)  
**External validation**: Assesses the validity of claims for ‘plausibly related’ populations (‘generalizability, or ‘transportability’) |
| 7.   | Model presentation | Format appropriate for audience |
6. Ten Steps Applied to Development and Evaluation of Process-Based Biogeochemical Model:


This article described the procedures involved in model development may be set out as a ten-step process, beginning with defining the purpose of the model and ending with evaluation of the appropriateness and utility of the completed model.

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Define model purpose</td>
</tr>
<tr>
<td>2</td>
<td>Specify modelling context: scope and resources</td>
</tr>
<tr>
<td>3</td>
<td>Conceptualise the system</td>
</tr>
<tr>
<td>4</td>
<td>Select model features (form of model)</td>
</tr>
<tr>
<td>5</td>
<td>Determine parameter values</td>
</tr>
<tr>
<td>6</td>
<td>Choose performance criteria</td>
</tr>
<tr>
<td>7</td>
<td>Identify model structure and parameters</td>
</tr>
<tr>
<td>8</td>
<td>Verification and diagnostic testing</td>
</tr>
<tr>
<td>9</td>
<td>Quantification of uncertainty</td>
</tr>
<tr>
<td>10</td>
<td>Model evaluations</td>
</tr>
</tbody>
</table>

FIGURE 15: Ten-Step Process-Based Bio-geo-chemical Model

- Inclusive Education and Models:

1. Model Development for Inclusive Education Management:

Suchada Bubpha, Prawit Erawan, and Prasong Saihong. Model Development for Inclusive Education Management Practical Guidelines for Inclusive Schools

This article is research based article. The results of this study will yield the following expected benefits of: 1) Acquired knowledge on the current need for inclusive education in mainstreaming schools, The problems will be clearly identified, leading to a plan for the development of an effective inclusive education model relevant to the actual situation in schools. Inclusion as the provision of education on the basis of Human Rights underlying educational management, initiated at the International Conference on human rights following the Universal Declaration of Human Rights with a significant statement “...Every single child shall have the rights to equal education and shall acquire school education for as high as possible, based on their potential and capacity. Education should enable children to use and improve their capability and potential. Children should be taught to live their life peacefully, preserve the environment, and respect the rights of others.

In this article inclusive education is defined by the level of participation of students with special needs in normal education, as presented in the figure 16
The models of inclusive education in Thailand are both similar and different from those in other countries. These include: 1) instructional adjustment; 2) development of teaching and learning activities, for example, learning activities based on multiple intelligence theory; 3) research on instructional approaches for students in different classes using co-teaching; 4) multiple instructional approaches; 5) and a peer tutoring approach.

The research results revealed that the development of an inclusive model yielded positive effects on teaching and learning management. That is, teaching is more individualized to meet the needs of each child in inclusive education. Teachers believe that ordinary students and students with special needs are to be educated equally. Multilevel inclusive classrooms widen the scope of the learning and development of children with disabilities alongside their peers. Shannon K. (2006) and Tontaleya (2007) explored students’ perspectives and attitudes and found that those with special needs held positive attitudes toward impairments, and preferred the classroom setting with assistance from school staff. In addition, they interacted positively with their classmates.

2. Inclusive Education Model – Whole School System

This paper drowns on the finding of the Inclusive Education Model that was developed from exploring the current situation of problems and need of inclusive education in Thailand. It suggests that such need involves three important aspects: 1) Planning for the development of each child with special needs using an Individual Education Plans (IEPs);
2) Conducting student development activities for inclusive education; and 3) Measuring and evaluating the real situation for enhanced development of individual students.

Instruction Management by SMART using the smart system of instruction management in inclusive classes can be applied to organize student learning activities taking into account the five important components of SMART = Select, Match, Adapt, Relevant, and Test.

3. Models, Theories, and Frameworks: Contributions to Understanding Special Education Technology:

Edyburn, Dave L. Models, Theories, and Frameworks: Contributions to Understanding Special Education Technology

- Models and Special Education:
  The purpose of this article is to highlight 12 models that have impacted the special education technology knowledge base. One particularly encouraging observation about the growth of the discipline is that multiple models are being advanced to describe similar phenomenon. Just as there is no single best theory of learning, multiple models challenge us to consider commonalities, as well as distinct and unique contributions, made by theorists with differing perspectives. This article seeks to fill a void in the literature by compiling a comprehensive collection of the models, theories, and frameworks that undergird the knowledge base of the special education technology discipline. Analysis of the salient components of twelve models revealed three clusters:
  1. assistive technology consideration, 2. technology-enhanced performance, and 3. developmental models which describe specific aspects of technology use in special education. A brief overview of each model is provided in the following sections.

1 Assistive Technology Consideration: Four Models

Four models were identified which describe processes associated with assistive technology consideration. Each of these models has had significant impact on the design and delivery of assistive technology devices and services in schools.

1.1. Model Name: The SETT Framework, Author: Joy Zabala

The SETT Framework was designed to aid the process of gathering, organizing, and analyzing data to inform collaborative problem solving and decision-making regarding assistive technology and appropriate educational programming for students with disabilities.
1.2. Model Name: Education Tech Points, Authors: Gayl Bowser and Penny Reed

Education Tech Points was created to facilitate decision-making regarding the utilization of assistive technology services and resources when planning educational programs for students with disabilities. The six key points are (1) referral, (2) evaluation, (3) extended assessment, (4) plan development, (5) implementation, and (6) periodic review.

1.3. Model Name: Has technology been considered?, Author: Antonette C. Chambers

Chamber's model of the consideration process was developed through research involving a Delphi study of experts and validation with focus groups of practitioners. Chamber's model has had considerable impact in school-based assistive technology decision-making.

1.4. Model Name: The AT CoPlanner Model, Authors: Leonard P. Haines, Gladene Robertson, Robert Sanche, and colleagues

a groupware product that supports communication, collaboration, and co-planning. Additional content modules (i.e., Instruction Co-Planner, Transition Co-Planner, and Assistive Technology Co-Planner) provide electronic worksheets and planning systems that support specific applications of collaborative planning.

2. Technology-Enhanced Performance: Four Models

Models of human performance contribute to the development of technology-enhanced performance support strategies. Four models were identified which inform our understanding of human abilities; the impact of disabilities; and the role of prostheses, tools, and other devices in augmenting and enhancing performance

2.1. Model Name: The ABC Model, Author: Rena Lewis

This model is intuitively easy to understand and is the essence of rehabilitation and therapy decision-making.

\[ \text{ABC Model} = \text{Augment abilities and Bypass or Compensate for disabilities} \]

2.2. Model Name: The Human Activity Assistive Technology (HATT) model, Authors: A.M. Cook & S. M. Hussey

Key components of this model involve the human, a person with a disability who controls a number of intrinsic enablers (sensors, central processing, and effectors or motor) as well as skills and abilities; activity (performance in areas such as self-care, work/school, leisure/play)
2.3. Model Name: Wile's Model of Human Performance Technology, Author: David Wile

Wile's analysis suggests that performance can be affected by seven variables: (1) organizational systems, (2) incentives, (3) cognitive support, (4) tools, (5) physical environment, (6) skills/knowledge, and (7) inherent ability.

This model helps us understand that technology is not a simple panacea for remediating performance problems.

2.4. Model Name: King's Adaptation of Baker's Basic Ergonomic Equation (BBEE)  
Author: Thomas W. King

Key factors associated with the successful use, or not, of assistive technology include: the motivation of the assistive technology user to pursue and complete a given task (M), the physical effort (P), the cognitive effort (C), the linguistic effort (L) and the time load (T). King argues that successful assistive technology use will occur when the numerator, (M) user motivation, exceeds the sum of all the load or effort factors in the denominator.

3. Developmental Models

Four theorists have created models which reflect developmental processes associated with a critical component of special education technology. The following descriptions offer insight into processes surrounding student development; technology integration; the quality of assistive technology services; and the ebb-and-flow of advocacy, accommodations, and accessibility.

3.1. Model Name: Stages, Author: Madalaine K. Pugliese

Stages are a theoretical framework which serves to organize resources and assessment materials for documenting student growth and development and its implications for technology use. Pugliese bridges the theory and practice gap by providing numerous examples on how to document the intervention strategies and tools in IEP goals and objectives.

3.2. Model Name: Edyburn's Model of the Technology Integration Process, Author: Dave L. Edyburn

Edyburn's model of the integration process was developed to (a) describe the various tasks involved in integrating software into the curriculum, (b) provide a planning guid for individuals interested in technology integration, (c) serve as a tool for discussing the process among the major stakeholders, and (d) assist in the identification of methods and resources for facilitating the process.
FIGURE 17: Edyburn's model of the integration process

He suggests that teachers work through the process in order to develop a technology toolbox of 3-10 products that can be utilized to enhance teaching and learning in their classroom.

3.3. Model Name: The Quality Indicators for Assistive Technology Services
Authors: The QIAT Consortium

The Quality Indicators of Assistive Technology (QIAT) Consortium has created a set of descriptors that can serve as overarching guidelines for evaluating the quality of assistive technology services, regardless of service delivery model.

Quality Indicators are available in the following areas:

1. Administrative Support
2. Consideration of Assistive Technology Needs
3. Assessment of Assistive Technology Needs
4. Documentation in the IEP
5. Implementation
6. Evaluation of Effectiveness

FIGURE 18: The Quality Indicators of Assistive Technology

3.4. Model Name: The A3 Model Authors: Smith, Schwanke, & Edyburn

The A3 Model is a theoretical work that seeks to describe a developmental process associated with efforts to provide access for individuals with disabilities to facilities, programs, and information.

FIGURE 19: A3 Model and transition of approach

The proportions illustrated in the graphic reveal the efforts associated with each of the three phases at any point in time relative to the impact of the general strategy being
applied (advocacy that argues for need, accommodation to remediate in accessibility, and accessibility where universal access is provided for all).

All these reviews of literature enriched present study and has given direction and guidance, “How to develop academic and social survival skills model for 6th and 7th standard normal and special educational needs student of inclusive classroom.

2.6. RESEARCH REVIEW FOCUSES ON SIX THEMES SPECIALLY IN CONTEXT TO INCLUSIVE EDUCATION

1. Inclusive Education
2. Skills
.3. Collaborative Teaching and Learning
4. Science Education Approaches
5. Model Developments and
6. Research Methodology: Product development

Reviews of related researches are related to mixing of two or three above variables so there is no separate partition on the basis of variables instead that reviews are alphabetically arranged and keywords given of each research


KEYWORDS: Inclusive Education, Special Educational Need students, Subject teachers

This study focused on Implementation of policies i.e. actual inclusive practices in context to urban and rural schools. Objectives of the study, availability of HR for inclusion of differently abled students and to develop and test the effectiveness of knowledge based program in inclusive education for teachers in urban and rural schools in Pune. Multi method was used on the basis of objective. Survey and experimental methods were used. Sample was 40 rural and 40 urban schools and related teachers and principals. Observation, Interview, attitude scale and questionnaire were used for data collection. Finding of the study were, “Availability of HR for inclusion of differently abled students and knowledge based program in IE for teachers teaching for higher primary level is effective with respect to concept and nature of inclusive education.”

A3S Model for Inclusive Classroom

**KEYWORDS:** Social Competence, Special educational need students i.e. HI, VI and Orthopaedic students.

This study focused on social competence of VI, HI and Orthopaedic students. This study focused on four sub skills/components of social competence and these components checked regards to variables like gender, class, cast, parent’s income, father’s education, mother’s education. Survey method was used. Observation and questionnaire were used for data collection. Hundred HI, VI and Orthopaedic 8th, 9th and 10th standard students were sample of this study. Social competence scale by Prof. V.P. Sharma, Dr. Kiran Shukla, Dr. Prabha Shukla (Raipur) was used. Conclusion were null hypothesis was accepted related to social competence for VI and HI and rejected for Ortho so a significance difference among 8th, 9th and 10th students of orthopaedic.

• Bhakare, Lanka (2014). *Advanced organizer model for improving reading skills of higher primary students*, University of Pune, Pune

**KEYWORDS:** Higher primary level, Model, Product development, Skill

This study focused on improving reading skills of higher primary level students. Objectives of the study, to find out the learning difficulties of VI standard students in basic reading skills of English language, to develop a teaching program based on Advance Organizer Model for improving reading skill of higher primary students and to test the effect of this developed program. Multi research method and true experimental equivalent groups design was used. Achievement test was used for data collection. Conclusion is “*The teaching with the help of advance organizer model teaching program found more effective for increasing achievement level of the 6th standard students in reading skills of English language*”.

• Chaudhary, Laveena (1996). *A Study to Assess the prevalence of learning difficulties amongst high risk early school age children*, University of Pune, Pune

**KEYWORDS:** Experimental method, language, learning difficulties (Special educational need student)

This study focused on learning difficulties of high risk early school age children. Objectives of this study were, to make required modifications in the portage early education program checklist after doing a pilot study, to compare performance on
language, cognitive and motor between study group and control group on the modified portage checklist and to analyse the behaviour patterns of the children in the below average group and control group as perceived by their parents and teachers using the conners parents rating scale, and conners teacher rating scale. Research method was case study. Portage early education program checklist and Brigance teacher made inventory of early development ere used for data collection. ANOVA and t-test ere used as statistical tools. Finding of the study, “It was seen that inter area co-relation was excellent in all three areas of the portage”.

- choukade, Gayatri (2013). Development of Scientific Attitude Improvement Programme for Adolescents and its Effectiveness, University of Pune, Pune

KEYWORDS: Science, Product development

Development of scientific attitude is a main objective of science learning. Attitude is depends upon experience so for improvement of scientific attitude which type of learning experiences needed? Researcher has curiosity is there any difference between rural and urban students’ scientific attitude? Researcher developed and administrate program for them for improvement of scientific attitude. This study focused on improvement of scientific attitude of rural and urban students’ and developed program, for this product development method was used. Multi method was used for study on the basis of objectives. Program administrated on adolescents and checked the effectiveness of this program. Scientific attitude scale was used for data collection and after statistical treatment concluded statement is “On the identified components of scientific attitude the scientific attitude improvement program as prepared for this study found to be effective”

- Gaikwad, Atul (2015). Development of Course material package for Visual Impairment Commerce Students and Evaluate its effectiveness, University of Pune, Pune

KEYWORDS: Special education need student, Product development

This study focused on development of course material package for visual impairment commerce students and evaluates its effectiveness. Objectives of this study was to identify units from XI accountancy subject for development CMP for VI students, To develop the CMP and to find out the effectiveness of developed CMP as teaching accountancy subject for XI standard VI students. Multi method was used on the basis of objectives. Single group pre-test post-test design was used and twenty two XI standard commerce student as a sample. Major finding of this study is “Developed CMP is useful as teaching method to teach accountancy subject for XI standard VI students.”
• Gladys Ngao (2012). *Evaluation of HIV and AIDS Education on awareness, Preventive measures and services among children with disabilities in Kenya*, University of Pune, Pune

**KEYWORDS:** Children with disabilities, Intervention program

This study focused on children with disability and intervention program. Objectives of the study, to assess the level of HIV and AIDS awareness education, prevention and treatment services among CWDs in Kenya, to analyze HIV and AIDS awareness models for CWDs in Kenya and to suggest strategies for effective HIV and AIDS education for CWDs, in Kenya. Survey method as used. One eighty teachers and two hundred parents were sample of the study. Questionnaire used for data collection and percentage as a statistical tool. Findings of the study, the only available HIV and AIDS services for CWDs within the school was counseling and VCT and counseling where the only HIV and AIDS services for the CWDs within the local health centers.

• Koshy, Suja (2001). *Enhancing the reading skills of advantage and disadvantage children of standard first through systematic reading of children’s literature*, University of Pune, Pune

**KEYWORDS:** Disadvantage student (Special educational need), Skills

This study focused on enhancement of reading skills of advantage and disadvantage students. Objectives of the study, to determine the effectiveness of interactive reading of children’s literature by this experiment. Experimental method was used. Finding of the study, “The children in the experimental classroom were better in the reading comprehension than their counter parts in the control group and analysis of data indicated that the children from the experimental group period attention to both meaning and the decoding of reading.


**KEYWORDS:** Attitude, teaching effectiveness, formal mode, distance mode

This study focused on teacher’s attitude teaching effectiveness. Objectives of the study were to study the teachers’ attitude towards teaching who have been trained through the formal mode and to study the teaching effectiveness of teachers who have been trained through the formal mode. Experimental study was conducted on 257 teachers. Standardized test of teacher’s effectiveness by Dr. Pramod Kumar and prof. D. N. Muthu. Conclusions were the teachers who have been trained through the formal and the distance mode had the same type of attitudes. Their effectiveness is good.
• Soohee, Cho (2013). *Effect of mind-Body Management Education (MBME) on self-development*, University of Pune, Pune

**KEYWORDS:** Product development method, Skills

This study focused on self-development and for that development of product i.e. mind body management education (MBME) and objectives of the study, to analyze literature for interpretation of body based programs and their effect on the body and the mind, to identify appropriate components for development of mind body management education program and to measure body changes in respect to the same and to determine the effects of the MBME program. Multi method was used, Analysis of literature, new product development and experimental methods were used. For product development four stages were used, proposed product, actual product, modified product and final product. Questionnaire, tests related flexibility and related components for data collection and t-test as a statistical tool. Major findings are, "MBME program is effective to increase flexibility significantly". And conclusion is, MBME increases the flexibility by enhancing the capability of being bent.

• Vevaina, C.S. (2009). *Developing interpersonal and intrapersonal intelligence through multicultural education*, University of Mumbai, Mumbai

**KEYWORDS:** Multicultural Education, interpersonal and intrapersonal intelligence

This study focused on interpersonal and intrapersonal intelligence and objectives of the study were to study the effect of the intervention program on the interpersonal intelligence and intrapersonal intelligence of teachers. Experimental method was used and sample were 72 teachers selected through stratified random sampling followed equivalent group. Standard psychological questionnaire was used. Conclusion was the treatment was slightly effective for interpersonal intelligence

### 2.7. IMPORTANCE OF THE PRESENT STUDY:

• **KNOWLEDGE BRIDGE BETWEEN PREVIOUS AND THE PRESENT STUDY:**

Researcher has taken reviews of related literature and researches and on the basis of references related to following concepts the present study is a bridge between previous study and present. Discussion about how to previous studies were helpful for present study.
Conclusions related to reviews in respect to following concepts,

1. Inclusive Education:

International and national policies related to special needs education and inclusive education have given perspectives for inclusive education. This reviews gives answer of why focuses on disabilities, how to build inclusive classrooms, how can teach inclusively?

After reviewing various related literature and researches related to inclusive education it is found that,

1. A large number of studies have been undertaken to study the academic achievement, management and adaptation of curriculum and creation of inclusive classroom.
2. The studies have varied psychological factors as variables like social competencies, inter and intra personal intelligence, social skills etc.

(Reference: Chapter2, 3 to 14 and 67 to 71)

2. Survival Skills:

History of survival, survival strategies and appraisal, survival skills are a part of life skills and why it matters life? These reviews provide foundation for development of academic and social survival skills model. How to use social skills rating scale? and how to teach social skills?, are co-teaching strategies useful for development of survival skills? These reviews have given answer of these questions.

After reviewing various related literature and researches related to survival skills it is found that,

1. Large number of studies has done in social skills and survey studies related to problems of SEN related to academic and emotional area. (Reference: Chapter2, 14 to 25 and 67 to 71)

3. Collaborative Teaching and Learning:

Models of collaboration, collaboration and inclusion, collaboration teaching arrangements, elements of collaborative teaching and self-evaluation checklist was became a foundation for teaching strategy in academic and social survival skills model.

After reviewing various related literature and researches related to collaborative teaching it is found that,

1. A large number of studies have been taken for general education not for inclusive education.
2. Some studies were related to status and related to which teaching strategies useful for teaching survival skills not related to learning/ acquiring any skills (Reference: Chapter2, 25 to 35 and 67 to 71)
4. Science Education Approaches:
Policies related science education and science education for diversity in India have given perspectives for science education. Science teaching in inclusive classroom, context-led science course, for create inclusive science classroom for SEN, Patton and Mastropieri and Scruggs strategies for creating inclusive science classroom and cascade model for managing students with disabilities in science classroom were become foundation for academic and social survival skills model.

After reviewing various related literature and researches related to science education it is found that,
1. A large number of studies have been taken for general education and achievement not for inclusive education
2. The studies have varied related to classroom management for inclusive classroom and not to related survival development skills along with content. (Reference: Chapter2, 35 to 54 and 67 to 71)

4. Model Developments:
Ways of model development provided knowledge about steps of model development and logic behind model development.

After reviewing various related literature and researches related to science education it is found that,
1. A large number of studies have been taken for general education and competency and character based models not for inclusive education
2. The studies have varied related to classroom management for inclusive classroom, technologies needed for special education and not to related development skills along with content for inclusive classroom (Reference: Chapter2, 54 to 66 and 67 to 71)

- IMPORTANCE OF THE PRESENT STUDY
With reference to reviews of related literature and reviews of related researches this study is “Knowledge Bridge” between present study and previous studies which had done related to inclusive classrooms and study skills and social behaviour.

- Present Study is Different from Other Studies in following Aspect,
This study is new product development study. This study is differs from other studies in respect to development of academic and social survival skills model for inclusive classroom and it differs from others in following aspects with reference to review of related literature and related researches
1. A3S Model is intervention model as well as instructional model for academic and social survival skills which are needed to survive in inclusive classroom other models are related to pre schooling intervention programs specially medical interventions not schooling and other models are related to Special Education Technology and policies based models for management and administration models. So variables are different and no one model is related to survival skills, academic and social survival skills and for inclusive classroom.

2. This A3S Model was developed for development of academic and social survival skills of disabled and non-disabled students. Other studies are focused on social skills and few was focused on academic problems not academic and social survival skills

3. This model is user friendly and easy to implement in inclusive classroom

4. This model is based on collaborative teaching and learning strategies

5. This model is based on skill teaching and acquiring strategies

6. This model is based on teacher-learner and learner-content with skills interactions

7. This model suggested development of seven academic and seven social survival skills with science content that is this model suggested content along with academic and social survival skills. Academic and Social survival skills are as follows,

A] Academic survival skills

1 understanding
2 Demonstrate
3 Attentive listening skills
4 Reading for meaning
5 Note taking
6 Paragraph writing
7 Memorization

B] Social survival skills

1 Obtaining teacher/others attention
2 Shares and participate with others
3 Ask permission
4 Assists others
5 Cares for physical appearance
6 Conversation skills
7 Identifies and expresses emotions in self and others

8. Academic and social survival skills model is a model and according to Gage, “model is a pattern which is useful as way of thinking that can be helpful for developing theory. So may be in future this model will be micro part for developing theories related to survival skills for inclusive classroom and development of survival skills of normal and special educational needs student of inclusive classroom.

Research methodology, Plan and Procedure of the present study is given in chapter III