NETAJI SUBHAS OPEN UNIVERSITY

STUDY MATERIAL

M. Ed. Special Education
(Hearing Impairment / Intellectual Disability) - ODL

B 9 (I.D.)

CURRICULUM AND TEACHING STRATEGIES FOR CHILDREN WITH INTELLECTUAL DISABILITY

M. Ed. Spl. Ed. (H.I. / I.D.)
ODL Programme

AREA - B

B 9 I.D. : CURRICULUM AND TEACHING STRATEGIES FOR CHILDREN WITH INTELLECTUAL DISABILITY

A COLLABORATIVE PROGRAMME OF
NETAJI SUBHAS OPEN UNIVERSITY
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AREA - B
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COURSE CODE - B 9 (I.D.)
CURRICULUM AND TEACHING STRATEGIES FOR CHILDREN WITH INTELLECTUAL DISABILITY

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Mohan Kumar Chattopadhyay

Registrar

Prologue

I am delighted to write this foreword for the Self Learning Materials (SLM) of M Ed in Special Education (ODL). The M Ed in Special Education in ODL mode is a new academic program to be introduced at this University as per NOC issued by the Rehabilitation Council of India, New Delhi and subject to approval of the program by the DEB-UGC.

I must admire the emulation taken by the colleagues from School of Education (SoE) of NSOU for developing the Course Structure, Unit wise details of contents, identifying the Content Writers, distribution of job of content writing, editing of the contents by the senior subject experts, making DTP work and also developing E-SLMs of all the 16 Papers of the M Ed program. I also extend my sincere thanks to each of the Content Writers and Editors for making it possible to prepare all the SLMs as necessary for the program. All of them helped the University enormously. My colleagues in SoE fulfilled a tremendous task of doing all the activities related to preparation of M Ed in Spl Edn SLMs in war footing within the given time line.

The conceptual gamut of Education and Special Education has been extended to a broad spectrum. Helen Keller has rightly discerned that *"Have you ever been at sea in a dense fog, when it seemed as if a tangible white darkness shut you in and the great ship, tense and anxious, groped her way toward the shore with plummet and sounding-line, and you waited with beating heart for something to happen? I was like that ship before my education began, only I was without compass or sounding line, and no way of knowing how near the harbour was. "Light! Give me light!" was the wordless cry of my soul, and the light of love shone on me in that very hour."* So education is the only tool to empower people to encounter his/her challenges and come over being champion. Thus the professional Teacher Education program in Special Education can only groom the personnel as required to run such academic institutions which cater to the needs of the discipline.

I am hopeful that the SLMs as developed by the eminent subject experts, from the national as well as local pools, will be of much help to the learners. Hope that the learners of the M Ed Spl Edn program will take advantage of using the SLMs and make most out of it to fulfil their academic goal. However, any suggestion for further improvement of the SLMs is most welcome.

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AREA - B

B 9 ID : CURRICULUM AND TEACHING STRATEGIES FOR CHILDREN WITH INTELLECTUAL DISABILITY

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B-9 ID ❐ CURRICULUM AND TEACHING STRATEGIES FOR CHILDREN WITH MENTAL RETARDATION/ INTELLECTUAL DISABILITY

Unit I ❑ Curriculum Development

Sturucture

1.1 Introduction

To prepare the students to lead a successful life in the society, curriculum includes all the necessary activities that are required. The word curriculum is derived from the Latin root 'Currus' which means a chariot or runway. Curriculum is a programme of various activities of learning or studies taken up by a student over a period of time to achieve a goal in view.

Curriculum deals with all meaningful real-life problems or situations which seem important for children to solve and hence covers a wide area of learning.

Curriculum included all the activities and experiences of learners in a specific field. The experiences include the subject matter gained through direct experience and that which is secured vicariously through the utilization of text books and other learning aids. Curricular offering thus include the content and the materials of instruction, techniques of procedure and personal influences.

The basic principles and models of curriculum, approaches of curriculum development, Instructional design, curricular adaptation, accommodation and modification and challenges for inclusion will be discussed in this unit.

1.2. Objectives

- Explanation of principles and models of curriculum development.
- Discussion regarding approaches to curriculum development

- Demonstration of instructional design, types, merits and demerits.
- Explanation of curricular adaptation, accommodation and modification.
- Discussion regarding challenges and implication for inclusion.

1.3 Principles And Models Of Curriculum Development :

1.3.1 Principles Of Curriculum Development

The curriculum is a dynamic process of teaching-learning. In this modern age of science and technology, it is a programme which cannot remain static because, the quantum of knowledge in all the fields is increasing rapidly and so is the quality of techniques and tools of instructions. The curriculum is ever changing and evolving in terms of goals and objectives contents and syllables, methods and materials, testing and evaluation techniques. It has to be planned, implemented, revised and reoriented from time to time.

Hence there are a few principles that are to be kept in mind if the curriculum for any group of learners is to be constructed and implemented.

GOAL ORIENTED

Unless there are clear goals in view, the curriculum cannot be developed and implemented for any group, for e. g, if a programme is to plan for a child without disability, the goal is to give him knowledge and competency on various subjects based on the norms. Therefore, the curriculum is subject centred. If the programme is to be made for a child with mental retardation, the goal is to develop specific behaviours or skills and therefore the curriculum has to be skill oriented and activity centred. The goal determines the direction in which curriculum is to be shaped.

AGE APPROPRIATE

The content of curriculum changes according to the age of learners. The contents selected for teaching and learning in the kindergarten class will not appropriate for children of primary classes. It is because the ability, aptitude and interest of a child of higher age group will not match with the contents taught in lower classes. Similarly, the curriculum set for a higher level cannot be used for children at a lower level of learning. Such learning will be frustrating experience and performance will be poor. This is the fault of the curriculum and not the fault of learners of that age group: Keeping in mind the

Piagetian stages of cognitive development and developmental tasks pertaining to each stage the curriculum must be planned according to the age and ability level of the child.

NEED BASED

As every learner has different needs and abilities, the curriculum has to provide a variety of experiences in the classroom focusing on personal, social, vocational and recreational needs. This principle is more relevant for children with mental retardation who have special needs as individuals. Each child with mental retardation is trained through planning an individualized educational plan after considering their potentials and individual needs. Children with mental retardation can benefit little from common curriculum with academic activities provided in a group situation, as done for non disabled children in regular schools. Through inclusive education measures are in progress, careful adaptations in content, process and evaluation are imperative for successful inclusion.

LEVEL APPROPRIATE

The pattern of curriculum has to match the grade level of the learners. In a regular school, the comment in any subject taught to the children is based on the grade in which they are placed. For

example, mathematics at primary level must easier than that secondary level. This principle is more relevant for the children with mental retardation whose current level is to be determined before an individualized training programme can be devised.

UP-TO-DATE

In this modern age, there are many changes and inno9vations, taking place in the field of education and special education, based on research experimentation. The curriculum is to be revised and reoriented periodically to incorporate the latest in contents, methods, materials and techniques of training and testing. The teacher has to provide the children with up to date learning environment and programme in classroom. Curriculum enrichment has to be a continuous effort on the part of planners and special educators.

CREATIVE

All children should get an opportunity from the learning experiences to be creative and innovative. The curriculum must stimulate children to solve problems, develop new ideas, and meet the challenges of life. Children should be encouraged to experiment in the classroom situation. This is also relevant for children with mental retardation who also show creativity when they are properly stimulated and guided. The current trend of

Activity based Learning (ABL) in the regular education curriculum provides ample opportunities for stimulating creativity of children .

INTEGRATED

At all levels, the curriculum must be integrated and cohesive and the learning experiences are to be organized in a sequential order. Beside it must be related to the activities of daily life (ADL) of children-able or otherwise. This also means that the programme should be pragmatics and functional for learners. It should provide insights fo0r successful practical life leading towards habilitation and rehabilitation in case of children with mental retardation.

COMPREHENSIVE

Curriculum is a broader term, which outlines not only the topics of teaching and learning for the reference of students and staff but it also includes all the activities and learning experiences organized in the classroom or out of it for the benefit of learners. It has to be comprehensive enough to cover various co curricular activities like arts, crafts, music, yoga, exercises, field trips, visits, concerts and cultural functions. This principle is also applicable to the programme for children with mental retardation who enjoy and participate in such activities more readily than in academic activities are more complex for their limited IQ and low aptitude, involving abstract concepts. Theme teaching for example is a good example of comprehensive approach which cuts across various academic areas through selected themes.

1.3.2 Most prominent models of curriculum

Curriculum studies is a long-established aspect of pedagogical enquiry, and whole books can quite easily be written about curricula in theory, and how theoretical and philosophical aspects of education interact with the practical aspects of teaching. This section explores the basics of three significant conceptualizations of curricula: curriculum as process, as product, and as praxis.

A.Process models of curriculum

Process-based approaches to curriculum theory tend to be focused less on summative activity - the final grades, the end-point assessments, and the grading and achievements associated with them - than with the pathway which learners take though a course. For process-oriented thinkers, the journey is the chief concern, rather than the destination.

You may have come across phrases like "distance travelled" (a measure of the improvement over time a learner has shown) or "value added" (often used in referring to the boosts given to the qualitative aspects of an educational experience) in teaching before (Tummons, 2012). Such terms are process-centric in that they are related to learners' subjective experience of learning, and of qualitative measures of that educational experience. As such, there is, in general terms, a qualitative impetus to process models of curricula which might be contrasted with the more quantitative focus of product-oriented models.

That is not to say that process models of curriculum are not concerned with the end results of learning, but that this is a set of concerns which is placed as being of secondary relevance to that of the actual learning activities themselves. This makes a kind of sense: if you undergo a year-long course, then what is the more important: the final assessment, or the year spent studying to get to that final point? Both are of importance and neither should be dismissed, but there is a logic to the position that the course-long experience is of significance, and should be a priority of focus.

Process models originate with Laurence Stenhouse - in his 1975 book *An Introduction to Curriculum Research and Development,* he argued that there were three aspects to curricula:

- the curriculum should contain planning aspects: content, sequence, and strategies relevant to teaching that content in that sequence
- the curriculum should embody methods for the research and evaluation of learner and teacher experiences, and the contexts of delivery
- the curriculum should be open to external scrutiny, so that the curriculum may be justified

Stenhouse's focus was on curriculum development as learner-centric, with an additional focus on the autonomy of the individual teacher in effecting learner development; curricula should therefore be not overly prescriptive, and have latitude built in so that diverse methodologies and assessments may be used at the educator's discretion (Stenhouse, 1975). Perhaps naturally, process-oriented conceptualizations are popular within education as they privilege the practice of teaching, and place a value on the professional judgment of the educator, while supporting the cognitive development of learners.

B. Product models of curriculum

Where a process-centric conceptualization of curriculum enquiry is centered on the holistic experience of the learner and on the teacher's role in supporting the pupil and their development, models of curriculum which are product-oriented are focused on destinations rather than on journeys. Indeed, alternative terms for this kind of approach include 'objectives model'; central to product models of curricula are questions related to achievement and to learner competencies after having completed the course of instruction.

A prominent early educationalist who is associated with the development of the product model as a curriculum paradigm is Ralph Tyler. Tyler's 1948 paper *Basic Principles of Curriculum and Instruction* asked four sets key questions which remain the bedrock of product-based curriculum enquiry:

- What are the educational purposes of the curriculum? What are its aims and objectives?
- Which learning experiences will help these aims and objectives to be attained?
- How should these experiences be best organised so that the curriculum is as effective as it can be?
- How should the curriculum be evaluated? Which parts of it were not effective?

Tyler argued that the more rigorous and clear the curriculum was, the better it could be scrutinized to assess its effectiveness, and the more apparent the issues which might lead to underperformance in assessment terms might be.

There are many positives which can be associated with product models of curriculum. Achievements are important, and clarity in curriculum design, and in aims and objectives which lend themselves to measurable determination of their being satisfied or otherwise means that there can be data-driven analysis of the effectiveness or otherwise of a course of instruction (or of its delivery by a particular institution/teacher). Outcomes-based measurement may be comparatively straightforward, in that an outcome either has or has not been met, or a cohort is above or below the national average, but it inevitably downplays the importance and the detail of a qualitative-informed analysis.

C. Praxis models of curriculum

Praxis, in the sense of critically-informed practice, has long been an aspect of academic and philosophical inquiry into education. Praxis-focused conceptualizations of curriculum

focus on the notion that curricula are designed and taught not merely out of unquestioning obedience, or through managerial diktat, but because there are aspects of teaching which accord with the individual's philosophical or political attitudes to the world.

Teaching is not value-free, and the curriculum may similarly be imbued with social and cultural positions that have moral significance. Sometimes these are more overt than others. A course in religious education may have curriculum elements which foster the respect of all faiths, for example. That is not to say that all teaching is driven by the imperative of setting and reinforcing values encoded into curricula, though there may be an aspect of this to an individual's teaching practice. Similarly, there may be elements of a course to which the teacher may raise objections of one form or another, and this may influence the ways in which that topic or position is introduced or discussed in the classroom environment. The extent to which this is appropriate may depend on the subject, topic, and context of teaching (Kelly, 2009).

No-one would wish to be taught by someone who does not have some kind of personal enthusiasm or other investment in their subject and its communication to learners, and in the support of developing those learners towards achievement in terms referable back to the curriculum.

1.4. Approaches of Curriculum Development – Developmental, Functional, Ecological, System and Task Analysis Approach :

There are varied approaches to development of curriculum. Some are common in both general and special education while some are more suitable for children with special needs. It is the responsibility of the teacher to select a suitable approach or a combination of more than one approaches with the aim to reach the student with the most suited curriculum and instructional process. Some of the commonly used approaches include.

Developmental approach

Functional approach

Ecological approach

System approach

Task Analysis approach

1.4.1 Developmental approach

Developmental approach pertains to integration of academic learning and developmental tasks aiming at accomplishing the ultimate goal of individual potentials, and the global needs and motives. The curriculum includes , instructions for achieving maximum possible personal enhancement and social competence.

Development approach of the curriculum focuses on the learner's growth (physical and mental) activities, aptitudes and interests. The programme should be related closely to each child as an individual, his development in term of capacities and limitations, keeping in mind, the development norms and the tasks that he is expected to perform in that age. The aim is to help the individual to grow up and to lead a productive adult life. The teacher has to diagnose the special needs, deficit skills and unique talents of each child and then develop a programme as a personal package with all the necessary content, materials and techniques of training and management.

1.4.2 Functional approach

Ideally in special education as in regular education, the curriculum should be derived from an analysis of the needs of the individual and the role he is expected to perform in the society. Therefore , a good curriculum should be focus on imparting social competencies to children with intellectual disability so the they lives as independently as possible in the community. With the trend toward inclusive education, the curriculum for the children with mental retardation is generally an adaptation of the regular education curriculum with a focus on vocational education. This training allows for appropriate job placement of the child when he is ready for it. Such a curriculum includes functional reading , writing, arithmetic, time, travel, money and other related skills. Generalized or transfer of classroom learning to application of skills in natural environment is an important aspect of this curriculum . Curriculum used with children who are moderately and severely related emphasize training as on functional activities. The content of the curriculum are chosen from various tasks that have a high probability of beings required in day to day living. These tasks include personal, social, occupational and recreational activities. Academic skills are incorporated where the children have ability to learn. Considering the unique needs of the child, the content, process and materials are planned to achieve independent functional level.

A functional approach to the curriculum designing means the programmes should be planned and implemented with view to improve functional competencies of children in Activities of Daily Living (ADL) such as brushing, dressing, eating, drinking, toileting, communicating and so on. These activities make the child competent in performing day to day tasks and attain an independent level of functioning. Functional academics is incorporated when the children have required ability.

1.4.3 Ecological approach

Wallace and Larsen (19780 have pointed that if a child is to be assessed, it is essential that various environmental factors should be taken into consideration to determine their influence in either imitating or maintaining a skill or behavior. For instance, a child with mild mental retardation in an urban environment becomes a cause of concern to parents as early as at pre-school (LKG/UKG) level, when the parents find him to be subnormal in school. On the other hand, "in a rural area even with mild mental retardation might be accepted without any problem. He might be performing the major work output expected of him in the rural area , which may be agriculture , dairy or poultry farming which his fellow men do. An ecological orientation to a curriculum means the programmes should be planned and implemented, keeping in view the environmental factors that influence a child's life. Ecology include all the factors affecting a child such as natural geographical, urban, rural, social, cultural and vocational factors. The curriculum has to help each child to be productive and effective members of community when grows up. It is more relevant if it include all the environmental factors or situations in which the child lives at present. In other words, the curriculum should incorporate instructions in those situations which are closely related to his natural environments viz, personal , social , school ,recreational and vocational settings while planning the curriculum the teacher assesses the student's present and future environment and then, compares the environmental details to the child's abilities. This generate a picture of discrepancy between the environmental demand on him and the child's current abilities. Then the teacher will follow accordingly curriculum to fill the gap.

1.4.4 System approach

System approach is a systematic attempt to coordinate all aspects of a problem towards specific objectives. ... In the context of **education**, **system** is a unit as a whole

incorporating all its aspects and parts, namely, pupils, teachers, curriculum, content and evaluation of instructional objectives.

Systems have structure, defined by parts and their composition; **Systems** have behavior, which involves inputs, processing and outputs of material, energy or information; **Systems** have interconnectivity: the various parts of a **system** have functional as well as structural relationships between each other.

Using the systems approach in practice

The systems approach to course and curriculum design is no more than an attempt to use a process of logical development and on-going monitoring and evaluation in order to allow continuous evaluation of the course or curriculum to take place.

Although the approach is useful in mapping out the broad flow of factors to be considered and developed, diagrams such as the system shown in Figure 4 always oversimplify the actual process. For example, Figure 4 has ordered the elements of the system in what is usually the most productive sequence for the initial planning of a course. If, however, we are re-designing a course or trying to build on a teaching/learning scheme already in place, we may enter the system in a different way - through evaluation perhaps, or through an ad hoc or unavoidable alteration to the implementation of the course (a change in the mode of delivery from full-time to part-time).

The systems approach can be used at any time when a episode of teaching/learning of any length is being planned. It can be applied to long-term planning for a whole course lasting weeks, months or years, through to daily lesson planning, or even to on-the-spot planning for a learning experience of only a few seconds' duration. It can be applied by a group of teachers designing or adapting a complete course, as well as by an individual teacher preparing his or her specific course input. The approach can also be used for analyzing a previous teaching/learning experience.

The systems approach does not prescribe or promote any particular teaching methodology (eg individualized study, or group learning). Rather, it is a vehicle that helps teachers to think more systematically and logically about the objectives relevant to their students and the means of achieving and assessing these. On occasion, analysis may suggest that 'chalk and talk' may be the most appropriate method for achieving some objectives, but no one method will be appropriate for all objectives or for all students.

System approach refers to a well-thought technique or rational approach for designing , controlling and using a system for realizing the system objectives in the best possible ways. Its application in the field of education will surely make the system of education self-maintaining with its basic parameters operating scientifically on the principle of feedback and equilibrium. As a result , the systems approach to education is likely to solve various educational problems related with the organization and management of the process and products of education . The purpose served by systems approach in education may be summarized now.

1. It can effectively improve the instructional system.
2. It can bring efficiency in the school administration and management.
3. It may helps in seeking the maximum effective utilization of the men and material resources.
4. A systematic educational planning (institutional, regional, or national) in terms of long range goals and specific short-range objective can be done by it.
5. It may help in improving the examination and evaluation system
6. Improvement in the organization of co-curricular activities and other educational aspects of bringing conative and affective development of the pupils can be brought.
7. It may help in maintaining, controlling and improving the guidance services of the school.
8. It may help in improving the training and development programmes, e.g. the training of teachers (pre-service and in-service) may be effectively improved.
9. It may prove an invaluable means for designing , controlling and improving the systems of non-informal and adult education.
10. Over and above, it may render valuable services in improving the quality of education in all its aspects and dimension.

Steps Involved in systems Approach to Education

Generally, in adopting systems approach for the solution of the problems in education , the following steps are employed :

1. Identification of the problem.
2. Specification of objectives.
3. Analysis of the task involved in achieving the objectives.

4. Systems analysis- analysis of the input and constraints of the system in the context of the stipulated objectives.
5. System design and development – by generating alternative strategies (change in input ,process or constraints)
6. Identification of preferred solution in a given context.
7. Operation and implementation of preferred solution.
8. Evaluation of the effectiveness of the performance in terms of the specified objectives,
9. Providing feedback in the light of the evaluation for bringing necessary improvement and modification.

1.4.5 Task analystic approach of curriculum development

A **method** of systematic **task analysis** is applied to the problem of designing a sequence of learning objectives that will provide an optimal match for the child's natural sequence of acquisition of mathematical skills and concepts. ... On the basis of these analyses, specific sequences of learning objectives are proposed.

A task analysis approach to curriculum development provides a set of guidelines or educational requirements for recreation professionals based on student needs and specific work settings.

The teaching-learning process is to be carefully planned for the purpose of attaining the set teaching learning objectives. What a teacher is expected to do for this purpose needs to be properly analyzed. It is termed as the analysis of the task (or tasks analysis) in the language of educational technology. "The process of breaking tasks down into their simpler components is called task analysis "(Gagne, 1977). In planning the activities for attaining the teaching learning objectives, the task may be broken down into the following sub tasks.

A task analysis approach to curriculum development would provide the means for meeting needs educational requirements for personnel that are adaptable to the needs of students and the specific settings where students choose to work. Essentially a task analysis approach articulates WHAT people will actually be doing on their jobs. Curriculum designers can then develop course content commensurate with required job

skills. This approach can provide clearer distinctions between specific educational levels. Task analysis specify responsibilities of personnel with varied training and in turn aid the practitioner in departmental organization and use of staff.

1. Identifying the entry behavior of the learns and their performance deficiency :

To help the learns in reaching the terminal behavior i.e. attaining the set objectives, it is essential to know about their entry behavior in terms of their potential abilities, previous knowledge of the curricular subjects, interests, aptitudes and attitudes etc.

Regarding terminal behavior as we know, what should the learn know , do and feel at the end of a piece of instruction is termed as their terminal behavior. The gap between terminal behavior and entry behavior is known as the performance or behavioral deficiency. This deficiency is to be identify properly so that the learns may be helped in reaching the terminal behavior.

2. Identifying learning experiences to be given to the learners :

Learning experiences are the means to achieve the end, i.e. helping learns to reach the terminal behavior. The teacher for this purpose should try to plan for the essential curricular and co-curricular experiences. The contents of these experiences should be carefully analyzed by adopting the technique of content analysis. In such an analysis, care is first taken to select appropriate learning experiences matching the needs and entry behavior of the learners , the set objectives, teacher's own ability and other available teaching learning resources. Then these learning experiences or content materials are broken down into its components or elements of these learning experiences.

Content analysis is quite important from the angle of the teacher who is going to face his class for the attainment of particular teaching learning objectives related to certain content materials prescribed in the syllabus of that class. As a matter of definition, the term content analysis according to I.K Davies (1971) may be defined as "the analysis of topic or content unit to be taught, into its constituents or elements and arrange them in a logical sequences. "

While following the spirit of this definition, practically we try to

i) Decide the content of the topic or leaning experiences provided to the learns into certain specific sub-topics,

ii) Divided each specific sub topic into its constituents or elements and

iii) Then arranges these subtopics and their elements in an appropriate logical sequence .

While preparing for teaching, a teacher has to be very much careful about the content material to be dealt with in the class room. Ha has to go properly through its selection, analysis and organization (synthesis) in the manner discuss below .

At the first stage he has to look forward for the :

1. Age, mental level, interest, pervious knowledge and achievement levels of his students.
2. Requirement of the teaching learning objectives set for the study of the topic in the class or grade.
3. Availability of the material resources and environmental facilities available at the time of teaching the topic.
4. Scope and depth to which the study of the topic is to be required in relation to the prescribed syllabus and papers set or other evaluation work demands of the home and public examinations.
5. Relevancy, adequacy and effectiveness of the content material for acquiring the best possible result in terms of the defined teaching learning outcomes.
6. Helpful in seek horizontal and vertical correlations with the study of other topics, subjects and life experiences and practical application in day to day life of the students.
7. Skills, ability and will power of the teacher himself for the teaching the selected content materials.

At the second stage the following things may prove fruitful.

1. The content material related to a unit or topic is to be broken into several meaningful and independent subunit or sub-topics.
2. Each subunit or sub topic is to be further sub divided into specific independent and meaningful constituents or elements.

3. Every element or constituent of the sub topic must be quite complete in itself in relation to the expected behavioral outcomes (knowledge, understanding , application, etc.)
4. The expected behavioral outcomes regarding each element of the sub topic should be evaluative in terms of the questioning answering device or any method indicative of the changes in behavior of the students.

At the third stage for the proper organization of the selected and analyzed content material into a meaningful whole (synthesis), the following things may prove beneficial.

1. Subtopics and their constituents or elements must follow the important maximum of teaching like "from simple to complex" , "from concrete to abstract", "from known to unknown" , and "from part to whole", in their organization and synthesis.
2. These must follow the principle of correlation in its various aspects like correlation with other topics , with other subjects of the school curriculum, with life , with the previous study related to that topic in earlier classes, and with the higher studies to be made in that topic in the coming higher classes.
3. It must follow the principle of both logical and psychological organizations. While logical organization of the topics, sub-topics and elements of the sub topics demands that content material should be organized in a logical sequences depending upon the fundamental processes and modes of thinking , the psychological organization advocates the organization according to the development of the mind of the children, their needs and interests etc.

3. Identifying the appropriate methods and strategies for providing learning experiences:

After deciding about the type of learning experiences to be given to the subjects, a teacher has to take decision about the methods and strategies to be adapted for providing these experiences. The decision should be taken in the light of various factors such as the nature of the nature of learning experiences, content material and topic , the characteristics of the learners , the teaching learning objectives, and the situations and resources available for the carrying out the process of teaching learning.

4. Planning for the appropriate teaching learning situations or environment :

Effective teaching learning requires appropriate environment. Therefore , a teacher should wisely plan for the arrangement of proper condition and favorable physical and psychological climate in the course of a teaching-learning process. It should be so planned as to minimize or eliminate the negative factors causing hindrance in the attainment of the set objectives on one hand and maximum the positive factors that help in the proper attainment of these objectives on the other.

1.5 Instructional Design – Definition, Types , Merits and Demerits

1.5.1 Concept and definition of instructional design

Instructional design is a technology for the development of learning experiences and environments which promote the acquisition of specific knowledge and skill by students.

The kind of learning and development may include cognitive, emotional, social, physical and spiritual…There are two major aspects of any instructional situation: the conditions under which the instruction will take place and the desired outcomes of the instructions.

Instructional Design is the art and science of creating an instructional environment and materials that will bring the learner from the state of not being able to accomplish certain tasks to the state of being able to accomplish those tasks. Instructional Design is based on theoretical and practical research in the areas of cognition, educational psychology, and problem solving.

Sara McNeil defines the Instructional design as a:

Process: Instructional Design is the systematic development of instructional specifications using learning and instructional theory to ensure the quality of instruction. It is the entire process of analysis of learning needs and goals and the development of a delivery system to meet those needs. It includes development of instructional materials and activities; and tryout and evaluation of all instruction and learner activities.

Discipline: Instructional Design is that branch of knowledge concerned with research and theory about instructional strategies and the process for developing and implementing those strategies.

Science: Instructional Design is the science of creating detailed specifications for the development, implementation, evaluation, and maintenance of situations that facilitate the learning of both large and small units of subject matter at all levels of complexity.

Reality: Instructional Design can start at any point in the design process. Often a glimmer of an idea is developed to give the core of an instruction situation. By the time the entire process is done the designer looks back and she or he checks to see that all parts of the "science" have been taken into account. Then the entire process is written up as if it occurred in a systematic fashion.

The systematic process of translating a plan of instruction into a set of activities, materials, information and/or assessment procedures.

Instructional Design for Special Education

Instructional leaders play an important role in many aspects of student learning, and special education is no different. The goal of instructional leadership is to facilitate learning outcomes, set goals and measure results. In addition, administrators and other instructional leaders can help create teaching strategies and classroom activities.

In special education, also known as exceptional student education, teachers and administrators work together to create successful interventions for students who have a wide range of mental and physical disabilities. Education professionals such as principals, assistant principals and curriculum directors are leaders when it comes to developing the specialized curriculum these students need to succeed.

1.5.2 Types of Instructional Design :

What is Instructional Design?

The process by which instruction is improved through the analysis of learning needs and systematic development of learning experiences. Instructional designers often use technology and multimedia as tools to enhance instruction.

According to this definition, instructional designers have two primary functions:

1. To analyze learning needs.
2. To systematically develop improved learning experiences.

To systematically develop improved learning experiences, it is a significant help to apply a process or model that can be followed and counted on to produce a robust

solution. There have been a number of instructional design models and processes defined through the years, but only a few have been widely accepted and implemented by most instructional design practitioners.

The ADDIE Model

ADDIE stands for Analyze, Design, Develop, Implement, and Evaluate. These equate to a 5-phase process for developing instructional materials.

1. **Analyze:** The instructional designer clarifies the problem to be addressed with an instructional intervention, defines the training need and conducts an extensive audience analysis to determine the instructional environment, pre-existing knowledge, skills and abilities, opportunities and constraints.
2. **Design:** The instructional designer writes learning objectives and determines the instructional strategies that will be utilized to achieve those objectives. Decisions are made about how the instructional materials will look, feel, operate, and be delivered to the learner. Storyboards and elearning prototypes are created.
3. **Develop:** Content is assembled and incorporated into the design to produce the instructional or performance support materials. Deliverable is reviewed for quality and revised.
4. **Implement:** The finished course or performance support tool is rolled out to the intended audience and its impact is monitored.
5. **Evaluate:** The instructional designer uses various methods to determine whether the course or performance support tool is delivering the expected results.

Bloom's Taxonomy (Revised)

Bloom's Taxonomy, revised in 2001 by Anderson and Krathwohl, defines the six levels of cognitive learning starting with the simplest at the bottom and moving up through the levels to the most complex, or deepest learning. As an instructional design framework, Bloom's Taxonomy ensures that learners push through the lower levels of remembering and understanding new information, to being able to apply it, analyze it, evaluate its impact, and ultimately to solve unique problems by creating solutions that would not have been possible without the new knowledge.

Gagne's Nine Events of Instruction

Robert Gagne's Nine Events of Instruction is based on the behaviorist approach to learning. Gagne identified the mental conditions needed for learning in adults. He then created his Nine Events of Instruction to address the conditions of learning. The Nine Events of Instruction are:

1. **Gain the student's attention**. Emotional buy-in is the first step in laying the foundation for learning retention. This can be done by telling a story or asking a thought-provoking question.
2. **Inform students of the objectives.** Establishes expectations for the course and criteria for measuring success or failure.
3. **Stimulate recall of prior learning.** Leverages existing knowledge as a scaffold to incorporate new knowledge.
4. **Present the content.** Use chunking for easy consumption of the content.
5. **Provide learner guidance.** Supplement the content with case studies, activities, discussion questions and other instructional support materials.
6. **Elicit performance.** Challenge learner's activities that recall, utilize, and evaluate knowledge.
7. **Provide feedback**. Use immediate feedback to reinforce knowledge
8. **Assess performance.** Test learner knowledge against established criteria
9. **Enhance retention and transfer to job.** Use content retention strategies to appropriate job aids to retain new knowledge.

Merrill's Principles of Instruction

David Merrill's 2002 First Principles of Instruction framework integrates five principles of learning.

1. **Task-centered principle:** Learning starts with a real-world task or problem the learners can relate to.
2. **Activation principle:** Activating the learner's existing knowledge base helps them connect previous knowledge with the new knowledge.

3. **Demonstration principle:** A course must demonstrate the knowledge in multiple ways (for example, both visually and through storytelling) so that it leverages different regions of the brain, and increases knowledge retention.
4. **Application principle:** Learners must apply new information on their own and learn from their mistakes.
5. **Integration principle:** Help to integrate the knowledge into the learner's world through discussion, reflection, and/or presentation of new knowledge.

Each of the four instructional design models outlined above have strengths and weaknesses. Depending on the problem to be solved by creating a training solution, one of these models may be more appropriate than the others. Instructional designers should be quite familiar with these models and others to design and deliver quality training solutions.

ASSURE Model

The ASSURE model was developed by Heinrich and Molenda in 1999. This model is more suitable for the blended learning approach.

The steps in the ASSURE model are

Analysis: This stage stresses on the importance of studying the audience before designing the strategy. Learners' skills, prior knowledge, attitude, age, grade and learning style must be taken into consideration.

Statement of the Objectives: The objectives must be clear and sound. The Instructor must state what the learner will achieve in the end. The ID should have the clear objective of what he is trying to teach and to the learners what they are required to learn.

Selection of Media: Relevant media and content materials such as sound, graphics, text animations and videos must be selected for effective learning outcomes. This stage has more relevance in the eLearning industry.

Utilize technology, media & materials-This step in the ASSURE process concerns making a plan as to how you will utilize the technology, media, and materials that you have selected

Require Learners Performance: It requires to make plans to how to engage the learners in the material that you are teaching. This needs to be figured out both at the class level and the individual level.

For example, encourage participation of the students in class discussions. A more detailed approach would require that learners prepare questions and comments at home to bring into the class.

Evaluate & revise-In this step, you evaluate the impact of your teaching on student learning.

The Kemp Instructional Design model

Also known as the Morrison, Ross, and Kemp Model, this instructional design framework outlines nine circular, non-linear stages.

The Kemp Design Model consists of nine steps:

1. Identify instructional problems and specify goals for designing an instructional program.
2. Examine learner characteristics that should receive attention during planning.
3. Identify subject content and analyze task components related to stated goals and purposes.
4. State instructional objectives for the learner.
5. Sequence content within each instructional unit for logical learning.
6. Design instructional strategies so that each learner can master the objectives.
7. Plan the instructional message and delivery.
8. Develop evaluation instruments to assess objectives.
9. Select resources to support instruction and learning activities.

All these models might suggest different approaches to design and develop e-learning material, but the purpose of each of these is the same – to systematically develop training courses that successfully address the learning objectives.

1.5.3 Advantages of Using Systematic Instructional Design

There are a number advantages to using a systematic process. Following is a list of some of the advantages of systematic instructional design:

1) Encourages advocacy of the learner. To very large degree, the learner is the focus of instruction. Designer spend a great deal of effort during the beginning stages of a design project trying to find out about the learner. Information about the learners should take precedence over other factors that might drive design decisions, including the content itself.

2) Supports effective, efficient, and appealing instruction. All of them are considered indicators for success. The process of design itself focuses on effective instruction. Efficiency is particularly facilitated by the process of instructional analysis in which inappropriate content is eliminated. The consideration of the learner and the concentration on designing appropriate strategies promotes the appeal of instruction. The process of formative evaluation provides the opportunity to revise instruction to make it more effective, efficient, and appealing.

3) Supports coordination among designers, developers, and those who will implement the instruction. The systematic process and resulting written documentation allow for communication and coordination among individuals involved in designing, producing, and delivering instruction. It allows for common language and general procedure.

4) Facilitates diffusion/dissemination/adoption. Because the products of systematic instructional design are in fact physical "products," they may be duplicated, distributed, and used in the field. In addition, because design and development have employed information about the learners and setting, products will have a high likelihood of being practical, workable, and acceptable solutions to the instructional problems that they are designed to solve.

5) Supports development for alternate embodiments or delivery systems. Much of the work that goes into an instructional design project is independent of the specific form that the finished product takes (such as print, web computer, or video)

6) Facilitates congruence among objectives, activities, and assessment. The systematic approach to instructional design helps ensure that what is taught is what is needed for learners to achieve stated goals for learning and that evaluation will be accurate and appropriate.

7) Provides a systematic framework for dealing with learning problems. Frequently, creative individuals not trained in systematic instructional design will develop ingenious approaches to instruction that are rather like "solutions looking for a problem".

1.5.4 Disadvantages

Limitations of Systematic Instructional Design

In particular, instructional design has limited applicability to educational experiences in which (a) learning goals cannot be identified in advance, or

(b) No particular goals are ever identified. In such cases, because there is no "lead time" to the education, and since reflection and planning are central to instructional design, there is limited opportunity to apply many of its principles and procedures.

1.6 Curricular Adaptation, Accommodation and Modification

Curriculum adaptation tends to be significant at all grade level

- Teachers have to develop their own style of presentation or teaching strategies which may be related to the instructional material.
- With the continued push toward the inclusion of students with special needs in the general education classroom, educators are constantly looking for ways to improve each student's experience and learning.

Need for Curriculum Adaptation

- The concept of curriculum adaptation is fairly straight forward, it can take many different forms.
- Three important areas to be considered when dealing with students with special needs
- How the curriculum is presented
- How students are required to response
- How their efforts are evaluated

Modification in these areas require

- Advance planning
- Degree of organization
- Adjusting the depth or type of content
- Wider application

Concept of accommodation ,adaptation and modification

Accommodation:

Accommodation is this simplest form of adapting curriculum. It addresses students who are able to comprehend and perform at the regular curriculum's levels of content and conceptual difficulty but require differentiation in instructional techniques and the medium in which each student demonstrates their depth of understanding.

Adaptation:

Adaptation is appropriate for students whose needs and learning goals are in line with the content of the regular curriculum but require a moderate modification of the depth of conceptual difficulty of that content

Parallel Curriculum Outcomes:

Implementing parallel curriculum outcomes implies a greater modification of conceptual difficulty than adaptation. However, similar to adaptation, the content subject is the same, allowing that student to participate in classroom activities alongside other students. A teacher must address each student's needs and IEP goals with adjusted learning outcomes and conceptual depth levels for each lesson.

Overlapping Curriculum:

Students who require heavily modified learning outcomes and goals may need integration into general classroom activities through overlapping curricula. In this situation, a student participates in classroom activities with individualized learning outcomes for each activity, including social/behavioural development goals, cognitive learning goals, language skills or even physical ability development.

Need for

1.6.1 Modified Instructions For Children with ID

- The training programme for the children with ID ranges from self help skills to the development of vocational skills. For this purpose the concept of **IEP** should be focused
- **Specific skill development activities** should be planned

  The planned adapted educational experiences are given at four different levels for children with mild ID

- **Pre-school level** – Focus is mainly on daily living skills.
- **Primary school level** – reading , writing and social training(sharing , peer helping etc.)
- **Intermediate classes** – along with academic skills this group also needs pre-vocational training and training in independent living skills to live independently in society.
- **Secondary school level** – all vocational and social skills , interacting and coping with people at work place and in other settings.

The planned adapted educational experiences are given in six areas for moderate ID

- Self help skills
- Communication skills
- Personal social skills
- Perceptual motor skills
- Functional academic skills
- Vocational skills

The adaptation for severe ID

1. Communication skills
2. Self-help skills

The adaptation for profound ID

1. ADL
2. AAC

3. Social behaviour

4. Challenging behaviour

1.6.2 Organising adapted material

Students with ID may sometimes need materials that are different from those required by normal students. Most of the special teachers prepare **learning activities** to satisfy the educational needs of children with disabilities so that maximum educational benefit can be derived.Most of the special teacher prepare learning activity to satisfied the educational needs of the children with disabilities so that maximum educational benefit can be obtained.

1.6.3 Organising adapted modified instructional process

- The teacher who prefers innovation attempts to elicit sorting , grouping , categorizing, and inductive thinking and promotes attention to goals, objectives, and logical sequential thinking.
- The teacher who prefers lecturing describes, explains ,illustrates , and asks students to recall or apply what was presented
- The entertainer –one who regularly digresses from subject matter –is open to student opinions and their self expression and is not particularly goal oriented.
- The role-learning teacher –one who provides information, repeats for emphasis , and expects students to attend practice and regurgitate.
- The counselor – one who listens, redirects behaviour, and elicits student's feelings, attitudes and values
- The story teller – one who narrates, reads , tells that which is to be learned , and encourages sharing and participation in this process.

1.6.4 Adaptation in evaluation process

There are various variations of evaluation process like –

- Tests may be modified as to number of question asked.
- Tests may be modified through simplification of the wording of questions.
- Tests may be given on tape and/or students may be permitted to answer on tape.
- Test question may be presented orally.

- Combinations of above or other similar ideas.

1.6.5 Adaptation , accommodation and modification for Pre academic Curriculum

The Pre-Primary level programmes and early intervention programmes aim at reducing further damage to the child. The pre-school classes for children with ID emphasize content areas that are commonly referred to as readiness skills, which are prerequisites for later learning. Depending on the level of disability of the child , primary education can be provided in the regular play school/nursery schools too. As the curricular content will be predominantly language , social , personal and motor skills , there is a possibility that the child with ID will be able to learn with children without disabilities.

The pre-school curriculum of regular education is more conductive to inclusive practices because of the following:

- The content focuses on motor , language , and daily living skills that is required for children with mental retardation or developmental delayed ones also.
- Most of the learning at this age is concrete and activity based.
- Worries about achieving 'high scores' is not a concern at this age and therefore the child does not face stressful demands from school and family.
- Children with without disabilities have an opportunity to learn from each other.
- There is a scope for enhancing social competency due to exposure to natural environment.
- Non-disable children develop positive attitudes and learn to appreciate individual differences.

Focus of Curriculum

In a regular preschool, the curriculum will focus on skills needed at pre operational stages and therefore many of our students with mild developmental delays will benefit from these adaptation and modifications at regular preschools.

Positive at

Readiness skills include the abilities to :

- Sit and attend to the teacher

- Discriminate auditory and visual stimuli
- Follow direction
- Develop language skills
- Improve gross and fine motor co-ordination
- Develop self-help skills
- Interact with peers in a group situation
- Suitable mobility skills
- Pre reading , pre writing and pre math skills

Basic considerations for preparing curriculum for the pre-school

- Children learn through imitating people around them. This is a first step in organizing information from the external world.
- Provide children with experiences that stimulate all sense. Multisensory approaches to teaching can facilitate assimilation and accommodations
- Because the child has difficulty in organizing himself, the teacher must give stimulation. Children should have an opportunity to become more aware of their bodies and maintain control over their actions.
- Programme should be developmental in the most basic areas and should focus on the child's actual functioning level.
- Teaching strategies should be consistent , structured and controlled. Set goals and plan activities with clear objectives in mind.

Major focus at pre-primary level will include

- Self-Body parts , name , gender , family members , daily living skills.
- Common objects-clothing , food , furniture , toys , dishes , utensils , plants , animals, holidays
- Action words – sit , stand , walk , run , clap , jump , hop , top , stop , go , drink.
- Concepts – shapes , size , colour , sound , taste , smell , texture , position , weight , beauty , same and different , laterality , safety.

- **Pre-academics** – readiness skills for reading and writing and math. Pre-reading may include activities such as seeing picture books , holding it properly , turning pages and enjoying seeing and naming pictures and talking about it. Pre writing may include activities such as scribbling , colouring pictures , tracing pictures and so on. Pre math skills include concepts such as far-near , up-down , heavy-light , long-short , more-less , full-empty and so on. All of these pre academic skills lead to preparing the child for learning academics later.

1.6.6 Adaptation , Accommodation and Modification for Academic Curriculum

Academic activities depend to a great degree on the quality and extent of the pre-school programming in individual child. Functional academics are stressed where the child is unable to cope with the regular education curriculum.

Functional Academics –

The functional academic refer to the literacy and numeracy skills required to teach the children with ID for leading independent lives in the society. It includes reading, writing and arithmetic.

Functional Reading

Functional reading is defined as a student's actions or responses resulting from reading the printed word.

Primary goal is the development of their ability to **read for protection** – sign boards , labels , directions and so on.

The second goal is **reading for information and instruction** – newspaper , telephone book , job application and so on.

The third goal is reading for pleasure-magazines , comics , story books.

A variety of strategies have been used in teaching sight word vocabulary. Recent attention has been focused on the imagery level of the word to be learnt. keeping inclusion in mind , try to follow the primary level text books , simplify the concepts for children with mental retardation and help them read using whole word approach initially and then the parts of the word (spelling). Reading and writing should be planned together to allow for multisensory input.

Functional Writing

One of the important mode of communication is written expression. Writing demands eye hand coordination , motor coordination , sense of direction and recognition of symbols (picture/letters/numbers/punctuations and so on). Some writing tasks demand horizontal writing and some demand vertical writing as in arithmetic (addition, subtraction) and some demand a combination of both as in statement sums.

Teaching writing involve four stages

1. Tracing
2. Joint dot(if needed)
3. Copying
4. Fill in the blanks
5. Writing from memory (including learning spelling)

To write sight words, students have to go through six steps using auditory, visual , tactile and kinesthetic inputs.

Functional Arithmetic

We are in daily contact situations which require the use of number skills.

Before beginning with numbers, make sure, the child is aware of pre-math concepts such as more-less ,far-near, heavy-light, tall-short-long, left-right and so on.

The following are the points to be considered while planning and teaching arithmetic skills

- The content should be arranged in a sequential order for which the task analytic approach is applied.
- Concrete materials should be used while teaching to provide meaning for the concepts.
- The selection of materials should be such that they can be used meaningfully both inside and outside the school environment

  The programme should be structured in such a way that there is a gradual transition in teaching concepts moving from concrete to semi- concrete and abstract levels.
- Instruction must be practical and functional with special emphasis given to social and vocational orientation.

- Sufficient practice should be given to deal with the concepts in variety of ways to ensure understanding.

  Additional opportunities should be provided to generalize the skill to a variety of experiences to note similarities and to establish associations and relations among these experiences.

- Practical experiences and situations should be provided for the application of numerical skills. However, care should be taken in planning the application of number skills to the real life experiences that they should have relevance to the world in terms of the individual child's needs.

- A programme must be flexible to meet the individual needs of students.

  A functional mathematics curriculum should include , time , money , measurements (mass , volume , weight , distance) which are necessary for daily living activities. The content must be graded from easy to difficult distributed from pre-primary to prevocational levels.

A competent teacher will,

- Schedule co-curricular activities with due importance
- Avoid combining more than one class to make large groups which would reduce individual attention to children with special needs
- Avoid using co-curricular class periods to use children to run errands – moving furniture , clean the class and so on
- Avoid deprivation of co-curricular activity class as a punishment
- Avoid using the co-curricular time for other curricular activities

  Develop a well planned IEP with specific goals and objectives for co-curricular activities including evaluation procedures

- Equip the class well with necessary resource material
- Update herself with latest trends and developments in co-curricular activities
- Use technology wherever appropriate
- Be innovative in activities as well as in individual adaptations for the students with specific needs.

1.6.7 Adaptation , Accommodation and Modification for Co-curriculum

The children with Intellectual disabilities select co-curricular activities based on their abilities ,interests , motivation and encouragement. The following are certain aspects we have to keep in mind to select co-curricular activities.

Assess abilities and needs

Some co-curricular activities are purely for fun. Others require a certain level of ability. Making a good match between the activity and the child's unique abilities , interests, and needs is the first step.

Interaction with the Child

Co-curricular activities should be challenging. They should provide relaxation , satisfaction , and in most cases socialization. Above all they Should be enjoyable.Talk to the child about the kinds of things he/she likes to do.

Choose activities

Our society offers lots of choices for free time. The child will not be able to sign up for everything , so you will need to help him/her to select. Beyond interests and special needs you will need to consider some other factors when choosing co-curricular activities.

a. **Age Consideration** : A young child needs some unplanned time to explore the world around him/her. As the child gets older , he /she may be ready to participate in some group activities. Schedules are helpful for children with learning disabilities or autism and those with cognitive delays. Young children need some time to figure out what to do next.

b. **Realistic Commitments** : Children with intellectual disabilities especially need to focus on a reasonable amount of activity. Too many parts to the schedule or too many new situations (and rules) can be overwhelming for them.

c. **Balance with school work** : Even with modifications and accommodations , schoolwork will take longer time to complete that it does for his /her siblings. Take school work into consideration when signing up for co-curricular activities.

Consider Interest

Your child may have ability in areas that are not of high interest to him/her. Co-curricular activities are sometimes recreational , pass time and they should be

enjoyable. They are not compulsory insisted schoolwork or jobs. Talk to the child to know about his/her interests.

For example :

- Athletics
- Art and Music
- Community service

Community Groups

Some activities are not offered through schools. If the child is interested in learning how to train the family dog , for example , he/she will need to look for a community group that focus on animal care

Groups with Special Needs

Grouping is formed based on the conditions of disabilities. For example , if a child in a wheelchair wants to bowl a ball , he/she may sign up for bowling leagues that will use ramps and have volunteers to assist the bowlers . A child who is blind might enjoy outing with sighted peers . In the inclusive schooling , the child with disabilities is fixed with the non-disabled children for all activities including co-curricular activities. Adaptations are to be given to the children with disabilities wherever essential which will help them to have co-curricular activities as that of non-disabled children.

Family Involvement

The family members are to be oriented about the abilities of the child to participate in co-curricular activities. Naturally the members of the family may have hesitation to provide co-curricular activities because of fear about the child's safety and sometimes not knowing of the child's needs and required adaptations. In this regard , the teacher has to give clear idea about the requirement of the child for co-curricular activities.

Co-curricular activities for children with intellectual disability

Special Olympics offers year-round training and competition in 25 Olympic type sports to children and adults with intellectual disability. Participation is open to anyone from ages eight above up , and programs are designed to serve all ability levels.

Official Summer Sports

- Aquatics
- Athletics
- Basketball
- Bowling
- Cycling
- Equestrian sports
- Football(soccer)
- Golf
- sGymnastics
- Power lifting
- Rollesr skating
- Softball
- Tennis
- volleyball

Official Winter Sports

- Alpine Skilling
- Cross Country Skilling
- Figure Skating
- Floor Hockey
- Speed Skating
- National Popular Sports
- Cricket
- Football
- Volleyball
- Kabbadi
- Badminton

- Table Tennis
- Team Handball

1.6.8 Adaptation , Accommodation and Modification for school / subjects

A teacher of children with intellectual Disabilities has to carefully consider the three types of adaptations for her students, based on their ability level and the type of educational placement. Knowing whether the student's objective in a particular subject will be supplemented, simplified or altered will help to clarify the relationship between his learning objectives and that of his classmates. The student's interest and age may also play a role in selection of the type of adaptation

Simplified Curriculum

Simplified curriculum includes fewer concepts and skills rather than the entire scope of the general curriculum.

Example : Science , structure and functions of parts of the eye

The text books have detailed description of parts of the eye with difficult terminology and how the eye functions. A child with ID can just be taught major parts and functions. The parts that are visible so he comprehends and focus on care of eyes, signs of problem with eyes , care of eye glasses and such other information which is more functional and simplified yet taken from regular educational curriculum

Supplementary curriculum

Supplementary curriculum includes basic skills of reading , writing, and math and also additional social skills , study skills and learning strategies. This helps children in organizing themselves , improve memory and learning ability. This type of curriculum is most useful to children with learning disabilities and those with emotional /behaviour problems.

Example: student attend regular class but performs poorly in exam. In such cases, supplementary classes are provided in test taking , organizing time, nothing main points etc.

Alternative Curriculum

An alternative curriculum emphasizes skills needed to participate in activities in the community living domain of the curriculum. An alternative curriculum therefore, can be

a functional, community referenced curriculum , determined by assessing the student and his environment. Functional academics forms part of the community referenced curriculum. Depending on the severity level of disability, emphasis can be on personal, social, communication skills. Opportunity for partial participation in school activities is recommended for severely disabled children.

Multilevel curriculum

Another commonly used form of curricular adaptation is 'multilevel curriculum'. This involves having objectives at varying levels of difficulty for different students in the same class. Thus in mathematics class one student may do two digit addition with carry over , another without carry over and yet another may be doing single digit addition , all doing curricular content – addition . This is commonly seen in most of the special schools for children with intellectual disability.

Activity Based Curriculum

When the students belong to different levels, planning and implementing instructions in difficult. Activity based curriculum is based suited for children with intellectual disabilities as it provides experience based learning. Because of the multi-sensorial input and the experience of carrying out the task , the students are likely to retain the learnt information better. For example , teaching , freezing point , boiling point , evaporation and such concepts with black board and text books are too difficult for for a child with mental retardation to understand. The same concepts included in their curriculum with the teaching method focusing on demonstration using boiling

in a kettle and freezing using a refrigerator – all done by the students under supervision and guidance will be better understood . Demonstration of use of thermometer showing boiling and freezing points on it will be better comprehended by them. Though time consuming and requires a lot of efforts, it is one of the best way to plan and teach students with intellectual disabilities.

A good curriculum has inbuilt evaluation procedures. As evaluation provides information on effects and effectiveness of the training it is very essential to structure evaluation carefully and objectively.

1.7 Challenges and implications for inclusion:

1.7.1 Challenges for inclusion:

Historically, educational services for children with mental retardation where designed to be provided in segregated setting. With the efficacy of research done in recent years, the idea of providing services as close to the normal environment as possible has become the trend to inclusion. When developing such a programme, the varied needs of children with mental retardation with various culture practices should be taken into consideration. This makes it difficult to develop an ideal curriculum and plan programme uniformly. This is also one of the reasons for not having a common curriculum for all the individuals with intellectual disability.

As suggested by Lieberman (1992) the curriculum for children with mental retardation should therefore focus on:

1. The need of the students.
2. the probability that the intervention requires a special set of arrangements that are generally not available in regular class room settings.

It is imperative that the shift of emphasis is made in curriculum priority from academics in regular classrooms to student based needs.

When curriculum has to focus on all-round development as mentioned earlier, it should be need based. It has to take into account the functions to be performed by the individual in his environment and the required competencies for it. Baine(1991) recommends an ecology based curriculum where the task involves assessment of not only the person with intellectual disability but also the functions he has to perform along with non disabled persons in a given environment. This allows for a discrepancy analysis, leading to specific focus on the strength of the individual with intellectual disability and selection of appropriate takes and activities to be taught as suited to his environment.

The approach being a functional one is likely to be meaningful to the individual if used at secondary school level. The primary level curriculum for children with intellectual disability will predominantly include personal, social basic academic and introductory occupational skills.

Co-curriculum activities, recreational and leisure activities should not be ignored and should be included as in the regular school curriculum. In fact inclusion will be more

meaningful in the schools when recreational and leisure activities are planned for children with mental retardation along with those for non-disabled school children.

When functional academic area is planned in the curriculum, it should focus on those areas which be of utility to the children with mental retardation. It is a waste of time teaching those activities that they will not use in present or future environments, because, it is the need/opportunity for application of what is taught and what will benefit them.

A study (Narayan and Myreddi 1996) was conducted to compare the functional curriculum with the one that is in use at regular schools. Minimum level of learning (MLL 1992) as prescribed by NCERT was item endorsed with the listed thing in the Functional Assessment Checklist for Programming (FACP) (Narayan et as, 1992) from pre-primary to prevocational level covering the ages of 3 to 18 years for children with mental retardation up to prevocational age level happens to cover about 43% of the regular curriculum up to class III. The coverage should 65% of class I. 42% of class II and 23% of class III.

This again emphasized that primary education covers functional skills to a large extent making it possible for children with intellectual disability to learn. The essence of need based content area from regular primary education can be included in the curriculum area for academic learning of children with mental retardation. As they grow older or move to higher classes, need based education with ecological consideration is more suitable with specific evaluation criteria.

The cultural trend towards inclusive education, poses yet another challenge, the educators will have to face. The concept of inclusion demands that all children should be part of the educational and community main stream. The Person with disability act of India(1995)also highlights equal opportunities for all support of inclusive education and special education and the new role to which they have to adapt themselves. The peer group adjustment, the resource requirement and administrative decisions are other components of this concept. In india, the inclusive education is at infancy demanding tremendous efforts by all concerned to study its efficacy.

In short:

- The curriculum should be developed after identifying the functional daily activities that are to be performed by the child with mental retardation in a given environment, may it be urban, rural, industrial, slum or semi urban areas.

- The curriculum should include specific activities that need to be mastered rather than are broad skill areas such as gross motor, fine motor, socialization and language and so on.
- The curriculum should emphasize process of training to be conducted as far as possible in the natural environment and that steps should be taken to minimize transfer of training.
- The inclusion of academic skills in the curriculum such as reading, writing and arithmetic must be absolute function oriented and that the person with intellectual disability uses the skills learnt in his daily living. For instance, sometimes, special educators have their students working on two digits,2 line, addition on paper, but unable to say correctly, if they asked, orally, three cars and four autos makes a total of how many vehicles. This happens because the addition taught on paper has not function oriented and and was not generalized. Therefore the curriculum must relate academics to its function in day to day life.
- In addition to academic skills, self care and communication skills, the curriculum should provide for recreational skills, home management skills, health and safety and community oriented skills which contribute to social competence.
- Though the initial instructions of certain skills begin in classrooms, as the child learns the skills and gains mastery over them, they have to be community referenced, as eventually a person with mental retardation has to live in the community.
- The curriculum should take into consideration, the economic, social, cultural and such environmental characteristics of the society in which the person with intellectual disability live. This should be emphasized especially in the aspects of vocational training. Local resources and occupations must be taken into consideration and the person will be trained accordingly.

To conclude, a good curriculum should take into consideration the environments in which the persons with intellectual disability lives namely, home and family, community, school, vocational and occupational areas. The skills should be identified, organized, sequential and the training should be given in the natural environment.

By this, the person with intellectual disability is taught what is required for him to be independent in his society.

Quantity	Time	Level of Support
Adapt the number of items that the learner is expected to learn or number of activities student will complete prior to assessment for mastery. For example : Reduce the number of social studies terms a learner must learn at any one time. Add more practice activities or worksheets.	Adapt the time allotted and allowed for learning , task completion ,or testing. For example: Individualize a timeline for completing a task , pace learning differently (increase or decrease) for some learners.	Increase the amount of personal assistance to keep the student on task or to reinforce or prompt use of specific skills. Enhance adult – student relationship; use physical space and environmental structure. For example: Assign peer buddies ,teaching assistants , peer tutors, or cross-age tutors. Specify how to interact with the student or how to structure the environment
Input	**Difficulty**	**Output**
Adapt the way instruction is delivered to the learner. For example : Use different visual aids, enlarge text, plan more concrete examples, provides hands-on activities, place students in cooperative groups, pre-teach key concepts or terms before the lesson.	Adapt the skill level, problem type, or the rules on how the learner may approach the work For example : Allow the use of a calculator to figure math problems; simplify task directions; change rules to accommodate learner needs.	Adapt how the student can respond to instruction For example: Instead of answering questions in writing , allow a verbal response, use a communication book for some students, allow students to show knowledge with hands on materials.
Participation	**Alternate Goals**	**Substitute Curriculum** **Sometimes called "functional curriculum"**
Adapt the extent to which a learner is actively involved in the task For example: In geography, have a student hold the globe, while others point out locations. Ask the student to lead a group. Have the student turn the pages while sitting on your lap (kindergarten).	Adapt the goals or outcome expectations while using the same materials. When routinely utilized, this is only for students with moderate to severe disabilities. For example: In a social studies lesson, expect a student to be able to locate the colors of the states on map ,while other students learn to locate each state and name the capital.	Provide different instruction and materials to meet a learner's individual goals. When routinely utilized , this is only for students with moderate to severe disabilities. For example : During a language lesson a student is learning toileting skills with an aide.

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1.7.2. Implementation in inclusion

A teacher of children with intellectual Disabilities has to carefully consider the three types of adaptations for her students , based on their ability level and the type of educational placement. Knowing whether the student's objective in a particular subject will be supplemented, simplified or altered will help to clarify the relationship between his learning objectives and that of his classmates. The student's interest and age may also play a role in selection of the type of adaptation

Simplified Curriculum

Simplified curriculum includes fewer concepts and skills rather than the entire scope of the general curriculum.

Example : Science , structure and functions of parts of the eye

The text books have detailed description of parts of the eye with difficult terminology and how the eye functions. A child with ID can just be taught major parts and functions. The parts that are visible so he comprehends and focus on care of eyes, signs of problem with eyes , care of eye glasses and such other information which is more functional and simplified yet taken from regular educational curriculum

Supplementary curriculum

Supplementary curriculum includes basic skills of reading , writing, and math and also additional social skills , study skills and learning strategies. This helps children in organizing themselves , improve memory and learning ability. This type of curriculum is most useful to children with learning disabilities and those with emotional /behaviour problems.

Example: student attend regular class but performs poorly in exam. In such cases , supplementary classes are provided in test taking , organizing time, nothing main points etc.

Alternative Curriculum

An alternative curriculum emphasizes skills needed to participate in activities in the community living domain of the curriculum. An alternative curriculum therefore, can be a functional , community referenced curriculum , determined by assessing the student and his environment. Functional academics forms part of the community referenced curriculum. Depending on the severity level of disability , emphasis can be on personal, social, communication skills. Opportunity for partial participation in school activities is recommended for severely disabled children.

In inclusive set up:

- Peer –tutoring
- Team-teaching
- Unique teaching strategies
- Use of effective teaching learning material

- Reduction of subjects
- Extention of the time to complete curriculum
- Flexibility of examination system can be beneficial for the children with intellectual diabilities.

Nine Types of Curriculum Adaptations used in inclusive setup :

1.8 Let us sum up

Curriculum is a dynamic process of teaching learning system for effective educational enhancement. The curriculum must be developed and implemented as goal oriented , age appropriate , need based, level appropriate , up to date , creative , integrated and comprehensive ways. The most prominent models of curriculum is process , product and proxis model of curriculum is process , product & proxis model of curriculum which are used for theoretical & philosophical aspects of education with the practical aspect of teaching learning process.

The different types of approaches of curriculum development was discussed developmental, functional, ecological, system and task analytic approach was discussed in detail . The usefulness and applicability of different approaches was highlighted. The definition of instructional design and different types like ADDIE model, Bloom's Taxonomy , Gagne's Nine Event of Instruction, Merrill's Principle of Instruction, ASSURE Model, Kemp instructional design model was discussed in details to bring out the most effective design for learning.

The merits and demerits of instructional design was also discussed.

Adaptation, modification and accommodation of curriculum for different level like Pre-academic, curricular, co-curricular and subject related modification were highlighted to bring the necessary best teaching option.

1.9 Unit End Exercise

1. What do you mean by curriculum describe any two principles of curriculum development in the context of intellectual disability.
2. What is the Task Analytic Approach to curriculum development.
3. Define different types of instructional design. What is most suitable in the field of special education.

4. What is simplified, supplementary and multilevel curriculum

5. Discuss the challenges of Inclusive Curriculum. State the types of curriculum adaptation used in Inclusive set up.

1.10 Reference

Alberto P.Trontman A(1982)'Applied Behaviour Analysis for Teachers , Columbus, Ohio: Charles E.Merrit Pub.co

Baine D (1991) Handicapped children in developing countries : Assessment curriculum and Instruction , Canada, Vector Publishers.

Brenman .W.K (1985) , curriculum for special needs, Milton Keynes: Open University Press

Bill ; R.G., James, A.D., and Thomas , W.S.(1988).Teaching Mildly and Moderately Handicapped Students. New Delhi : Prentice Hall of India Pvt. Ltd.

Browder D.M. & Snell M.E.(1983) Functional Academics in M.E. Snell (Eds.) Instruction of Students with Severe Disabilities, New York: Mac Millan Publishing Co.P-443

Govinda R.L.(2007). Introduction : Prespective on Special Education Hyderabad: Neelkamal Publication Pvt.Ltd.

Gearheart , B.R.,DeReiter , J.A. and Silco, J.W. (1986) Teaching mildly and moderately handicapped , New Delhi: Printice Hall of India

Myreddi,V.Narayan,J.(1999)Teaching Functional Academics for children with mental retardation, Secunderabad: NIMH

Narayan J.(1990) Special education in India. In M. Thomas (Ed.) Action aid Disability News 5(1)

Narayan , J. and Kutty, A.T.T(1989) Hand book for trainers of Mental Retardation pre-primary level, Secunderabad: NIMH

NCERT (2000).National Curriculum Framework for Special education(NCFSE) New Delhi : NCERT

Polloway , E.A. and Patton , J.R.(1993)Strategies for teaching learners with special needs. New York : MacMillan Publishing Company

Snell .M.E (1987) Instruction of students with Severe Disabilities (4th Edn.) New Jersy: Merrill

Werner, D (1994) Disable Village Children – A guide for community health workers. New Delhi :VHAI

Web Resource

https://eddersko.com/assets/KOLCRIML2017slidespdf-eddersko.com

https://www.oreilly.com

www.learningforward.org/

www.arps.org/

www.dashe.com

www.snipsf.org/wp-content/uploads/2011/08/Nine Types.pdf

www.spannj.org/

www.specialeducationguide.com/

Unit - 2 □ Teaching Approaches

Structure

2.1 Introduction

In education, teaching is considered as one of the essential pillar which facilitates the learners to acquire knowledge, develop understanding and enhance their life skills. It is a process of attending to learners' cognitive, affective and psychomotor needs so that they can enhance their inherent potentialities and become an enlightened member of the society. A teacher, in this direction, works as a facilitator and ensure the effectiveness of learning through the variety of learning experiences provided to learners. The approaches of teaching are considered as an essential tool of a teacher through which she transfers knowledge to learners. An approach can be psychologically focused such as behaviouralism, cognitivism or based on the developmental phases of the learner and it can also be based on older philosophies such as idealism and realism. In modern educational practices, a child centric approach is given a high preference and so the educational planning is entirely based on the uniqueness of the learners. A teacher needs to have extensive knowledge and broad range of professional skills to bring positive changes among these children. In this regard, the variety of ways of teaching helps a teacher to conceptualize the whole teaching learning process based on the need and capacity of learner and select the appropriate one for the effective achievement of educational objectives.

2.2 Objectives

- To describe the various developmental approaches with reference to teaching children with intellectual disability
- To describe the various multi-sensory approaches with reference to teaching children with intellectual disability
- To describe the various behavioural approaches with reference to teaching children with intellectual disability
- To describe the various cognitive approaches with reference to teaching children with intellectual disability
- To integrate various approaches with reference to teaching children with intellectual disability for inclusion.

2.3 Developmental Approaches- Montessori, Floor time

2.3.1 Concept of Developmental Approaches

A developmental approach is a philosophy of teaching in which different stages of a child's development is given most priority in order to provide the learning experiences to learners. At each stage of the development, the learning needs and capacity of the child varies. In developmental approach of teaching, the curriculum for young children takes into account the principle that what all educational experiences a learner should get and how they can best learn with the changes of their age and capacity of learning that comes as they grow. The developmental approach is influenced by developmental psychology which highlights the developmental phases of an individual and progressive education which emphasis the various educational needs at each stage of human development.

This approach to curriculum takes in to account both dimensions of development in that what young children should do and should learn is determined on the basis of what is best for their development in the long term (i.e. the dynamic consequences of early experience) rather than simply what "works" in the short term. It focuses on four categories of learning goals: knowledge, skills, dispositions and feelings and assumes all four categories of learning goals should be addressed and assessed. This approach of teaching provides the exposure to a young learner to observe the environment more closely and ensures that their knowledge and skill development must go in horizontal order. It also facilitates the learner to learn through interactive, direct and first-hand experiences and through active experiences. Developmental approach of teaching engages the mind of the learner in its fullest sense, including its aesthetic, moral, social, and spiritual sensibilities along with the core aspects of learning that change with the age and experience of the learner. Children with intellectual disability achieve their developmental milestones much delayed due to limitations in intellectual functioning and adaptive behaviour skills and so they generally exhibit age inappropriate behaviour throughout their life. In this direction, developmental approach of teaching helps a teacher to understand the natural developmental process of a child in different stages and also to have a deep understanding about the delayed developmental milestones. With the understanding of both, a teacher creates a path for a child with ID to develop age appropriate behaviours and skills which further help them to overcome form the challenges emerged from the disability.

2.3.2 Montessori Approach

Montessori approach is a philosophy of child centered education. It is a scientific observation which gives light to understand how children develop and learn in a natural way. It is passed on the principle that schooling should work with the nature of the child instead of against it. Therefore, education should be based upon scientific study of the child and understanding of the processes of development and learning.

Montessori Approach was developed by Dr. Maria Montessori. She was an Italian physician, an educator, a philosopher, and an anthropologist. Her progressive view of children was way beyond her time, and her writing is still very relevant today. She felt that education should no longer consist only of imparting knowledge, instead take a new path seeking the release of human potentialities. Montessori approach is applicable for children ages 2½/3 years to 6 years. The approach views a child as one who is naturally eager for knowledge and capable of initiating learning in a supportive, thoughtfully prepared learning environment. It attempts to develop children physically, socially emotionally and cognitively.

It is fundamentally a model of human development. It has two basic principles. First, children and developing adults engage in psychological self construction by means of interaction with the environments. Second, children, especially under the age of six, have an innate path of psychological development. Based on her observation, she believed that children who are at liberty to choose and act freely within an environment prepared according to her model would act spontaneously for optimal development.

Planes of development

Montessori incorporated these premises into a child development theory. Each plane necessitates their environment to change accordingly and offer appropriate learning experiences. The Montessori Method is differentially applied according to where the child is situated in the planes of development.

- **Infancy (birth-6 years)**

  This stage is characterized by the absorbent mind and sensitive periods. During the first three years of life infants learn through their senses, is called an unconscious absorbent mind. During the second three years children learn

consciously through active hands on experience. Learning will take place when they are allowed to do things on their own.

- **Childhood (6-12 years)**

  This stage is characterized by stability, having acquired most of the basic skills he will need. Children grow out of their absorbent mind, and learn through cognitive reasoning and imagination. Children are driven to understand the world around them, how things work, and why. This is the time to learn most factual information, as adolescence brings a decline in this learning drive. The sensitive period of this age group centers on social acceptance, and the development of a value system.

- **Adolescence (12-18 years)**

  At this point, adolescents do not want to be bombarded with learning information. Thus, learning should be connected to every-day living skills. Although Montessori never developed this stage into a practical learning system, she dreamed to create schools which were actually self sustaining communities, where through working on activities, such as growing their own food, planning meals, building houses and designing clothing, learning would occur naturally. In this way, adolescents would come better prepared to adapt to the adult world, by becoming independent and learning to live in harmony with others.

- **Transition to adulthood (18-24 years)**

  This stage is characterized by career exploration and beginnings stages of careers. If the individual acquired the necessary cognitive and social skills in the previous stages then he will be able to make exact and satisfying careers choices.

Principles of Montessori Approach

- **Respect for the child**

  Respect for the child is a cornerstone on which all other Montessori principles rest. Teachers show respect for children when they help them do things and learn for themselves. When children have choices, they are able to develop the skills and abilities necessary for effective learning autonomy and positive self-esteem.

- **The Absorbent Mind**

Montessori believed that children educate themselves. It may be said that we acquire knowledge by using our minds but the child absorbs knowledge directly in to his psychic life. Simply by continuing to live, the child learns to speak his native tongue (Montessori 1966)

this is the concept of absorbent mind. Children are born to learn and they are remarkable learning systems. Children learn because they are thinking beings but what they learn depends greatly on their teachers, experiences and environments. Early childhood teachers are reemphasizing the idea that children are born learner and with constant readiness and ability to learn.

- **Sensitive Periods**

Montessori believed that there are sensitive periods when children are more susceptible to certain behaviors and can learn specific skills more easily. Although all children experience the same sensitive periods, the sequence and the timing vary for each child. One role of the teacher is to use observation to direct times of sensitivity and provide the setting for optimum fulfillment.

- **The Prepared Environment**

Montessori believed that children learn best in the prepared environment, a place in which children can do things for themselves. The prepared environment makes learning materials and experiences available to children in an orderly format. Freedom is the essential characteristic of the prepared environment. Since children within the environment are free to explore the materials of their own choosing, they absorb what they find there.

- **Auto-education**

Montessori named the concept that children are capable of educating themselves auto-education (self-education). Children who are actively involved in a prepared environment and who exercise freedom of choice literally educate themselves. Montessori teachers prepare classrooms so that children educate themselves.

The role of teacher

Montessori believed that it is necessary for a teacher to guide the child without letting him feel her presence too much, so that she may be always ready to supply

the desired help, but may never be the obstacle between the child and his experience. The Montessori teacher demonstrates key behaviors to implement this child-centered approach:

- Make children the center of learning because, as Montessori said "the teacher's task is not to talk, but to prepare and arrange a series of motives for cultural activity in a special environment made for the child"
- Encourage children to learn by providing freedom for them in the prepared environment.
- Observe children so as to prepare the best possible environment, recognizing sensitive periods and diverting inappropriate behavior to meaningful tasks.
- Prepare the learning environment by ensuring that learning materials are provided in an orderly format and the materials provide for appropriate experience for all the children.
- Respect each child and model ongoing respect for all children and their work.
- Introduce learning materials, demonstrate learning materials, and support children's learning. The teacher introduces learning materials after observing each child.

Philosophy of Montessori Approach

- **Natural Spirituality**

Montessori saw that children held within them something wonderful, something so special that it could be the key to changing the world. She saw that they were inherently good and that, if allowed to develop freely, they felt connected to everything and were naturally caring to each other and the world around them.

- **Children thrive on order and structure**

  Order consists in recognizing the place for each object in relation to its environment and in remembering where each thing should be. Order in the environment makes children aware of how things should be.

- **Children move through sensitive periods**

  Children move through sensitive period for order, refinement of the senses, language acquisition, walking and movement, small objects and involvement in social life. If left to follow this natural interest the child could achieve much

more than would normally be expected. Montessori teachers therefore watch out for these very creative periods and make sure that the children have the freedom to follow their interests.

- **Children learn through their senses**

  Montessori saw that children built on their physical experiences of the world through their senses and that by carefully designing interesting materials which the children were drawn to experiment with, She believed that children loved working with beautiful objects so all the

  Materials were prepared with the greatest care. Rather than proving to be outdated in the modern world.

- **Children need freedom**

  Montessori saw freedom as the single most important factor in allowing children to develop as spontaneous, creative individuals. She saw the role of education as providing environments in which the children could be set free to follow their natural impulses to become the wonderfully dynamic, natural learners they were designed to be.

- **Children absorb their culture**

  Montessori's emphasis on children allowed the freedom to work alone and to develop concentration. She saw that children literally absorbed the world around them and that true discipline and harmony was something that came from within and was not something that could be enforced.

- **Little Teachers**

  Children learn best when a community of children could actively support and help each other. Montessori schools therefore encourage children of all ages to work together as a social group and do not normally split children by sex or age.

- **Children are natural learners**

  Montessori saw that children underwent extraordinary transformations in overall happiness, self-confidence and self-discipline when they were allowed to follow their innate needs. The work of a child fundamentally different to that of the adult: that the child worked for the joy of the process rather than for the

end result, the child had a need to repeat activities over and over until an inner need was fulfilled, and that the child was excited and energized through work, rather than burdened and fatigued by it. She felt that children only stopped loving learning when they were forced to go against their natural impulses.

- **Processes not Results**

  Children are natural learners who, if left to follow their instincts, will want to constantly explore the world. All too often what stops children enjoying this natural curiosity are external demands that don't fit with their need. When they learn, instead, there are unacceptable results that make them feel bad about themselves they start to fear the processes. And that fear can cut them off from the joy of learning forever. Montessori schools therefore believe that each child is an individual and should be encouraged to work at the pace that is right for him or her. There are no grades or tests. Children are never in competition with each other.

2.3.3 Floor time

The Developmental, Individual-Difference, Relationship-Based (DIR) approach operationally known as Floor Time approach was developed by Dr. Stanley Greenspan and Dr. Serena Weider. It is a comprehensive model that identifies the individual differences i.e., the strengths and weaknesses of particular child and his family. Floor time Model, however, is a comprehensive framework which enables therapists, parents, and other caregivers make a special effort to tailor interactions to meet the child at his unique functional level and within the context of his processing differences. Floor Time sessions focus on having partners get down on the floor with playful interaction and follow the child's lead to encourage the child's initiative and purposeful behaviour, deepen engagement, lengthen mutual attention, and develop symbolic capacities and various problem-solving exercises.

A comprehensive assessment is conducted and an intervention program tailored to the unique challenges and strengths of children with developmental challenges are developed. The objectives of the Floor time Model is to build healthy foundations for social, emotional, and intellectual capacities rather than focusing on skills and isolated behaviours. Central to the Floor time Model is the role of the child's natural emotions and interests. It has been shown to be essential

for learning interactions which enable the different parts of the brain to work together and to build successively higher levels of social, emotional, and intellectual capacities. The Floor time Model emphasizes the critical role of parents and other family members because of the importance of their emotional relationships with the child.

Floor time method

A typical floor time session is conducted in a child's naturalistic environment and requires the therapist or parent to sit on the floor and work with the child. The purpose is to help the child achieve the stages of development, by taking him back to the milestones that he may have missed. During a session, the parent or therapist follows the child's lead. This helps in establishing relationship between the child and the adult. The relationship slowly enables the child to develop the basic social, emotional and communication abilities. During a floor time session the child learns to engage with others, initiate actions, make own wishes and desires and the realization that his actions can elicit responses from others. Floor time creates opportunities for children to have dialogues, which are called circles of communication, first without words and later with them, and eventually to imagine and think. Since floor time sessions are child-cantered, the activities are motivating to the child as it is he who has chosen them. Additionally, selecting the child's natural environment for the session also contributes to calming him and improving his comfort level.

A floor time session follows the steps given below:

- **Observation**: The adult observes the child while watching him, his activities and level of interaction before starting a session. This observation helps the adult determine the child's current emotional state.
- **Approach**: After understanding the child's level of emotional functioning, adult joins the child in whatever the child is doing. If the child sits and merely twirls a toy, the adult follows this play behaviour. Later, the adult adds value to it by labelling the activity in gestures and words. The adult also uses appropriate facial expression and tone of voice to convey own enjoyment in what the child is doing. Such measures enable the adult to open the circle of communication with the child.

- **Child's Lead:** During a floor time session, the child is considered as a leader of activities. The adult's role is to follow the child. The aim here is to support the child's activities and initiatives, and through this to take him to a higher level of emotional functioning.
- **Expand Ideas:** As the sessions progress, the adult builds on the child's play initiatives. Now the adult associates daily experiences with the experiences during the play activities. For example, the adult may say "get the teddy dress up, like mommy does for you". This planned expansion and addition to child's activities help in development of emotional ideas.
- **Close Circle of Communication:** Once the adult engages the child at a level the child currently enjoys, enters the child's activities, and follows the child's lead, he or she now attempts to move the child from a mutually shared engagement toward more increasingly complex interactions, a process known as "opening and closing circles of

  communication." In a circle of communication, the adult opens the circle by approaching the child, and the child closes the circle by giving a reaction to the adult's comments and gestures. During session many circles may open and close in quick successions as the adult interacts with the child. The process leads to two-way communication.

Floor Time principles

The floor time principles when expanded upon in a thoughtful continuous manner, can lead to both the cultivation of a spontaneous interactive relationship between child and play partner as well as an improved functional developmental level within the child himself:

- Follow the child's lead
- Join in at the child's developmental level and build on his/her natural interests.
- Open and close circle of communication i.e. build on initially into the child's interest and then inspire the child to, in turn, expand the initial interaction build on what you have done or said.
- Create a play environment with rattles, balls, dolls, action figures cars, trucks, and schools etc. that will provide a vehicle for the child's natural interests and

facilitate opening and closing circles of communication. Avoid very structured games that reduce creative interaction.

- Interact playfully, but obstructively, as needed It should be noted that playfully obstructive does not mean intruding upon the child's sensitivities to the point of the child breaking down into a tantrum or meltdown.
- Challenge the child to engage in neglected or avoided types of interaction for example for a passive child who avoids taking the initiative, slowly and smilingly move away the toy the child is playing with, thereby challenging the child to take the initiative and come after it.
- Engage the child with sound and /or words, vision, touch and movement

2.4 Multi-sensory Approach– Fernald, Orton and Gillingham

2.4.1 Multi-sensory Approach: Concept

Like adults, children take in information about their world in a variety of ways. The process occurs naturally. Babies learn about the world by observing, listening and putting everything within reach into their mouths. Toddlers try to touch or grab everything they see. All these behaviours children learn in a very natural way even though they are not taught these all process in a formal way. Learning in this manner involves two or more of the senses within the same activity. The students learn a new concept best when it is taught using the four modalities i.e. visual, auditory, kinaesthetic and tactile that is also known as multisensory approach or VAKT. A multi-sensory approach is a process where more than one senses are being used and integrated together in order to receive and process the given information. The term multisensory can be defined as the integration of two terms "multi" means more than one and "sensory" means through sense organs of a body. A multisensory approach is a philosophy in which a child's learning is being facilitated through using more than one senses. It has been particularly valuable in literacy and language learning. Though this approach is effective for any kind of learner but it can be particularly helpful for children with learning and attention issues and challenges related to sensory integration where they sense information normally but have difficulty perceiving and processing that information because it is analyzed in their brains in a different way.

Multisensory Techniques

To stimulate visual learning:

- Text and/or pictures on paper, posters, models, projection screens, computers or flash cards
- Use of colors for highlighting, organizing information
- outlining passages
- Student created art, images, text, pictures and videos etc.

Auditory Techniques:

- Peer assisted reading, paired reading, computerized text readers, books on tape,
- Video or film with accompanying audio
- Music, song, instruments, speaking, rhymes, chants and language games etc.

Tactile Teaching Methods:

- Sand trays, textured objects, finger paints and puzzles,
- Modeling materials such as clay and sculpting materials etc.

Kinesthetic Method:

- Multisensory methods using body movements are called kinesthetic methods. These involve fine and gross motor movements.
- Games involving jumping rope, clapping or other movements paired with activities while counting and singing songs related to concepts.
- Any large movement activity for students involving dancing, bean bag tossing etc.

2.4.2 Fernald Approach

The Fernald approach which is also known as VAKT approach is a systematic, multisensory instructional approach that incorporates use of the visual, auditory, kinesthetic, and tactile (VAKT) modalities simultaneously. The approach was introduced by Elizabeth C. Heidi L. Fernald in 1943.It majorly emphasizes on the association of sensory and perceptual cues reinforce the mental image of

words as well as the association between printed words and their oral representations. Use of this approach also improves memory for printed words and word parts. The Fernald approach is intended for individual or small-group instruction and helps students who have difficulty retaining spelling words and learning to spell exception words. This is a multi-sensory approach to whole-word reading instruction. Although this method can be highly effective with children with learning disabilities yet it is only appropriate for children who also possess sufficient fine motor skills for copying and writing letters and prerequisite skills for whole word instruction.

Procedure

The Fernald approach consists of 4 stages that the child progresses through as they become more proficient at learning new words (Boss & Vaughn, 1998; Lerner, 2000).

Stage 1:

1. The child selects the word they want to learn to read (this is important for motivation).
2. The instructor writes the selected word down with a crayon or marker while saying the word. The instructor points underneath the word as she says it again.
3. The instructor models tracing the word as they say it. Each part of the word should be articulated while tracing the corresponding letters; however, the word should be articulated smoothly as it would in natural speech. Once again, the instructor says the word while sweeping the finger underneath the printed version.
4. The instructor repeats step 3 multiple times and then moves on to step 5.
5. The child traces that word with a finger, making contact with the paper. While the student traces the word, the instructor says the word. The instructor observes and corrects any errors by saying, "Watch me do it again" and modelling the correct response. This tracing process is repeated until the child thinks he can write the **whole word** from memory.
6. Remove the model and have the child write the word from memory, saying the word as he writes it. If an error is made, attempt to write the whole word again. Back up a step, if needed.

7. Mastered words (ones written 3 times correctly from step 6) are saved together.
8. Within the same day, type out the new word and have the child read the typed font.

Once the child has enough words saved to form sentences, these words can be used to compose stories. The stories can be typed and read for fluency practice.

Stage 2:

This stage is similar to stage 1, except the tracing component is removed from the process. The student naturally moves to stage 2 when they no longer need to trace a word to remember it.

1. The student selects the word.
2. The instructor writes the word.
3. The student looks at the sample word and says it while copying the word.
4. This is repeated until the child can write the word correctly without looking at the sample.
5. Mastered words are saved and can be used to compose sentences and stories.

Stage 3:

In this stage, the copying from sample component is removed from the process. A child will begin reading from books. While reading, the child will come across words they do not know. These words can be selected for the learning process.

1. The student selects the word.
2. The instructor reads the word from the printed source.
3. The student looks at the word and repeats it before writing it from memory.

Mastered words can be saved for review and practice.

Stage 4:

The student recognizes words based on their similarity to previously mastered words. Word knowledge is generalized.

2.4.3 Orton and Gillingham Approach

The Orton-Gillingham (O-G) is a multi-sensory instructional approach was developed in the 1930s by Samuel Torrey Orton, a neuropsychiatrist at Columbia University, and by Anna Gillingham, an educator and psychologist at the Teachers College at Columbia University. Orton is considered to be a pioneer in the developing principles of reading remediation. He believed that an instructional approach for reading should "capitalize on the students' auditory competence by teaching them the phonetic equivalence of the printed letters and the process of blending sequences of such equivalents so that they might be able to produce for themselves the spoken form of the word from its graphic counterparts" (as cited in Ritchey & Goeke, 2006).

O-G is a multisensory structured language approach intended primarily for the use with persons who have difficulty with reading, spelling and writing. Later, it has been successfully adapted for the students who exhibit difficulty with mathematics. People with dyslexia need more help than most people in sorting, recognizing, and organizing the raw materials of language for thinking and use. Language elements that non-dyslexic learners acquire easily must be taught directly and systematically through one-on-one teacher-student instructional model, small group or whole group instruction. It facilitates the students to learn phonology and phonological awareness, sound-symbol association, syllable instruction, morphology, syntax and semantics through the integration of more than one sense in the process of learning. It is based on the belief that incorporating the following skills in the educational process has a positive impact on the students' ability to learn how to read, write and spell. It is an intensive, sequential phonics -based system teaches the basics of word formation before whole meanings.

Teaching Concepts

Phonemic Awareness is the first step to teach someone how to listen to a single word and break it into individual phonemes. They also have to be able to take individual sounds and blend them into a word, change. These skills are easiest to learn *before* someone brings in printed letters.

Phoneme Correspondence is the next step to teach which sounds are represented by which letter(s), and how to blend those letters into single-syllable words.

Probabilities and Rules are then taught. English language provides several ways to spell the same sounds. For example, the sound of /J/ at the end of a word can be spelled GE or DGE. Dyslexic students need to be taught these rules and probabilities.

Roots and Affixes, as well as Morphology are then taught to expand a student's vocabulary and ability to comprehend (and spell) unfamiliar words. For instance, once a student has been taught that the Latin root TRACT means pull, and a student knows the various Latin affixes, the student can figure out that retract means pull again, contract means pull together, subtract means pull away (or pull under), while tractor means a machine that pulls.

Principles of O-G Approach

- **Simultaneous Multisensory Instruction**:

  Research has shown that dyslexic people who use all of their senses when they learn (visual, auditory, tactile, and kinesthetic) are better able to store and retrieve the information. So a beginning dyslexic student might see the letter A, say its name and sound, and write it in the air — all at the same time.

- **Direct, Explicit Instruction**:

  Students have difficulty in getting the impression of anything about written language. So, they must be taught, directly and explicitly, each and every rule that governs our written words. And you must teach one rule at a time, and practice it until it is stable in both reading and spelling, before introducing a new rule.

- **Intense Instruction with Ample Practice**: instruction for dyslexic students must be much more intense, and offer much more practice, than for regular readers. With the multiple practices, the retention of the learnt concepts stays for a long. Intense instructions helps the learner to focus and understand even the minute details of the tasks which further help them to complete the task with the complete understanding.

- **Synthetic and Analytic**:

  Students must be taught both how to take the individual letters or sounds and put them together to form a word (synthetic), as well as how to look at a long

word and break it into smaller pieces (analytic). Both synthetic and analytic phonics must be taught all the time.

- **Diagnostic Teaching**:

  The teacher must continuously assess their student's understanding of, and ability to apply, the rules. The teacher must ensure the student isn't simply recognizing a pattern and blindly applying it. And when confusion of a previously-taught rule is discovered, it must be re-taught. A teacher must ensure that the students should develop the concept with the clear understanding about the rules specific to the task instead following the rote learning. It helps to establish a strong base for the learnt concept.

- **Structured, Sequential, and Cumulative**:

  Teacher introduces the elements of the language systematically. Sound-symbol associations along with generalizations are introduced in logical, understandable order. Students begin by reading and writing sounds in isolation. Then they blend the sounds into syllables and words. Students learn the elements of language vowel and consonants. The teacher addresses vocabulary, sentence structure, composition, and reading comprehension in a similar structured, sequential, and cumulative manner.

2.5 Behavioural Approach– Applied Behaviour Analysis (ABA), Discrete Trial Training

2.5.1. Behavioral Approach: Concept

Learning can be defined as the relatively permanent change in behavior brought about as a result of experience and practice. A behavior is composed of reactions and movements that an organism gives and does in a certain situation. The term behavior is mostly used for actions that can be observed from outside. Behavioural approach of teaching mostly focuses on how behaviors are acquired. It claims that learning can develop by means of establishing a connection between stimulus and behavior, and that any behavior can be changes through reinforcement. The focus of the behavioral approach is on how the environment impacts overt behavior. According to behaviorists, people are not good or bad from birth. Experiences and environment constitute a human's personality. Human behavior can be learned, unlearned and replaced at any point of time.

Behaviorism is concerned primarily with the observable and measurable aspects of human behavior. Therefore when behaviors become unacceptable, they can be unlearned. Behaviorism views development as continuous process in which children play a relatively passive role. It is also a general approach that is used in a variety of settings such as clinical and educational settings. Behaviorists assume that the only things that are real are the things we can see and observe. Through behavioral approach of teaching, a teacher does not look to the mind or the brain to understand the causes of abnormal or normal behavior instead he assumes that the behavior represents certain learned habits, and he attempts to determine how they are learned. Children with disabilities have various behavioral challenges i.e. shows high rang of undesirable and age inappropriate behaviors due to lack of skill and ability to understand and organize their own behavior. In this regard, behavioral approach in teaching greatly helps a teacher to understand and analyze the various behavioral challenges among learner and thus plan for a strategic intervention. It is an effective approach of teaching children with disabilities.

2.5.2 Applied Behaviour Analysis (ABA)

Applied behavior analysis (ABA) refers to a systematic approach of understanding behavior. It is deeply rooted in the early work of Thorndike, Watson, Pavlov, and Skinner on respondent and operant conditioning. As a practice, ABA refers to the application of behavior analytic principles to improve socially significant important behaviors and is especially important in the field of developmental disabilities. It is a science which provides a structure for looking at human. The foundation of applied behavior analysis is focuses on the needs of a child and then motivates him/her to learn in a playful way. It analyses the behavior in a scientific manner and provides a basic structure for teaching new skills. According to Autism Speaks (2008), "'Behavior' refers to all kinds of actions and skills (not just misbehavior), and 'environment' includes all sorts of physical and social events that might change or be changed by one's behavior." This approach can be used in a structured situation such as classrooms, family or neighborhood playground to understand behavior and how it is affected by the environment and it can be applied in one to one and in group setting as well.

ABA is a process of systematically applying interventions based upon the principles of learning theory to improve socially significant behaviors to a meaningful degree

and to demonstrate that the interventions employed are responsible for the improvement in behavior

(Baer et.al.1968). It focuses on the relationship between a person's environment and behavior.

Potak referred to six ways in which ABA supports an individual. These include

1. To increase behaviors
2. To teach new skills
3. To maintain behaviors
4. To generalize or to transfer behavior from one situation or response to another
5. To restrict or narrow conditions under which interfering behaviors occur
6. To reduce interfering behaviors.

All behaviors, whether they are being observed or taught can be broken into 3 parts:

- Antecedent (A) - What triggered a behavior or what happens before the behavior?
- Behavior (B) - The behavior itself
- Consequence (C) - What happens after the behavior?

Approaches of ABA

- **Discrete Trial Training**

  Discrete Trial Training (DTT) is a method of teaching in simplified and structured steps. Instead of teaching an entire skill in one go, the skill is broken down and "built-up" using discrete trials that teach each step one at a time. It consists of a series of distinct repeated lessons or trials taught one to one. Many people initially respond to concrete reinforce but later these concrete rewards are faded as fast as possible and replace with the social rewards. It was evident to be a effective approach for teaching children with ASD and other disabilities.

- **Pivotal Response Therapy (PRT)**

  Pivotal Response Therapy is a play-based method that targets improving "pivotal" development areas instead of individual behaviors. It is based on the idea that

changes in pivotal responses would spark widespread progress in other developmental areas. PRT was initially established in the 1970s by Dr. Robert Koegel and Dr. Lynn Kern Koegel. By focusing on pivotal areas, PRT produces improvements across other areas of social skills, communication, behavior and learning. Development of skills is promoted by primarily two pivotal behavior skills: motivation and the ability to respond to multiple cues. Studies have shown that the development of these skills result in overall behavioral improvements in children with ASD.

- **Reciprocal Imitation Training**

  A variation on the pivotal response training procedure for teaching play skills is reciprocal imitation training. It was developed to teach spontaneous imitation skills in a play environment. The intervention technique has also been shown to increase pretend play action. It is designed to encourage mutual or reciprocal imitation of play actions between a therapist and child. The procedure includes unexpected simulation in which the therapist imitates actions and vocalizations of the child.

- **Self Management Treatment**

  Self management has been developed as an additional option for teaching children with disability to increase independence and generalization without increased reliance on a teacher or parent. It includes teaching the child to monitor his/her own behavior in the absence of an adult.

2.5.3 Discrete Trial Training (DTT)

Discrete Trial Training (DTT) is a structured ABA technique that breaks down skills into small, "discrete" components. Systematically, the trainer teaches these skills one by one. Along the way, trainers use tangible reinforcements for desired behaviour. For example, a trainer teaching colours to a child might begin by teaching red. She would ask the child to point to red and then reward the behaviour. She would then move on to teaching yellow by itself, reinforce that skill, and then ask about both colours. After the child learns all these colours, the trainer might teach the child to say each colour's name. Discrete Trial Training (DTT) is a method of teaching in simplified and structured steps. Instead of teaching an entire skill in one go, the skill is broken down and "built-up" using discrete trials that

teach each step one at a time (Smith, 2001). DTT is an approach used in ABA which can be used to "maximize learning for all ages and populations through a comprehensive and objective treatment plan. It involves a series of specific steps used to teach and expand skills including cognitive, communication, play, social, coping and self-help skills. A key feature of discrete trial methods is multiple repetitions of learning trials.

Leaf, et al. (2008) identified seven steps for the DTT process:

1. Identifying needed skills
2. Breaking complex skills into smaller parts
3. Teaching one component skill at a time until mastered
4. Allowing repeated practice within a concentrated period of time
5. Providing prompting and prompt fading as necessary
6. Using reinforcement procedures
7. Facilitating generalization of skills into the natural environment.

2.6 Cognitive Approach– Meta-cognitive Training, Cognitive Behavior Management

2.6.1 Cognitive Approach: Concept

Cognition refers to mental activity including thinking, remembering, reasoning, problem solving organizational skills, learning and using language etc. Cognitive approaches to learning are concerned with how information is processed by learners. Cognitive theories view students as active in "an internal learning process that involves memory, thinking, reflection, abstraction, motivation, and meta-cognition". Students organize their previous knowledge, scripts, and schema, find relationships, and establish the connection between the new and previous information and generate new set of learning. A cognitive approach of teaching is a way to facilitate learners to use their brain more effectively. It is an active and constructive approach which encourages learner to cognitively engage in learning process so that the process of learning, thinking and remembering the concepts gets easier. Through cognitive approach to learning and teaching, a teacher focuses on developing the understanding of information and concepts. It is evident that if we are able to understand the

connections between concepts break down information and rebuild with logical connections, then the retention of material and understanding will increase. The cognitive approach emphasis that the mind should actively processes information from senses. The real focus of the cognitive approach is on changing the learner by encouraging him/her to use appropriate learning strategies. The complex mental process between stimulus and response are studies scientifically.

2.6.2 Meta-cognitive Training

Meta-cognition is a complex construct commonly defined as "thinking about thinking". Meta-cognition broadly describes knowledge about the regulation of one's own cognitive processes. A broad definition of meta-cognition includes basic aspects of information perception and processing, as well as higher cognitive functions, and refers both to the content and the processes of cognition. It encompasses multiple domains and layers of information processing, which Flavell distinguished into four components: (1) meta-cognitive knowledge, (2) meta-cognitive experience, (3) meta-cognitive goals, and (4) meta-cognitive actions.

The umbrella term "meta-cognition" can be divided into two separate, but interrelated parts: Meta-cognitive Knowledge and Self-regulation. Meta-cognitive knowledge is knowledge that we hold about our own thinking, and the thinking of other people such as information about which strategies might be useful at a given time, and why. Self-regulation on the other hand, refers to a set of activities that help learners to control their learning. It is also known as executive control which includes activities such as anticipation, planning and control, which are referred to by several authors as meta-cognitive strategies (Berger, 2008; Bosson et.al.). Research has shown that meta-cognitive regulation supports performance in a number of ways, including understanding where to direct attention, using strategies more reliably and efficiently, and developing awareness of difficulties with comprehension. Both aspects of meta-cognition are important in school learning and reported to be underdeveloped in students with learning difficulties (Swanson, 1993). Meta-cognitive competencies also substantially influence the capacity to transfer the knowledge to a new situation.

Self-regulation includes three essential skills:

- **Planning** which involves working out how a task might be approached before you do it.

- **Monitoring** refers to the pupil's on-task awareness of progress, comprehension and overall performance.
- **Evaluation** refers to review the outcomes and efficiency of the learning experience.

The knowledge of meta-cognition is important for a teacher as it makes sense that an awareness and understanding of how we learn could impact upon the way in which we learn. For more than a century educationalists have been suggesting that paying conscious attention to the learning process could influence how we acquire knowledge and understanding. Thirty

years of research in this area indicates that awareness and application of meta-cognitive skills supports learning for pupils. In equipping pupils with the knowledge of how to learn we can set them up for future challenges. We all strive to find ways to keep our pupils engaged and to make them an active part of the learning process. Teaching meta-cognitive skills to students gives them the key to understanding their own learning. It shows them ways to take responsibility for the way in which they learn, rather than expecting to be a passive recipient and waiting for the next transmission of information.

Developing meta-cognitive skills are also an important aspect of formative assessment or Assessment for learning. In order to maximize the benefits of learning experiences, pupils must be able to evaluate their own performance, isolate steps that they can take help to improve and work in a collaborative way with their teachers to decide on next steps. Knowledge of meta-cognition on the parts of both the teacher and pupil is an important factor in facilitating the assessment for learning process.

Meta-cognitive skills are tools that empower the learner. Pupils very often fail to see learning as cycle that involves revisiting previous work to see where it can be improved, acknowledging the value of mistakes, and planning improvements on this basis. By showing a learner that they can be in control of how they study, how they organize their work, and how they reflect upon it, they can be encouraged to take responsibility for their learning and demonstrate that it is an active process of learning. Learning does not happen by chance rather the self-regulatory skills of planning, monitoring and evaluating are crucial for the student if they are to experience learning in the holistic manner intended in the learning cycle.

2.6.3 Cognitive Behavior Management

Cognitive behaviour management (CBM) is an approach developed by Donald Meichenbaum. It is most commonly used intervention in counselling which combines cognitive and behavioural learning principles together to shape and encourage desired behaviours. It is believed that behaviours are viewed as outcomes of our own self verbalisations. Hence, CBM approach focuses on changing our life narratives and dysfunctional or negative self talk to positive behaviours. In cognitive behaviour management, the child is trained to recognise destructive or harmful behaviours through patterns of behaviours, and then replace them with helpful or constructive thoughts and behaviours. To be more specific, cognitive behaviour management refers to theoretical and applied orientations that share three underlying assumptions: (a) an individual's behaviour is mediated by cognitive events; (b) a change in mediating events results in a change in behaviour; and (c) an individual is an active participant in his learning.

Techniques of CBM

Self Instructional Technique

Self instructional technique was developed by Donald Meichenbaum (1977) as part of cognitive behaviour therapy. A person usually engages in self talk and the nature of his self talk affects his behaviour. Faulty and irrational verbalisations result in anxiety and other emotional and behavioural problems. Hence, in self instructional training the clients are taught to keep track of self statements that are destructive or negative, and are then given training to substitute them with more adaptive ones through homework assignments and practice. Thus healthy self talk replaces the negative self talk or internal statements. Identifying and modifying the negative/ destructive/unhealthy internal statements to positive statements reduces the stress and anxiety. First, the client is made aware of the negative self talks going on within him. Then, the client is helped to understand/realise how his negative verbalisations lead to the anxiety or fear or other emotions and behaviour of him. Next the client identifies the positive self talk he needs to do in place of the negative ones. He is then given training to make the positive self talk through practice. The self instructional training can be used successfully to deal with anxiety, fear, addiction, compulsive behaviours, unhealthy eating habits and other similar behaviours.

Stress Inoculation Technique (SIT)

Stress Inoculation training prepares the individual in advance to handle stressful events successfully. In SIT, patients are educated about stressful situations and the general nature of stress, the negative outcomes that they may be helpless to experience when confronted with stress, and steps they can take to avoid those negative outcomes. Thus stress inoculation is designed to encourage individual's preparedness, intra- and interpersonal skills as well as their confidence in being able to apply their coping skills in a flexible fashion that meets their appraised demands of the stressful situations. They learn how to detect and identify cues as soon as they appear in newly learned coping skills into immediate action. In doing so, the person can tackle the anxiety and stress early on before it gets out of control. Stress Inoculation Training given by Meichenbaum (1985) is a complete cognitive behavioural intervention package that makes use of cognitive restructuring, self instruction, self-monitoring, problem solving, relaxation training.

Self Management Technique

Self management strategies make use of cognitive and behavioural skills by the individuals to maintain self-motivation and achieve personal goals. Most people who decide to use self-control or self management strategies are dissatisfied with a certain aspect of their lives. Thus, the goal of self-management strategies is to reduce behavioural deficiencies or behavioural excesses. Behavioural deficiencies occur when an individual does not engage in a positive, desirable behaviour frequently enough. Behavioural excesses occur when an individual engages in negative, undesirable behaviour too often. This results in a negative future consequence. In certain situations, the person is taught to identify, monitor, and bring

changes in his behaviour deficit or behavioural excess so that it leads to desired behavioural changes. Thus self management techniques use self observation, self instruction, self praise, self reward and self punishment to bring about desirable changes in their behaviour.

Problem Solving Technique

In life we are faced with so many problems related to our school, college, home, work and varied life situations. We need to solve them effectively in order to lead an efficient life. Problem solving comes handy here as a tool, a skill and a process.

As a tool it helps you solve a problem or achieve a goal. As a process it involves a number of steps and as a skill, it can be used throughout life to deal with various problems and situations. Problem-solving has two distinct phases: (i) a problem definition phase where a problem is being defined in more specific and brief way, finding out the causes and intensity of the effect of the identified problem and (ii) a problem solution phase in which a problem is being analysed from different perspectives, determine and examine various alternatives to solve the problems and implementing the solution that has been chosen and evaluating its effectiveness. Problem solving is a cyclical process. If the solution is not found to be effective, again the process starts; and the problem is defined and analysed again, and goals set and solutions found. In the whole process, the focused person plays an active role in the problem solving process.

2.7 Integration of above in Inclusive Classroom Context

Children with disabilities have equal right to access need based education. Government policies at national and international level in recent years have taken much initiative to provide equal and accessible education to all children with disabilities either in special or in regular educational setups. In context of inclusive classrooms, learning along with the typically developing students and following a rigid curriculum is a challenge for them. It was found that due to the certain limitations in terms of cognitive, sensory and physical functioning, they either left isolated or just promoted to the next level of education without having satisfactory academic achievements or many a time a high dropouts are also recorded because of their inability to cope with the high level expectation of the general education system. In inclusive education classroom, child with disability can be benefited and able to achieve the educational objectives only when the learning experiences will be planned and executed considering their needs and capacity of learning.

In order to provide need based appropriate educational experiences, it becomes an essential responsibility of a teacher to have good knowledge and skills about various instructional strategies so that considering the unique characteristics of learners, the flexibilities will be give in terms of the presentation, expression and evaluation of learning experiences. Various teaching approaches are introduced to order to make the teaching learning process more effective and learner friendly.

Children with disabilities achieve their developmental milestones much delayed and so they generally exhibit the age inappropriate functioning. Following developmental approach of teaching, a teacher understand the developmental process of a learner and their needs at each stage of development and then plan the learning experiences in inclusive setups. Further, due to the challenges related to the various sensory functioning, children find it difficult to receive and integrate the information through different sensory organs and develop various concepts, with the help of multisensory approach of teaching a teacher helps the students to use more than one sensory receptor to receive and organize information from different sources. Children with disabilities also exhibit various behavioral issues. These undesirable behaviors occur due to lack of understanding the demand of the environment and lack of knowledge to express themselves in a desirable way. These undesirable behaviors adversely affect the overall learning experiences of children with disabilities. Through this approach of teaching, a teacher understand the various behavioral aspects and its significance in learning process, analyze the factors affecting the behaviors and apply appropriate management techniques in order to overcome the behavioral issues and access effective educational outcomes. In the same line, cognitive approach of teaching helps a teacher to take in to account the cognitive functioning of the child and create maximum opportunities to learn and develop the concepts. Considering the philosophy that learners are the sole responsible for their learning, the learning environment and opportunities are created by teacher and learners are put in to the task where they have to explore their learning by themselves.

The integration of the various teaching approaches helps a teacher to develop a most appropriate educational plan considering the needs and capacity of children with disabilities in inclusive setups. It is also helpful to make an accessible classroom environment for all children regardless of their abilities and disabilities and make their learning at comfort pace. Inclusive education practices can be effective only when all children will be able to learn together and achieve their educational goal at fullest.

2.8 Let us sum up

A teacher needs to have extensive knowledge and broad range of professional skills to bring positive changes among these children with disabilities. In this regard, the variety of ways of teaching helps a teacher to conceptualize the whole teaching

learning process based on the need and capacity of learner and select the appropriate one for the effective achievement of educational objectives. Various approaches of teaching which are found to be very effective for children with disabilities are- developmental approach, multisensory approach, behavioural approach and cognitive approach of teaching.

The developmental approach is influenced by developmental psychology which highlights the developmental phases of an individual and progressive education which emphasis the various educational needs at each stage of human development. In developmental approach of teaching, the curriculum for young children takes into account the principle that what all educational experiences a learner should get and how they can best learn with the changes of their age and capacity of learning that comes as they grow. There are two types of developmental approaches discussed here. First is Montessori approach which sees a child as one who is naturally eager for knowledge and capable of initiating learning in a supportive, thoughtfully prepared learning environment. It attempts to develop children physically, socially emotionally and cognitively. The second is floor time which focuses on having partners get down on the floor with playful interaction and follow the child's lead to encourage the child's initiative and purposeful behaviour, deepen engagement, lengthen mutual attention, and develop symbolic capacities and various problem-solving exercises.

A multisensory approach is a philosophy in which a child's learning is being facilitated through using more than one senses. This approach is effective for any kind of learner but it can be particularly helpful for children with learning and attention issues and challenges related to sensory integration where they sense information normally but have difficulty perceiving and processing that information because it is analyzed in their brains in a different way. Fernald approach also known as VAKT approach and Orton and Gillingham approach are the two different approaches comes under multisensory approach which is very much helpful in various concepts and language developments through integrating more than one sensory receptor.

Behavioural approach of teaching mostly focuses on how behaviours are acquired. It claims that learning can develop by means of establishing a connection between stimulus and behaviour, and that any behaviour can be changes through reinforcement. The two behavioural approaches are ABA and DTT. ABA is a process of systematically applying interventions based upon the principles of learning theory to improve

socially significant behaviours to a meaningful degree and to demonstrate that the interventions employed are responsible for the improvement in behaviour. Discrete Trial Training (DTT) is a structured ABA technique that breaks down skills into small, "discrete" components. Systematically, the trainer teaches these skills one by one.

Cognitive approaches to learning are concerned with how information is processed by learners. Cognitive theories view students as active in "an internal learning process that involves memory, thinking, reflection, abstraction, motivation, and meta-cognition". The two cognitive approaches of teaching are meta-cognitive training and cognitive behaviour management. Meta-cognition includes basic aspects of information perception and processing, as well as higher cognitive functions, and refers both to the content and the processes of cognition. Cognitive behaviour management (CBM) is an approach developed by Donald Meichenbaum. It is most commonly used intervention in counselling which combines cognitive and behavioural learning principles together to shape and encourage desired behaviours.

The integration of the various teaching approaches helps a teacher to develop a most appropriate educational plan considering the needs and capacity of children with disabilities in inclusive setups. It is also helpful to make a accessible classroom environment for all children regardless of their abilities and disabilities and make their learning at comfort pace. Inclusive education practices can be effective only when all childen will be able to learn together and achieve their educational goal at fullest.

2.9 Unit End Exercise

1. Discuss in details about the concept and various types of developmental approaches of teaching.

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2. What is multisensory approach of teaching and why is it relevant for children with disabilities?

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3. Discuss in details about the relevance of various behavioural approaches of teaching children with disabilities?

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4. Write a short mote on meta-cognition.

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5. Discuss the signification of the integration of various teaching approaches for the education of children with disabilities in inclusive classroom.

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6. Discuss about the various techniques of cognitive behavior management.

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2.10 References

Bhatia & Bahatia. (1982). The Principles and Methods of Teaching. Doaba house book seller and publisher, New Delhi.

Bos, C. S., & Vaughn, S. (1998). Strategies for Teaching Students with Learning and Behavior Problems, *4th ed.* Allyn and Bacon.

Lerner, J. (2000). Learning Disabilities: Theories, Dianosis, and Teaching Strategies, 8th ed. Houghton Mifflin Company.

Hergenhahn, B.R, (1982). An Introduction to Theories of Learning. Englewood Cliffs, NJ: Print Hall.

Baruah, Anganabha. (2014). Applied Behaviour Analysis for Autistic Children: An Insight. Indian Journal of Developmental Disabilities. Vol 2, Number 1. ISSN-23197951

Baer D.M., Wolf MM., & Risley TR. Some Current Dimensions of Applied Behaviour Analysis. Journal of Applied Behaviour Analysis. 1968; 1:91-97.

Nayak, A.K & V.K Rao (2002). Educational Psychology.APH Publishing Corporation, New Delhi. ISBN 81-7648-363-X

Flavell, J. (1976). Meta-cognitive Aspects of Problem Solving. In L. Resnick (Ed.), The Nature of Intelligence (pp. 231–236). Hillsdale, NJ: Erlbaum.

Bjorklund, D. F. (2005). Children's Thinking: Cognitive Development and Individual Differences (4th ed.).Belmont, CA:Wadsworth/Thomson Learning.

Flavell , J.H., & Wellman, H.M. (1977). Meta-memory. In R.V.Kail &J.W.Hagen (Eds.), Perspectives on the Development of Memory and Cognition (pp.3-33). Hillsdale,NJ: Lawrence Erlbaum Associates.

Brown, A.L. (1987). Meta-cognition, Executive Control, Self-regulation, and other more Mysterious Mechanisms. In F.E Weinert & R.H. Kluwe (Eds.), Meta-cognition, Motivation and understanding (pp. 65-116) Hillsdale,NJ: Lawrence Erlbaum Associates.

Strategy Acquisition by Children with Learning Difficulties in a Meta-cognitive Training. Australian Journal of Learning Difficulties, 14.

Swanson, H.L. (1993). Executive Processing in learning Disabled Readers. Intelligence, 17, 117-149.

NIDA Publication: A Cognitive Behavioral Approach: Treating Cocaine Addiction. Downloaded from the World Wide Web at: http://www.drugabuse.gov/txmanuals/cbt/CBT1.html

R.. L. Leahy, Cognitive Therapy: Basic Principles and Applications. Jason Aronson Publishing Co., 1996. Downloaded from the World Wide Web at: http://www.352express.com/wpm/files/40/ arosnon02INTRO 2.pdf

https://www.researchgate.net/publication/233631191_Metacognitive_Teaching_in_a_Special_Education_Class

https://www.sess.ie/sites/default/files/Projects/Equality_of_Challenge/SESS_Metacognition_Resource_V1.pdf

http://www.educateautism.com/applied-behaviour-analysis/discrete-trial-training.html

https://www.researchgate.net/publication/323201259_An_Introduction_to_Applied_Behavior_Analysis

https://www.autismspeaks.org/sites/default/files/201808/Applied%20Behavior%20Analysis%20Guide.pdf

https://www.academia.edu/28069372/Applied_Behavior_Analysis_ABA_For_Autistic_Children_An_Insight

http://www.vkmaheshwari.com/WP/?p=2364

http://www.nessy.com/us/files/2014/06/Orton-Gillingham_Report-Final-Version.pdf

https://web.cortland.edu/andersmd/BEH/BEHAVIOR.HTML

http://gstspecialedition.org/wp-content/uploads/2014/08/FernaldMethodforReading.pdf

https://www.dys-add.com/resources/Myths/IDA.OG.Fact.Sheet.pdf

http://www.sutismspeaks.org/whatautism/treatment/applied-behavior-analysis-aba

Unit - 3 □ Curricular Domains & Levels

Structure

3.1 Introduction

Education is a powerful instrument of social change and often initiates upward movement in the social structure to bridge the gap between the different sections of society. It is only through a well designed and effectively implemented curriculum that the child could be equipped to realize his inner potential and to contribute meaningfully to nation building. A curriculum is the basic to the aesthetic, emotional, ethical, intellectual, physical, social, spiritual and vocational development of the child. It is believed that if a teacher is the guide then the curriculum is the path. Curriculum development is the process of structuring the overall learning experiences. It is a comprehensive, ongoing, cyclical process to determine the needs of a group of learners; to develop aims or objectives of the program to address those needs; to determine an appropriate syllabus, course structure, teaching methodology; and to carry out an evaluation that results from these processes.

All learners regardless of their abilities and disabilities must get the basic academic, employability, and social skills to be prepared for post secondary education, employment, and to become a contributing member of society. The federal law sets the foundation for the quality of educational opportunities for children with disabilities. By improving educational results through higher expectations and access to and participation in the general education curriculum, children with disabilities will become adults who are prepared to participate and

contribute to society. The provision of a well-planned, modified, and articulated curriculum that would provide students with disabilities appropriate access to the general curriculum and effective instructional support is the major thrust in education.

The achievement of a well-designed curriculum in special education depends on the ability of the school administrator to ensure appropriate educational opportunities for students with disabilities. This involves adequate planning of the curriculum that focuses on activity-based learning, self-directed learning, and cooperative group work and peer

learning. The school administrator need to make provision for adequate resources for the implementation of effective curriculum which involves provision of adequate personnel for the training and re-training of in-service and pre-service teachers who will be able to develop key skills within a broad content areas, using individualized education programme, variety of assessment tools as well as multi-disciplinary approaches in the education of students with special needs. The school administrator need to provide teacher-educators with facilities that will enable them to possess the skills needed, understand the curriculum, new methods, and techniques in teaching for the attainment of the goals and objectives of special education.

3.2 Objectives

- To develop the curriculum for children with ID at pre-primary and primary level
- To develop the curriculum for children with ID at secondary level
- To develop the curriculum for children with ID at pre-vocational level
- To develop the curriculum for children with ID at vocational level
- To understand the implication of curriculum development in inclusion.

3.3 Development of Curriculum at Pre-primary and Primary level– Personal, Social, Academic, Occupational and Recreational

3.3.1 Pre-primary Education

Children with the age range of 3-6 years are eligible to get pre-primary education. This is also considered as a crucial age for the early child development in which most of physical, social, emotional and cognitive development. A child goes through with various experiences from home and community environment before entering in to the preschool education. All these

experiences work as a foundation of their learning and contribute to build up next level of learning. In pre-primary education, children are exposed with the structured learning environment filled with strong stimulus, challenges, and playful events to facilitate their learning with joyful experiences. IT must be ensured that children feel secure and protected in learning setup and rather that fear of competition, they must experience learning to be more participative.

Due to the limitations in cognitive functioning, children with ID achieve their developmental milestones much in delay and exhibit age inappropriate behaviors. Exposure of pre-primary education to children with disabilities helps in developing skills which further reduces the level of the severity of disability. It also reduces the risk to future occurrence of disabilities. In pre-primary education, the readiness skills are promoted and make the child ready for the effective inclusion in education and society as well. It prepares a strong foundation for children and prepares them to face the future academic and life related challenges.

3.3.2 Curriculum at Pre-primary Level

The preparatory skills for preprimary education need to be developed among children thus teachers must ensure the children necessarily facilitated to acquire following preparatory skill-

- Sitting in a place for the required period of time.
- Follow the teacher and the instructions
- Discriminate between visual and auditory stimulus.
- Receptive and expressive language development.
- Gross and fine motor development.
- Development of eye-hand coordination.
- Development of self help skills.
- Social skill development

Important Considerations while Developing Pre-primary Curriculum-

- Children develop their relationship and learn from with their environment.
- This is the first step where children organize environmental information for their learning so a curriculum should provide opportunities to the child to have maximum interaction with their environment.
- Children with disabilities find it difficult to organize information available in their environment by themselves so they should be stimulated towards their environment.
- Different senses contribute differently in the process of learning. A curriculum should be developed in such a way that children must get experience to use all their senses

and receive the information in order to process it effectively. Multi sensory approach should be followed in teaching and learning process.

- The nature of the program should be in developmental order and should be based on the level of functioning of the child. For this, a teacher must be aware about the natural developmental process and also about the developmental delays.
- Children learn effectively and much excited to learn through play, dance, music, stories thus the learning should take place through these methods.
- A structured and activity based teaching techniques are very much helpful to teach children with disabilities.
- In curriculum development, tasks must be selected considering the present developmental needs of children with disabilities.
- The capacity of concept development depends upon the level of cognitive development of a child. Thus the learning experiences must be planned accordingly.

3.3.3 Development of Curriculum at Preprimary Level

Following points to be considered while developing a curriculum-

- A curriculum should be balanced and descriptive so that children can get multiple experiences in order to enhance their learning.
- Observation and recording should be done for their learning process.
- Variety of materials should be available and utilized effectively to fulfill their learning needs.
- In order to help children to learn according to their interest and speed, learning exposures must be flexible and equipped with variety of activities.

There should be continuous observation of the learning of a child. Observation helps a teacher to understand the appropriateness of the curriculum, helps to know whether it is helping in all the areas of development, to set the next level of challenges for the child, to know whether the curriculum is helping for pleasant learning experience for the child and also to rectify whether there is any change needed to improve the existing curriculum. Children need a safe and barrier free environment where they can feel safe and freely participate and enjoy the learning process. Thus the collaborative work is needed between parents and professionals to ensure the effective implementation of educational services for children. There should be least restriction and interferences from adults as children

may develop fear and lose their interest in learning. Adult interferences should be limited to the urgent need of the child when a child should be guided properly about how to overcome from the challenges.

Personal Skills at Pre-Primary Level

Personal skills at pre-primary level includes eating, drinking, toilet training, wearing and removing cloths, wearing footwear, identifying and expressing needs and so on.

Drinking Liquids- help the child to associate drinking skill with the need of drinking liquids. Teach to request to someone for drinks. If the child finds it difficult to hold the glass due to motor difficulties, use the adapted glass or cup to assist their holding. Give less drink at initial stage and later on you may increase the quantity as per the need. To teach the drinking skill, we need to find out whether the child is found of a particular flavor and accordingly select the drinks for teaching drinking skill. Transferring water from one pot to another can also be taught to children.

Eating Food- teach the child the correct sitting position while eating, use of napkin during eating. Children can be provided with the dry food at initial stage of learning and later could be introduced with the semi-liquids and liquid foods. If the child spread the food around during eating then give one bite of food at a time and once the child finishes it completely then only give another piece of food and later on once the child learns eating then more quantity of food can also be served to the child. Give physical and verbal assistance to the child if needed to learn eating skills which later on can be reduces. We need to teach the child nixing food before eating but sometimes if the child is not able to do it independently then serve the food which is already mixed and gradually then teach the child mixing food too. Some children faces difficulty in chewing the food so in certain situations, demonstrate the task or ask some to role model the task to teach the concept of chewing the food. If the child finds difficult eating food with fingers then teach to use the spoon for eating. In case problem in griping the spoon then use the adapted spoon for holding it properly. Teach the child to request for the particular food item during eating.

Bathing Skills- These skills are generally taught in home setup by family members. Guidance is provided to the parents or caretakers to teach these skills. Skills such as wetting the body/pouring water, applying soap, rubbing body, cleaning body, using towel to dry the body etc. are taught under bathing skills. Children can also learn to maintain the privacy too from the beginning itself.

Toilet Training- It is very important for a child to be independent in toilet skills. In general, children become independent in these skills till the age of 3-4 years but children with developmental delay generally learn these skills much in delay so these skills need to be developed with proper and structured training. The training can be given only in a situation when the children really need to eliminate. If the child does not express the needs then observe the child and prepare the schedule chart and follow it when teaching toilet skills. During teaching, teach the child to connect this learning with the need of using toilet, teach to express the need of using toilet either through verbal way or gestures, find and goes to the washroom, opening and closing the door, removing pant/underwear, sits in toilet, eliminate, clean the private parts with water/toilet tissue paper, flush the water, wearing pant of underwear, maintain privacy.

Brushing Skills- Teaching brushing skill is very important in order to maintain the oral hygiene. This skill can be taught in school and in home setup as well. The training includes holding brush properly (in case of griping issues then teach the child through adapted brush), applying toothpaste, use of mirror while teaching brushing skills, teach spiting the paste and cleaning mouth with water, identifying their own brushes.

Dressing Skills- Training in dressing skills includes wearing and removing cloths, buttoning and unbuttoning, zipping and unzipping. In wearing cloth, identification of their cloths and first removing and then wearing cloths, maintaining privacy, identifying the correct of side of the cloth comes as a procedure. While teaching buttoning or unbuttoning, use of large size button at initial stage and later on normal size buttons are recommended. If the child fined it difficult to use the button or hook then adaptation in it must be needed such as the use of Velcro or elastics.

Social Skills at Pre-Primary Leveling

An age appropriate behavior is very much essential for every human being to be an acceptable member of the society. Children with developmental disabilities generally show age inappropriate behaviors due to their cognitive limitations and lack of adaptability from the environment. So there is a need to develop and implement a structure instructional plan to enhance social skills. Instead of isolating them from the society it is rather necessary to give them exposure to experience and develop appropriate social skills among children with ID. Training must be started from the very early stage of development and it is a major responsibility of parents, relatives, community members, friends and professionals to incorporate their efforts to shape their behaviors in a desirable

way. It is rather essential for their effective inclusion and expands the opportunities of learning. Various social skills such as- responding to their name, interact with the unknown person, sharing their belongings with others, greets others, appropriate expression of emotions, follow instructions, waiting for their turns, development of expressive and receptive language and communications skills, tell name when asked, play in group, share social smiles, differentiate between familiar and strangers etc. are taught to children with ID at pre-primary level or education.

Academic at Pre-Primary Level

This stage is considered as the foundational stage for overall development of the child. Children with developmental disabilities find major difficulties in academics. The ability to understand the academic concepts is very much depends on the severity of disability. At pre-school level, children need to get maximum exposure of learning academic concepts as this is the period where much development can happen in child's functional abilities. Academics at pre-primary level includes pre-math and pre-computational skills such as the concept of more- less, big-small, solid-liquid, different shapes, name of different concepts like fruits, vegetables, colours, birds, animals, number concept, holding pencil, tracing, joining, identify parts of the body, scribbling, drawing different patterns, colouring, number concept, identification and naming alphabets, differentiate between money from other objects, basic money concepts, various means of transport etc.

Factors to be Considers when Teaching Concepts

- Concrete experiences are very essential to develop different concepts.
- Teaching concepts through the process of matching, discrimination and differentiation.
- Limited options should be provided at initial stage of learning and later on it may be increased in number.
- Paying attention is a key factor in learning the different concepts.
- Repetitive practices of the learned concepts are needed to retain the concepts for long
- While teaching one concept, many more concepts can also be developed such as while teaching about vegetable the colour, shape, texture can also be related. The learned concepts need to be generalized in day to day life.

Occupational skills at Pre-Primary Level

At pre-primary level children are exposed with very basic occupational skills. They are allowed to observe the adults how are they performing the different activities and then gradually children are involved in the household activities initially with support and later on supports should be faded out as the child start doing the task independently. The important point to be considered by adults is that these children generally take much time to understand the functioning of the task and also take little more time to do and finish the task as compared to the other typically developing children and adults. Taking it as a major consideration, children must be allowed to do the task at their own pace and they must be appreciated for whatever efforts they put to get in to the tasks. It helps to build up their self confidence at further stage of their development. Dust the furniture with duster, washes utensils like glass and plate, wiping utensils, fold small cloths, serve water, helping others in domestic works etc.

Recreational Skills at Pre-Primary Level

Children at this stage shows interest enjoy in playing indoor and outdoor games. This helps to enhance their physical movements. With the help of play/games, eye-hand coordination, fine and gross motor development happens faster. It also increases the self-confidence and self-awareness, cognitive and social development among children. Play activities must be selected very carefully considering the interest and physical abilities of the child and with the objectives of child's physical, social, cognitive and emotional development. Recreational activities under pre-primary level includes indoors and out door games such as watch T.V., dance or clap on rhymes or music, play with blocks, coloring, see images, arranging things properly, play with ball, climbing, running, jumping, hopping, hide and seek, catching games, sand play, water play, group games, swinging and sliding, cycling etc.

3.3.4 Primary Education

Children under the age range of 7-10 years come under the category of primary education. Due to cognitive limitations, the development process of children with ID in all the areas are much delayed. The academic learning and adaptive behaviors also get affected due to limitation in intellectual functioning. At primary level of education, much emphasis is given in all development of those skills which are survival skills and are very essential for children to live independently in their life. There are two levels at primary level of education for children with ID. If the child achieves 80% at pre-primary level then the

he is promoted to primary level 1 which is from 7-10 years of age. If the achievement level is below 80% then he continues for 3 more years at pre-primary level. During the extended period of three years of education at pre-primary level, at any point of time if the child consistently achieves 80% then he is promoted to primary level 1 but if the level of achievement is below 80% till the age of 9 years then the child is placed in primary level 2 from 9-14 years of age. During this period, if achievement goes up the level of 80% then the child is promoted to secondary level if not then he is promoted to prevocational level 2 at the age of 15 years.

3.3.5 Curriculum at Primary Level

Curriculum at primary level is an elaborative form of pre-primary curriculum. Children develop their skills in personal, social, academic, occupational and recreational domains with the increased level difficulties considering the developmental order. The learning exposure at primary level depends upon the age, gender, environmental needs, level of functioning, need, abilities of children with disability. The teaching learning process is more structured and need based. Children learn through observation, imitation and independent practices. Need based assistance is provided to children to facilitate their learning process. Children are encouraged

to generalize the learned skill in to different life situations for which coordination between parents, professionals and community members need to be established. Children need to be encouraged to learn effectively and appreciated of every effort that they give to perform the task. Children must be given opportunity to express their choices, respected for the decision making process, motivated to solve various life related small problems by themselves.

3.3.6 Development of Curriculum at Primary Level

Personal Skills- The skills come under personal domain are eating skills such as- eats by self, ask for food if need to be served more, make arrangements during meal time, take water and drink, serve water to others, wash hands before and after food etc., toileting such as- reaching to toilet, clean self, flushes or pour water after toileting etc., bathing skills includes washing face with soap, wiping face and hand using towel, clean nose with handkerchief when needed, apply soap while bathing etc., dressing skills such as- unfasten cloth like unbuttoning, unzipping unhooking, fastening clothes like buttoning, zipping, hooking, wearing cloths including undergarments etc., grooming skills like apply powder, combing hair etc.. Walking, running, jumping, climbing, crossing, catching etc.

as a gross motor skills and holding things using pincer grip or manipulating thins using fingers as a fine motor skills also comes under the category of personal skills.

Points to be considered in teaching eating skills:

- Children should get this opportunity to eat variety of food such as soup, noodles, dosa, sandwich etc. as different foods are eaten in different ways.
- Teach children to eat with other family members. Children observe others while eating and learn. It is good for psycho-social development of the child.
- Children should get experience to eat in different occasions such as in party, at restaurants etc. let the child decide what does he want to eat and let them order for it. It helps in developing meal time etiquettes.
- Involve the child in helping family members in preparing the food, making arrangements and serving the food.

Social Skills- At this stage of development, children are generally kept isolated in to exhibiting age inappropriate behaviors that restrict their participation in the society. Isolation makes the condition of disability more severe and hampers the growth of the child. Social skill development is major concern for which parents and professionals need to have coordination between them. Various behaviors must be taught in a different setting with the maximum utilization of everyday situations. Social skills at primary level includes-when given a chance then make a choice between many items, ask for the permission, follow the instructions, participate in group games, waiting for the turn, sharing things, taken care of his belongings, seek assistance, recognize the different emotions, communicational skills etc. are some example of social skills.

Academics: The level of academics is higher as compared to pre-primary level. Reading alphabets, read words, read own name, read sign boards, writing name, counting, number sequence, simple additions, time association with daily activities, calendar reading, telling daily routine associating with the day, tells number of days and months, clock reading, identification of coin and notes, money concept with basic counting and grouping, naming of fruits, vegetables, colors, shapes, transports etc.

Occupational Skills: Developing occupational skills among children is equally important as developing personal, social and academics. Occupational skills developments help a child to get better adjustment in home along with other family members. With occupational skills, a child can be involved and utilize his time meaningfully at home. Dusting of

furniture and other items, sort out vegetables and place them in respective places like in fridge or basket, making meal time arrangements, washes utensils, peels vegetables without using knife, stacks utensils in kitchen, cleans leafy vegetables, helps in preparing meal, arranging household belongings properly, arranging cloths, carrying things from one place to another place etc.

Recreational Skills: Teaching recreational skills is an essential part of the curriculum of children with special needs. Plays common games, watch T.V., playing with blocks and puzzles, draw simple figures and color them, cut and paste pictures to make a scrap book, Collect stamps/ stickers, looks picture books with interest, cares of pets, play with ball, play with marbles, play group games, water plants, climbs jungle gym, trees or similar structures, play rule based games, goes with adults for shopping, goes out to restaurant/theatres with adults. Many recreational skills help to develop social skills among children with ID.

3.4 Development of Curriculum at Secondary Level– Personal, Social, Academic, Occupational and Recreational

3.4.1 Secondary Education

In special education, children with mental age 5-8 years and chronological age 11-14 years get secondary level of education. Children are promoted from primary to secondary level of education based on their level of achievement at primary level. Children are exposed with higher level of tasks in which much are concerned with academics under secondary education. It is a mixed group of children promoted from both groups- primary 1 and 2. If Children who are eligible to get secondary education have better cognitive and functional ability as compared to other group of children with ID. Children with 80% of achievements including academics are promoted to prevocational level 1 and below 80% of achievements are placed in prevocational group 2. Children who all are independent in personal skills or needs supports occasionally only reach up to the level of secondary education.

3.4.2 Development of Curriculum at Secondary Level

Personal Skills- Eating independently or with very limited supports, eating in public places with very limited guidance, maintaining meal time etiquettes, serving meal, behave appropriately during meal time, using toilet independently even in public places, taking bath independently, maintaining privacy, combing hair, plaits hair and puts rubber band,

apply powder, wear clean cloths, select cloths appropriate to the weather and occasion, dress and groom self appropriately as per the occasion, gender awareness, maintain hygiene, following healthy habits.

Social Skills- At secondary stage, children's interaction with the society increases and with that maintaining good relation with other people is the need to be an accepted member of the society. Children with ID find it difficult to maintain good interaction with others, have limited vocabulary, communication in sentences; understanding instructions and explaining the incidents are the big challenge for them. Overcoming from these challenges is essential for these children to achieve the level of expectation of secondary level of education. Along with that, children need to learn to behave appropriately with opposite gender people. Each society has different parameters for interacting with the opposite gender. A teacher needs to consider all those parameters while teaching sex education to children with ID at secondary stage. Children need to learn about the dos and don'ts while interacting with the opposite gender thus instead of keeping them apart and not allowing them to interact with the opposite gender it's better to let it happen in front of adults and correct their behaviors then and there. Children must be appreciated for showing desirable behaviors and should be promoted to maintain it further. Training in sex education must be continued even at pre-vocation and vocational level of education. Various social skills taught at secondary level are-using polite tone to ask for a help, goes to nearby shop, play ground or friend's house, shop things as instructed, introduce self appropriately, greet others and ask to be comfortable, reads directions and follows, read sign boards, reads price labels in the items, use post office services, express his choices to get something, having relevant conversation, remember and pass the correct message to others, narrate events in few simple sentences, follow verbal directions to move in nearby areas, express self in a comprehensive way etc. Children should get the opportunity to visit various public places such as restaurants, market, mall, zoo, cinema house, railway stations, bus stations, hospital, post office, museum, police station, fire station, religious places et. Understand their functioning and ways to utilize these services. They should also learn to receive the phone calls and record the messages, make arrangements or assist for the events. They should also learn to discuss about past, present and future.

Academic Skills- Reading familiar written words, names of the week and months, does simple additions and subtraction, relate computations to daily living situations, write simple familiar words such as fruits; vegetables; colors names etc., write one or two

words when dictated, writing date; month; year, tell date and time, count money, give changes of rupees and coins, group of coins to make rupees, pay bills, measurement in liter; kg., calendar reading etc. and apply theses all concepts in their everyday life.

There are different stages and strategies in academic skill development which is to be followed while teaching academic concepts.

- Various concepts can be learnt through comparison between things. Comparison can happen between two or more things based on the specific characteristics such as color, texture, taste, size, shape, weight, sound etc.
- In seriating, we arrange two or more things in order based on their specific characteristics such as color, texture, taste, size, shape, weight, sound etc.
- Comparison and seriating are helpful in developing various concepts such more-less; thin-thick; soft-rough; new-old; long-short; more-less; heavy-light and also the concepts of number, time and distance. Children with ID need to learn these all concepts in a structured way.

Occupational Skills- At this stage, children start helping parents in household works and academic skills are incorporated in many of the domestic tasks. For example- if the child is asked to measure 2 spoons of sugar then the child need to have the concept of 2 numbers. The various occupational skills at secondary stage are- dusting house, sweeps floor with broom stick, goes for shopping and shop the things as guided, read bills, receipts, prepare shopping list, take phone messages, use thread and needle to make garland, clean grains and vegetables, prepare coffee/tea/juice, cutting and peeling vegetables, prepare salad, light gas, serve breakfast, making meal time arrangements, clean table after food, dust household stuffs, mop the floor, wash utensils, dry; fold and arrange the cloths properly, make bed arrangements, decorate the home according to occasion, travel through public transports and gets down at correct destination etc. There should be proper scheduling for the domestic activities or home science classes. It is equally important to carry out classroom learning to home setup where children should get practice of applying all learning in to everyday situations. While doing household works, safety measures should also be taken care such as using knife; electronic appliances; careful use of medicines, maintaining hygiene et., safely thus they need to learn the dos and don'ts to maintain the safety measures.

Recreational Skills- watch T.V serials and follow the message, play indoor games such as ludo; chinese checkers; snakes and ladder etc., play and listen to music, dance/clap/ taps with tune when music is played, arrange flowers in vases, cares for pets, craft works, goes out for picnic with family or friends, gardening, goes for movie with someone, play games with rules, goes out for a walk, participate in social gathering etc.

The progress of children at secondary level depends on the level of achievement at pre-primary and primary level. There are higher level of tasks exposed at secondary level thus the functional ability of children is much more higher as compared to other children with ID. Children at secondary level are quite independent in self care skills so the major focus is given on maintaining the environment and development of academic skills. Along with that much emphasis is given on the effective communication and social skills.

3.5 Development of Curriculum at Pre-vocational and Transitional Level– Personal, Social, Academic, Occupational and Recreational

3.5.1 Pre-Vocational Education

The age group of pre-vocational education is from 15-18 years. It has two categories-pre-vocational1 and pre-vocational-2. Though the level of difficulties of the tasks in both the group varies still both categories have objective to develop work related skills among children to make them independent at personal, social and vocational/ financial level for their future living. This stage is also known as transition stage which is a very crucial stage for any child regardless of their abilities or disabilities to move from one stage to another stage of life where the expectations are widely different. It helps a child to shift themselves from school level to vocational level to get engaged in vocational work and become financially independent. Thus, emphasis is given of developing functional curriculum at this level of education. It helps to prepare persons with ID for their vocational rehabilitation.

3.5.2 Development of Curriculum at Pre-Vocational Level

Personal Skills- Personal skills at pre-vocational level are the elaborative form of primary and secondary level. Once the child learn to drink water then it is expected to drink from different kind of vassals, filling up drink pot with water without spilling out, serving water to others in different occasion. Once the child learn to eat food independently by self then other meal time activities are focused such as exhibit appropriate behavior during mealtime, serving food for others, making arrangements for meal time based on

the specific culture, cleaning the place after meal, order food in restaurant etc. In the same manner, when the child learn to dress self independently then further level of skills need to be developed such as cleaning; drying the cloths, folding and arranging cloths appropriately, ironing the cloths,

mending cloths like stitching cloth; button, hook etc., separating clean and dirty cloths, checking the pockets before putting it for cleaning. Some cloths need special care while washing, ironing and arranging them. For teaching ironing task, children should learn about the dos and don'ts to keep them and the cloth safe. In toileting, a person need to find toilet in public place and use it independently, maintaining privacy and maintaining cleanliness. In grooming skills, a person need to learn to get themselves ready according to the occasion in terms of selecting and dressing self, applying appropriate makeup, making hair, shaving for boys maintaining menstrual hygiene, basic first aid, etc.

Social Skills- Social skills are very much important for vocational rehabilitation of persons with ID. Limitations in social skills are a major barrier in inclusion of PwID. It is expected from them to behave appropriately depending on the demand of different situations, use public places properly, take permission before using someone else's belongings, act effectively in social occasions. Different skills taught at this level are- use public transport safely, follow traffic rules, know about the different social services, emergency services such as if needed, remembering and using helpline numbers of hospitals, fire station, police station, railways etc., buying tickets, passing information, receiving phone calls, greeting and making the guest comfortable, using bank and post office services, stand in queue and wait for the turn, ask for the direction when needed, express distress when needed, participate age appropriate social activities, defend self from the conflict situations, keep appointments, read essential sign boards, introduce self and ask for other's introduction etc.

Academic Skills: read two words phrases, read simple sentences, two digit addition with carry over, two digit subtraction with borrowing, table up to 5, time and money concept, simple sentences writing, prepare list of items to be purchased, writes letter, shopping, measurement in kg., liter, add price on receipt, pay bills, knows the different functions of the body parts, political awareness, environmental awareness etc.

Occupational Skills- cleaning floor, store food stuff at proper place, cut; peel and cleaning vegetables, prepare tea/coffee/juice, light the gas, operate kitchen appliances, prepare meal, cleaning, wiping and arranging utensils at proper place, wash, dry, fold and arrange cloths appropriately, make bed for sleep, goes for shopping, buy ticket and use various

transports independently, filling up application, use of bank form, fill railway booking forms, does simple first aid, use of various instrument such as screw driver; hammer etc., labeling the

stuffs, packing, binding, printing, placing complaints for the maintenance, making budget for monthly services and pay the bills such as for milk; electricity, news paper et.

Recreational Skills- drawing and coloring, play rule based games, watch T.V. and get the messages, play and enjoy music, dance, decorate home, spend time with peers, craft works, participating needle work such as embroidery, knitting, collect photos for the scrap book, goes for a camping trips, ride bicycle, goes out for play or film, fly kite, play kho-kho, kabadi, gardening, play rule governed games.

Pre-vocational education is the highest level of school education for children and after completing this level of education, a student become an adult contribute as a productive member of the society and earn his livelihood. Thus all those skills should be involved at this level which further can help a person to develop some specific vocational skills and get the employment. To get in to any employment a person need to have good social and communication skills thus these two skills are broadly focused at pre-vocational level of education. They are also exposed with the community awareness and utilization of community resources effectively and maximum opportunities must be given to involve in family and social functioning. To develop these all learning, a strong functional curriculum is and effective and structured intervention strategies are required.

3.6 Development of Curriculum at Vocational level– Generic Skills and Work Related Skills, Personal Skills Related to Routine, Travel, Social Competencies, Job Related Behaviour– Punctuality, Regularity, Occupational Skills– Related to the Job Chosen (inclusive of functional academics), Health/Safety Skills, First Aid

3.6.1 Vocational Education

The ultimate aim of special education is to make persons with ID able to get the employment based on their capacities and help them to live their life independently. Though the formal age of vocational training is 18 years and above but the process of vocational skill development starts right from the time a child start his education. In this regard, vocational rehabilitation is considered as a continuous process in which appropriate guidance, vocational training is provided to person with ID to make their effective inclusion in selective vocation.

Government has taken much initiative for the improvement of the life of persons with disabilities. In Persons with Disabilities (Equal Opportunity, protection of Rights and Full Participation) Act 1999, there is a provision of employment in chapter 6 which states that there is 3% of reservation for children with disabilities in open employment and also there is a provision to setup special vocational centers. UNCRPD also states various provisions to give equal rights to persons with disabilities such as in chapter 26 Habilitation and Rehabilitation, it is a responsibility of state agencies to spread the rehabilitation programs, to assess the strengths and capacities of the disabled individual and to organize the training programs for the rehabilitation professionals and use assistive technologies. Chapter 27 states that persons with disabilities should get equal opportunities of work and employment. According to 58th survey report of NSSO, in rural and urban population, on per 1,000 people, there are only 81 persons with ID are involved in some employment related works whereas 1 person is unemployed and 918 persons are out of employment due to lack of appropriate training and lack of education. The data presented in the report indicates that though children with Id are getting special education services still they are not able to get the appropriate kind of vocational training through which they can be rehabilitated in different vocations available in their community which is an serious matter and thus children with Id are very much dependent on others for their survival at adulthood stage of their life.

3.6.2 Curriculum at Vocational Level

A meaningful employment brings major positive changes in the life of persons with ID. They work more confidently and independently at home or in other community. A successful employment program happens only with the collaborative efforts of parents, professionals and community members. A transition plan from school to work is a carefully planned process which is developed and implemented for all those children with ID whose 3-4 years are left in school education. It is a team effort in which collaborative works between parents, special and vocational professional vocational rehabilitation counselor, child with disability and the employers are needed at large. Transition planning helps to create an opportunities and services which are very much helpful for an adult individual with ID to live independently.

Stages of transition

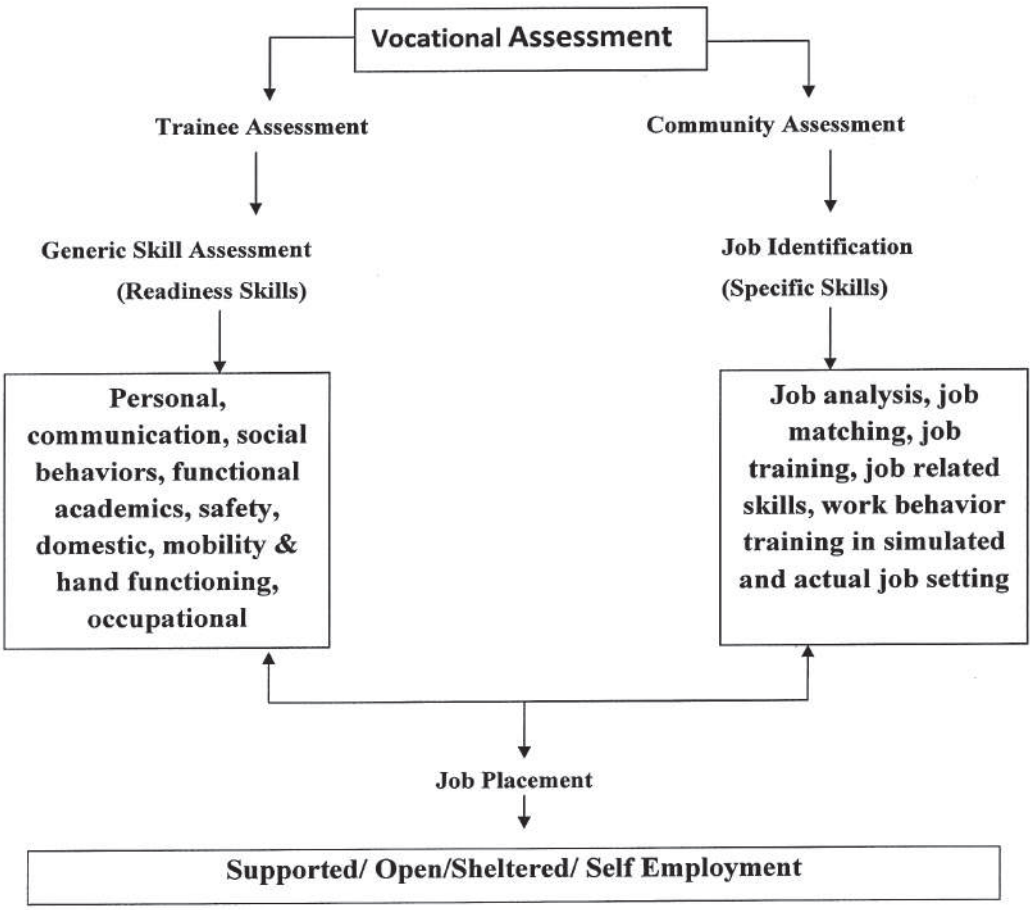
- A well structured school education.
- Program planning for transition

- Placement in meaningful employment
- Observation services.

Steps in developing Vocational Curriculum

- Setting up the objective based on which the curriculum need to be developed.
- Understanding the immediate and future coming limitations of home, school, community and vocational setups and setting up the functional objectives for vocational training.
- A list to be prepared for persons with ID considering special instrument, materials, methods and necessary adaptation needed for vocational training.

A Functional Vocational Assessment Model



3.6.3 Development of Curriculum at Vocational Level

Generic Skills and Work Related Skills

Personal Skills Related to Routine- Skills comes under this group are known as pre-requisites of vocational skill which includes- use of toilet independently, maintain personal cleanliness or hygiene, eat independently without any supervision of adult, wearing cloths and grooming self independently according to the occasions, communicate using gestures or words, use sentences to communicate and express self, engages in meaningful conversation etc.

Travel, Social Competencies- Sit properly in one place for the required period of time, greet others appropriately, cooperate in group situation, offering help when needed without prompting, behave acceptably and makes visitors feel welcome, recognize and protect his own property, ask others to use other's belongings, maintain discipline in the given situation, lead a peer group in simple activities, follow daily routine, avoid conflict situations etc. Travelling skills includes activities such as booking or buying tickets know about various transports, Travel independently through different mode of transports, and know about the routes and community places.

Job Related Behaviour–

Physical Appearance- wearing clean and ironed cloths properly, hair should be well combed, shave well, cut the nails short, using toilet independently, eat healthy and hygienic food, follow meal time etiquettes, seeking helps when needed, avoid toxic substances etc.

Personal Interaction- respect the observer or supervisor, assisting the co-workers, control the emotions, seek assistance if needed, avoid getting in to the conflict situations, fender appropriate behaviours, taking care of the belongings, etc.

Communication and Social skills- Follow instruction, express his needs, having comprehensive and meaningful communications with others, use of phone if needed, use magic words i.e. sorry; thank you; please, maintain eye-contact, do not make meaningless talks or sounds, avoid too much complains, follow the suggestions, involve in social activities at work place.

Quality and Quantity Aspects of Work- improve the quality and standard of work, work at satisfactory level, discuss the work related problems with the seniors, increase the speed of work, use of instrument safely, do not get in to any malpractices at work place, maintain cleanliness in the campus etc.

Punctuality, Regularity- Come regularly for the work, reach at work place on time, concentrates on works only at work place, follow the rules and regulations of the work place, politely take an excuse for the delayed arrival, inform priority to the seniors about the leave, take leave only for the genuine reason, continue working till he finishes the works, complete all the formalities for a day before leaving the job place.

Occupational Skills– Related to the Job Chosen (inclusive of functional academics)

Completing the assigned works without disturbing others, reaching to the work place to do their day to day works without reminded by someone else, understand and complete the works, maintain the speed of assigned work and complete is on the given time, get ready independently and goes to the workplace. Functional academics at this level includes, read and write self name and address, reading and understand the functional words, reading and writing simple sentences, identification of numbers at least up to 100, simple two number addition and subtraction, identification of notes and coins, making change of the given money, time concept, reading clock, reading calendar, connecting daily routine with the day times etc.

Health/Safety Skills, First Aid- Use of stairs or corridors in a safe manned, aware of hazards in the environment, knows dangers of fire, aware of traffic signals, cross the street safely, use sharp objects, use of electrical items are safely, doing basic first aid, maintaining hygiene etc.

3.7 Implications of above in Inclusion

To make inclusive education possible, and to better accommodate students with different learning abilities, the present education system, educational structure, and educational practices need to become more flexible, more inclusive, and more collaborative. It is necessary to make all options of education, such as, open schools, regular schools, special schools, non-formal and alternative education systems available to all children including children with disabilities. Appropriate strategies need national support systems to be developed for meeting the educational needs of learners with disabilities in large classrooms. It is also essential to understand the significance of early identification and intervention.

Need of emphasising good teaching–learning practices, making the curriculum flexible and accessible, utilising technology and assistive devices, developing appropriate assessment and evaluation procedures, capacity building and empowering teachers and

stakeholders providing vocational education and identifying suitable sports and other co-curricular activities for optimal development of learners with SEN are equally in demand. A barrier-free intervention/educational environment need to be build up for the effective inclusive education services.

An inclusive curriculum means one curriculum for all students rather than a separate curriculum for students without SEN and another for students with SEN. According to Quinn and Ryba (2000) an inclusive curriculum is recognition that under the principle of social justice, participation in education should not involve discrimination on the basis of gender, ethnicity, indigenous group, socio-economic status, and ability or disability. An inclusive curriculum recognises the need that schools be organised, with the individual differences of students in mind and allow for scope and flexibility to enable all students to achieve their goals. Though the National Curriculum Framework for School Education (NCFSE) (2000) (NCERT, 2000), does mention the education of learners with SEN under the sections "Curriculum Concerns" and "Managing the System", it does not address the SEN of learners under various other sections, such as, "Organisation of Curriculum at Elementary and Secondary Stages", "Organisation of Curriculum at Higher Secondary Stage", "Evaluation", etc.

Booth (2000) has pointed out that access to education is only the first stage in overcoming the exclusion of persons with disabilities from the mainstream. More challenging is the task of bringing about a shift in public perspective and values, so that diversity is cherished. However, it is difficult to say whether the first barrier has yet been overcome in our country. It is believed that the fundamental right to education will bring more pupils with SEN into ordinary schools, and that this will provide the impetus for change. The major emphasis is given on the access to education through flexible curriculum for all including children with abilities or disabilities in regular classrooms setups.

3.8 Let us sum up

Curriculum development is the process of structuring the overall learning experiences. It is a comprehensive, ongoing, cyclical process to determine the needs of a group of learners; to develop aims or objectives of the program to address those needs; to determine an appropriate syllabus, course structure, teaching methodology; and to carry out an evaluation that results from these processes. All learners regardless of their abilities and disabilities must get the basic academic, employability, and social skills to be prepared for post secondary education, employment, and to become a contributing member

of society. The provision of a well-planned, modified, and articulated curriculum that would provide students with disabilities appropriate access to the general curriculum and effective instructional support is the major thrust in education. The achievement of a well-designed curriculum in special education depends on the ability of the school administrator to ensure appropriate educational opportunities for students with disabilities.

Children with the age range of 3-6 years are eligible to get pre-primary education. This is also considered as a crucial age for the early child development in which most of physical, social, emotional and cognitive development. Children are exposed with the structured learning environment filled with strong stimulus, challenges, and playful events to facilitate their learning with joyful experiences. In pre-primary education, the readiness skills are promoted and make the child ready for the effective inclusion in education and society as well.

Children under the age range of 7-10 years come under the category of primary education. There are two levels at primary level of education for children with ID. If the child achieves 80% at pre-primary level then the he is promoted to primary level 1 which is from 7-10 years of age. If the achievement level is below 80% then he continues for 3 more years at pre-primary level and then the child is placed in primary level 2 from 9-14 years of age. Curriculum at primary level is an elaborative form of pre-primary curriculum. Children develop their skills in personal, social, academic, occupational and recreational domains with the increased level difficulties considering the developmental order.

In special education, children with the chronological age 11-14 years get secondary level of education. Children are promoted from primary to secondary level of education based on their level of achievement at primary level. Children are exposed with higher level of tasks in which much are concerned with academics under secondary education. Children who all are independent in personal skills or needs supports occasionally only reach up to the level of secondary education. Children at secondary level are quite independent in self care skills so the major focus is given on maintaining the environment and development of academic skills. Along with that much emphasis is given on the effective communication and social skills.

The age group of pre-vocational education is from 15-18 years. It has two categories-pre-vocational 1 and pre-vocational-2. Though the level of difficulties of the tasks in

both the group varies still both categories have objective to develop work related skills among children to make them independent at personal, social and vocational/ financial level for their future living. This stage is also known as transition stage which is a very crucial stage for any child regardless of their abilities or disabilities to move from one stage to another stage of life where the expectations are widely different. Thus, emphasis is given of developing functional curriculum at this level of education. It helps to prepare persons with ID for their vocational rehabilitation.

The ultimate aim of special education is to make persons with ID able to get the employment based on their capacities and help them to live their life independently. Though the formal age of vocational training is 18 years and above but the process of vocational skill development starts right from the time a child start his education. A successful employment program happens only with the collaborative efforts of parents, professionals and community members. A transition plan from school to work is a carefully planned process which is developed and implemented for all those children with ID whose 3-4 years are left in school education.

To make inclusive education possible, and to better accommodate students with different learning abilities, the present education system, educational structure, and educational practices need to become more flexible, more inclusive, and more collaborative. An inclusive curriculum means one curriculum for all students rather than a separate curriculum for students without SEN and another for students with SEN. An inclusive curriculum recognizes the need that schools be organized, with the individual differences of students in mind and allow for scope and flexibility to enable all students to achieve their goals.

3.9 Unit End Exercise

1. Discuss about the different domains of curriculum at pre-primary.
2. How to develop curriculum for CwID at secondary level of education?
3. Discuss the significant characteristics of curriculum at pre-vocational level.
4. Discuss about the development of curriculum at vocational level.
5. Write a short note on the major consideration of curriculum development for inclusion of CwID.

3.10 References

Booth, T. (1996). "Stories of Exclusion: Natural and Unnatural Selection", in E. Blyth and J.Milner (eds), Exclusion from School: Inter Professional Issues from Policy and Practice. London: Routledge.

NCERT (2000). National Curriculum Framework for School Education (NCFSE). New Delhi: NCERT.

Quinn, S. and K. Ryba (2000). "Linking Inclusive Policies with Best Teaching Practices", in D. Fraser, R. Moltzen, and K. Ryba (eds), Learners with Special Needs in Aotearoa, New Zealand. Dunmore Press.

Arulsamy, S. (2014). Curriculum Development. Neelkamal Publication PVT. LTD, New Delhi.

Singh, R.P. (2014). Curriculum Development for Persons with Intellectual Disabilities. Kanishk Publishres and Distributors, New Delhi.

Functional Assessment Checklist for Programming. NIEPID (NIMH) Secunderabad.

Behavioural Assessment Scale for Indian Children with Mental Retardation . NIEPID (NIMH) Secunderabad.

Thressia Kutty, A.T. (2006). NIMH Vocational Assessment and Programming System for Persons with Mental Retardation. NIEPID (NIMH) Secunderabad.

Thressia Kutty, A.T. & Rao, G.L. (2001). Curriculum for Vocational Education, Transition of Persons with Mental Retardation from School to Work. NIEPID (NIMH) Secunderabad.

Self Instructional Material, B.Ed Special Education. Madhya Pradesh Bhoj Open University,

http://www.ncert.nic.in/new_ncert/ncert/rightside/links/pdf/focus_group/special_ed_final1.pdf

Unit - 4 □ Instructional Programs and Methods

Structure

4.1 Introduction

The previous modules have laid a foundation to understanding the curricular domains that are important for children with intellectual disability. The teaching approaches that can be used to teach the children are also discussed in great detail. In this module, the focus will be on getting to know the various instructional programmes and methods that can be applied to the instruction of children with intellectual disability. The methods range from individualized instructions to collaborative teaching-learning methods. A discussion of the universal design for learning is included and so is the deliberation of the methods for social inclusion.

4.2 Objectives

- **To understand the concept of individualized instruction and discuss its types**
- **To understand the collaborative methods to teaching**
- **To know the various methods of creating social inclusion**
- **To comprehend the use of principles, approaches and strategies of Universal Design for Learning**
- **To discuss ways of integrating the above mentioned programmes and methods in inclusion of children with intellectual disability**

4.3 Individualized Instruction

4.3.1 Concept

Individualized instruction or individualized learning, is a method of teaching in which content, instructional technology, and pace of learning are based upon the abilities and interest of each learner. This method involves tailoring instruction to fit the educational needs and skills of an individual learner. This involves changing the pace at which the information is delivered, the methods through which the content is offered, and the materials distributed.

There are thus different meanings attached to the term individualized instruction. It may imply one teacher to one student instructional arrangement. It may also mean that individual students are learning at their own pace. When the instruction is tailored for the specific needs of individual students, we can consider it to be individualized. All the mentioned characteristics may be involved in the instruction of a single child as well. Individualized instruction can be defined as 'an instructional method tailored to fit the educational needs and skills of an individual learner. This involves changing the pace the information is delivered, the methods through which the content is offered, and the materials distributed' (Heathers, 1977). Many approaches to individualizing instruction may be found, but they all seek to manipulate the three following fundamental variables:

- **Pace:** the amount of time given to a student to learn the content
- **Method:** the way that the instruction is structured and managed
- **Content:** the material to be learned

The key aspects of individualized instructions are that:

a. Learners will not only be able to understand the presented content matter, but that they will be able to effectively retain information for much longer.

b. Those who have the ability to grasp a particular the concepts in a short amount of time can move on to the concept, while those who are having a difficulty understanding the concept can move at a slower pace.

c. Each and every learner gets an opportunity to get the most out of the experience, even if he/she is in a diverse learning group.

d. Another key aspect is that individualized instruction offers the learners with varying skill levels and learning styles different the learning materials they need. For example, if a learner is more of an auditory one, instructors can use multimedia presentations or for a learner who is visual, the instructor can use graphic books.

Advantages of individualized instruction

For the students	For the teachers
Enables students to proceed at their own pace	It frees the teacher from teaching the routine and basic skills
There is a one to one relationship between the student and the subject of study	The teacher can be diagnostic and get more data about student learning
The student gets immediate feedback for the learning	The teacher can pay more attention to students who need it
It helps the student understand the structure of the subject better	It helps the teacher in structuring the learning for the students
It helps the student to alter once pace of studying different contents	
The instruction is non-graded; thus students can proceed as much as they can	

Source: Blake & McPherson (1973)

4.3.2 Types and approaches

Individualised instruction has the benefit of maximizing learning for each individual student. Various researchers have advocated different ways of individualizing instruction. The literature on individualized instruction that is available uses the terms types of individualized instruction and approaches to individualized instruction rather synonymously. Some of the key types of individualized instructional approaches / types are described below.

Keller Plan, propounded by Fred Keller in 1968, relies on the individualized instruction model. It is also called Personalized System of Instruction. Keller plan is based on ten principles of educational practice that makes the Keller Plan different from the others. These

include self-pacing; unit mastery; student tutors; optional motivational lectures; and learning from written material.

Audio-Tutorial is a method of individualized instruction developed by Samuel N. Postlethwait in 1961 at Purdue University. The development of an Audio-Tutorial program requires a significant amount of planning and time by the instructor. In audio-tutorials the students have access to a taped presentation of a specifically designed program that directs their activities one at a time. The basic principles of

Audio-Tutorial are (1) repetition; (2) concentration; (3) association; (4) unit steps; (5) use of the communication vehicle appropriate to the objective;(6) use of multiplicity of approaches; and (7) use of an integrated experience approach.

Programmed learning using Computer-Assisted Instruction (CAI) is one of the most prominent types of individualized instruction. CAI has become the forerunner in individualized instruction since the 1980s. In this, the computer is used as a medium to improve the design and delivery of individualized instruction. The use of computer changes the delivery mechanism of individualized instruction, rather than changing the purpose or method of instruction. The principles of programmed learning (as prescribed by B.F. Skinner) can be used so that the student gets exposure to a logical and psychological sequence that facilitates learning.

Mastery learning is an approach suggested by Benjamin Bloom in 1968. According to him, the instructional time and material can vary to allow all students to master the content. This instructional approach involves the teacher teaching the content in the traditional way and then giving different activities to the students to master the content.

Learner controlled instruction is a strategy that shifts the power of instruction from the teacher to the student. In this the students assume the responsibility for their own learning. Learner controlled instruction can take a simple form like completing an assignment to more sophisticated forms including computer assisted instruction.

Another type of individualized instruction is known as **teaching machine**. Sydney L. Pressey devised a teaching machine which required students to press keys to answer multiple choice questions. The next question was presented only after the correct key had been pressed by the student. The use of the teaching machine required that the students be taught first. After being taught they would go through a test presented by a machine. The student had to take the test till s/he demonstrated mastery on all the questions (content) and did not make any mistakes.

4.4 Collaborative methods

We have seen the use of individualized instruction as an instructional strategy and we realize that when we pay individualized attention to children and their specific needs, and move according to their pace, it benefits them immensely. When instruction is individualized, the teacher is most often taking on the role of teaching the student.

In this situation however, the other students in class may be left out. How do we engage these students so that their learning is not affected? Similarly, when one teacher teaches a student or a class, is it that the teacher can always teach to the best of one's ability? To answer these questions, we must try to understand a group of methods that are called the collaborative methods.

4.4.1 Collaborative methods

Collaboration means 'to work together', 'work in a team', 'have group effort', 'co-operate with each other', 'have partnership relationships in work situations'. As applied to the teaching and learning scenario, according to Smith & MacGregor (1992), collaborative (teaching) learning is an umbrella term for a variety of educational approaches involving joint intellectual effort by students, or students and teachers together. Usually students are working in groups of two or more, mutually searching for understanding, solutions or meanings, or creating a product. Collaborative learning activities vary widely, but most center on students' exploration or application of the course material, not simply the teacher's presentation or explication of it.

In classrooms where we witness collaborative activities and efforts, the teacher does not take a complete backseat. The teacher rather uses different set of activities while teaching the students. These activities may involve planned interactions and collaborations between students or even between (and among) teachers while teaching the students. The whole concept of collaborations in teaching learning are based on the assumptions that learning occurs in social contexts. Since classrooms are social contexts too, learning can occur even when there are interactions between students and the teaching may be done by more than one teacher in the class at the same time.

Thus, the collaborative methods may take two forms – one where the interaction for learning is between students and the second where the collaboration is between teachers. Hence, peer tutoring and cooperative learning are examples of student collaborative efforts and team teaching illustrates collaborative work between teachers.

4.4.2 Peer tutoring

Peer tutoring is defined as an approach in which one child instructs another child in material on which the first is an expert and the second is a novice (Damon and

Phelps, 1989). In peer tutoring, the tutor is a person who is a student like the learner (tutee), has the same status like the learner in the school context but may be more knowledgeable and better versed with the content that is to be learnt as compared to the tutee. Though the tutor has expertise in the content to be taught, the tutor is not an authority on it and possesses less knowledge and skills as compared to the teacher. Thus, the peer tutoring activity is planned by the teacher and takes place under the guidance of the teacher. It is an activity that is conducted in addition to the traditional teacher-imparted instruction.

Types of peer tutoring

As we know, peer tutoring involves two individuals - a peer tutor and a tutee. On the basis of the characteristics of the tutor and tutee and the roles they take on, we can understand the different types of peer tutoring.

a. Same age peer tutoring – In this type of peer tutoring, the tutor and the tutee are of the same age or belong to the same grade. The tutor who is a better student tutors the one who is weaker in studies.

b. Cross age peer tutoring – Cross age peer tutoring is characterized by the tutor and tutee being of different ages. The tutor is older than the tutee and so may be from a

c. higher grade. The tutor is more mature than the tutee and has better content knowledge.

   Same age and cross age peer tutoring are examples of unidirectional peer tutoring which implies that the tutors retain their roles as tutors throughout the tutoring period.

d. Reciprocal peer tutoring – In same age or cross age peer tutoring, the tutors and the tutees are fixed. However, in reciprocal peer tutoring, the tutor and tutee exchange their roles for different tutoring sessions. Consequently, each student gets an opportunity to assume both the roles. Thus, reciprocal peer tutoring is also referred to as bidirectional peer tutoring.

e. Class wide peer tutoring – Bidirectional peer tutoring may be evident in class wide peer tutoring as well. When class wide peer tutoring occurs, all the students in the class are divided in pairs and the students in the pair exchange

the roles of tutor and tutee. Unlike the other types of peer tutoring which may be held beyond the class room hours, this peer tutoring is held during the class instructional periods.

f. Reverse role peer tutoring – Most often when peer tutoring is done, the tutee is the less able of the two. In reverse role peer tutoring, the teacher pairs a student with disability with a student without a disability, and the student with disability assumes the role of a tutor to the student without disability. Thus, we may find cross age peer tutoring happening in this situation with the tutor (student with disability) being older than the tutee.

Peer tutoring appears to be beneficial for all students with and without disabilities. In this light, Lieberman & Houston-Wilson (2009) have provided a consolidated list for why peer tutoring should be implemented. This is as below:

1. Students with disabilities need smaller class ratios for learning than students without disabilities.
2. One – to -one interaction increases academic learning time for students with disabilities
3. Peer tutoring increases leadership skills in tutors
4. Peer tutors learn the skills faster and better when they have to teach those skills
5. Peer tutoring develops positive relationships and enhances interpersonal relationships between tutors and tutees

Certain **guidelines** are available that will help make peer tutoring successful (Gordan, 2005). This involves six strategies:

1. Defining and planning a peer tutoring programme entails identifying the goals of peer tutoring and determining the scheme for developing the programme. The important considerations here would be deciding how to choose the peer tutor, set up the environment for peer tutoring, create the rules and regulations or guidelines for transaction of the peer tutoring programme, monitor and record student learning, evaluate the programme and lastly recognize efforts of the tutor.
2. Training peer tutors right in the beginning of the peer tutoring programme to execute it and checking on whether the tutors require support intermittently helps ensure the success of peer tutoring.

3. Monitoring daily results of tutees learning becomes important and helps the teacher choose appropriate strategies that the tutor may use with the tutee. The teacher identifies the various tools for formal and informal assessment of the tutee and trains the tutor in their use.

4. Evaluating peer tutoring helps in knowing whether the programme has benefitted the tutees or not. This helps in either continuing the effort or changing the planning and implementation strategies.

5. Finding support for peer tutoring from the school administration, the students and the parents of the students is very important. This can be achieved by communicating to them the research evidence showing the numerous benefits of peer tutoring.

6. Sustaining the peer tutoring programme by planning a reward system for the tutors is found to be helpful.

Peer tutoring is found to be a very beneficial instructional strategy for the tutees, the tutors and the class teachers.

For the tutees, the benefits are:

i. The tutees are able to relate to the tutors because they are 'students' and thus benefit from being taught at their level by individuals they identify with.

ii. The tutees receive individualised instruction from the tutors along with personal attention and instant feedback.

iii. They receive more teaching as compared to other students.

iv. The tutees get an opportunity to build a relationship with the tutor.

Peer tutoring is beneficial for the tutors as well. It is seen that

i. Tutors develop their sense of personal adequacy

ii. Tutors find that the subject matter of their studies is immediately useful

iii. Since the tutors' study before providing tutoring, they reinforce their learning

iv. Tutors develop insight in to the teaching learning process and co-operate better with their own teachers

4.4.2 Co-operative learning

Another way of planning for collaborative instruction is to use cooperative learning strategy. In cooperative learning, the students work together to accomplish the goals that are set for the group. As an instructional strategy, the students are placed in small groups and they work together to maximize their own learning and the learning of their groupmates (Johnson, Johnson, & Holubec, 1990). Since cooperation as a behaviour is not easy and does not occur by chance, it is important to teach the students how to cooperate with each other to achieve their learning goals. Similarly, for cooperative learning to be effective we need to ensure that students are taught the learning and social skills essential for cooperative learning.

Characteristics of co-operative learning:

There is a difference between a group activity and cooperative learning activity. Cooperative learning is characterized by five features known by the acronym PIGS-Face. The features are positive interdependence, individual accountability, group processing, social skills, and face-to-face interaction between group members.

	Element	Characteristic
1	P – Positive Interdependence	Each group member is given a specific role and responsibility Each member must participate for the whole group to succeed
2	I – Individual Accountability	Each member must demonstrate master of the content Each member is accountable for the whole group's learning and/or work
3	G – Group Processing	The group self-assesses their productivity and makes decisions about how to make improvements
4	S – Social Skills	For cooperative learning to be effective, students must learn Social Skills for successful cooperation. Social Skills to develop include - Trust Building, Communication, Decision Making Strategies, Conflict Resolution, Leadership Skills
5	FACE – to- face interaction	Members promote each other's success Students explain to one another what they have or are learning and assist one another with understanding and completion of assignment

Source: https://sites.google.com/site/cooperativelearningresources/edss-511

Implementing cooperative learning:

Cooperative learning is not just group learning for students. The teacher needs to plan the activity as an instructional activity and thus we can identify its phases. There are five phases which are described below:

i. Teacher clarifies goals (academic achievement, tolerance and acceptance of diversity, development of social skills)

ii. Teacher organizes student teams with clearly defined roles

iii. Teacher facilitates team activities, including academic learning, social skills & cooperative behavior

iv. Teacher assesses student knowledge throughout the process and/or by team presentations

v. Teacher recognizes both group & individual efforts such as active participation and taking responsibility for learning

Cooperative learning structures:

Cooperative learning can be implemented in many different ways by planning different kinds of interactions among them. These different ways of organizing the activities and interactions are called the cooperative learning structures. The most widely recommended and used structures are compiled and described (Elsbree, 2014)

a. **Think-Pair-Share** Teacher assigns a prompt. Each student thinks about the prompt on their own. Then each student pairs up with another student and share their thoughts about the prompt.

b. **Number Heads Together** Students are clustered in small groups & asked to count off in each group. The teacher asks a question, Students consult to make sure everyone knows the answer, then one number is called on to share the answer.

c. **Say & Switch** Students are called upon randomly to answer a question or relate key info. The Student is stopped at the end of a sentence or mid-sentence & another student is asked to "pick up" where that student left off.

d. **Round Robin** Each student in turn writes 1 answer/idea as a paper is passed around the group.

e. **Round Table** Similar to Round Robin, but more than 1 paper & pencil are used at once.

f. **Toss-A-Question** Students write a question on a piece of paper, wad up their paper into a ball and toss it to another student, who then must answer the question before returning the paper to its originator.

g. **Poster** Students collaborate to create a poster with words & images that reflect their learning.

h. **Jigsaw** Each student in a cooperative group is assigned a specific set of material to become an expert on - to teach the others. To provide more support you can have all students studying the same material - meet to review key information & share ideas as to how the material may best be taught. Students return to their cooperative groups (the other experts) and teach their info.

i. **Graffiti** Students are clustered & assigned a topic to write/draw about. After a given amount of time, students rotate their papers. Students are provided time to add to their new paper before rotating again. Rotation continues until all groups have added to the graffiti sheets & the original returns to the home group. One variation is to have student rotate & papers remain stationary.

j. **Gallery Walk** Students create a visual representation (art) of a topic and post it to the wall. Students walk around the room and look at the other groups posted art.

k. **Graffiti Walk** Students Participate in the Gallery Walk, but can also add their own ideas in the form of graffiti.

l. **Walk Around** Students rotate through questions/prompts posted around the room. Students record their answers on their individual paper and turn in for review.

m. **Walk & Talk** Students pair up and take a walk in an assigned area and discuss the prompt with their partner. By the end of their students complete their discussion.

n. **Travelers & Tellers** Students in a cooperative group learn about a specified topic, then half or less of the group stays to tell what they learned while the others travel to other groups to earn other material. When the travelers return they share with the tellers what they learned on their travels.

o. **Group Investigation** Students are grouped heterogeneously & select a subject to investigate. Students plan as a group their subtopics for investigation, goals for learning, & how they will investigate the subject. Students gather information, analyze and evaluate the data and reach conclusions. The investigation culminates in a report, event, or summary. Students decide on the content & format of presentation, determine roles for the presentation & present their findings to the class.

p. **Inside/Outside Circle** Divide class in half (inside/outside group). Assign both groups a set of material (vocabulary, concepts, events…) to become an expert on. Each group jigsaws that material and creates a visual representation of their material. (Suggest Billboard Representation.) Have students stand in two circles, inside facing out, outside facing in – so that each person is paired with a person in the other circle. Students share their material, inside partner first. Once both partners have shared the students in the outside circle rotate to left (clockwise) until all students have rotated through the whole group and learned all the material.

Benefits of cooperative learning:

1. Co-operative learning setting creates high positive energy and motivation for students to learn
2. It helps develop critical thinking, reasoning skills, creativity and metacognitive learning strategies in students.
3. Co-operative learning builds and increases positive feelings towards one another, reduces loneliness and thus builds relationships
4. Co-operation increases self-esteem not only through increased learning but through the feeling of being respected and cared for by classmates

Drawbacks of co-operative learning:

1. Teachers need to provide detailed and clear instruction to the students
2. It is a time-consuming activity
3. The students may not get along well with their group members
4. There may not be equal responsibility taken by all students
5. All students may not possess adequate social skills to engage in effective group interactions

4.4.4 Team teaching

Peer tutoring and cooperative learning involved collaboration between students to better their learning. In a classroom, we can witness a different collaboration as well which can enhance student learning. This collaboration is between teachers and when teachers work together and teach together it is called team teaching. The term has been defined by many researchers and the most widely used definition is propounded by Olson (1967). According to him, team teaching is 'an instructional situation in that two or more teachers possessing complimentary teaching skills co-operatively plan and implement the instruction for a single group of students using flexible scheduling and grouping techniques to meet a particular instructional goal.' 'Team teaching is a form of organisation in which individual teachers decide to pool resources, interest and expertise in order to devise and implement scheme of work suitable to the needs of their pupils and the facilities of their schools'.

Characteristics of team teaching

From the many definitions that one finds in literature, some key characteristics of team teaching emerge:

1. Team teaching is an instructional arrangement and not an arrangement of convenience
2. Two or more teachers are involved in teaching
3. The teaching arrangement is flexible
4. The needs of the students and the availability of the school facilities are important in arranging the instruction
5. It works on the principle of joint and shared responsibility

Types of team teaching

Team teaching a can be organized at three different levels and this forms a typology. It includes single disciplinary team teaching, inter-disciplinary team teaching and inter-institutional team teaching.

Single disciplinary team teaching occurs when teachers from the same subject and discipline collaborate and teach by pooling their resources.

In inter-disciplinary team teaching, the teachers from different disciplines come together to teach concepts or content that forms a part of different subject areas e.g. this approach is seen in the discipline of humanities.

When teachers from the same subject but from different institutions pool resources, inter-disciplinary team teaching is said to have occurred.

Advantages of Team Teaching

1. Low cost: One can get an efficient form of learning at a very low cost because no new resources are required to start team teaching.
2. Support for teachers: When teachers collaborate, they focus on utilising their strengths and together as a team can make a successful way to teach and learn and thus support each other.
3. Better interpersonal relationships among teachers: With team teaching, teachers are required to interact with each other. Frequent discussions and planning together makes them develop a good relationship.
4. Variety of ideas: The pooling of individual strong points helps draw on variety of ideas for teaching. It thus helps in better learning.
5. Better involvement of students: Team teaching helps teachers to reach out to more students and in a better manner. It challenges students to think and participate, and increases student involvement.
6. Breaks traditional lecture boredom: Team teaching is generally characterised by interactive sessions and thus involves two-way interaction than one-way lecture method.
7. Better bonding between student and teacher: Opportunities for two-way interaction between teachers and students facilitates student- teacher bonds.

Disadvantages of Team Teaching

1. Acceptance of change by teachers: Team teaching requires changing the regular ways of teaching and thus entails learning new ways. The idea that they will have to put extra effort and work hard can make teachers reluctant to adopt team teaching.
2. Acceptance of other teachers and their methods: Apart from accepting the change in the form of teaching, teachers are often rigid in accepting and adjusting to their colleagues' ideas.

3. Personality differences leading to conflict: For team teaching to work , teachers with different personalities must devise a way to work together effectively or else team teaching will fail.

4. Inability to complete curriculum: one major fear about team teaching is that teachers may not be able to complete the syllabus.
5. Time consuming process: Time for coordination and planning, and monitoring team teaching is essential. Teachers have to take out time from their busy schedules and sit together to devise the lecture flow and activities that have to be carried out, and also keep check on the way team teaching is working for the students.
6. Resistance from students, parents and school administration: The three key stakeholders in the educational process may be unwilling to accept team teaching over traditional lecture method.
7. The expectation of higher salary by teachers: The teachers can demand a higher salary for extra effort they are putting in to plan, implement, monitor and evaluate team teaching. It could ultimately bring financial pressure to the schools and the schools in turn resist team teaching.

4.5 Methods for social inclusion

Individuals with intellectual disability experience many difficulties in their life. One of them is non-acceptance in society. The tendency of society to exclude them from many daily routines and life is often seen. This can be termed as social exclusion. However, now the focus is on thinking about ways to promote social inclusion. Social inclusion involves the interaction between two major domains of our life – the interpersonal domain and community participation. Efforts have to be made to enhance community safety, access and social participation if we have to promote social inclusion. From the ecological perspective, we can look at understanding the different relationships that should be developed and promoted; the contexts of participation (home or work place) identified; understand the extent of community participation that can be developed etc. In order that persons with intellectual disability experience social inclusion, we need to help them develop social skills and self-regulation. Similarly, we need to understand the role of community living and life skill education in this process.

4.5.1 Social Skill Development and Self-Regulation

Social skills form the foundation for social competence of any individual. They include use of verbal and non-verbal behaviours to interact and communicate with

one another. Thus, it includes behaviours like greeting one another, sharing, taking turns, helping others, making and maintaining friendships. When these skills are well-developed, persons with disabilities develop strong and positive peer relationships, succeed in different social setting, successfully explore adult roles, and function as a community member. Adequately developed social skills also support the positive development of healthy relationships with family members and peers as adults. For individuals with intellectual disability, this becomes extremely crucial as they lack the ability to use these skills with automaticity. Gresham, Sugai, & Horner (2001) identify five dimensions of social skills: (a) peer relational skills, (b) self-management skills, (c) academic skills, (d) compliance skills, and (e) assertion skills. Since these skills are underdeveloped in persons with intellectual disability, it hinders social inclusion.

The reassuring aspect of social skills is that these skills can be taught, learnt and honed. Some guidelines can be offered to help develop the social skills in persons with intellectual disability.

- Social skill training should start early in life
- The training has to be explicit and systematic. It is important to remember that social skills may not be learnt incidentally by persons with intellectual disability
- Teachers should provide practice in the use of social skills in class and school
- Role plays is a very effective strategy to develop social skills
- Parents should model social skills
- Parents need to provide opportunities for social interaction to the children. Confining them to the house will not facilitate development of social skills
- Provide support to the child to engage in the social skill. Thus, provide prompts to the child as needed to engage in a socially appropriate behaviour
- Reinforce the child's effort at using the taught skills
- Provide corrective feedback that helps the child modify ones social behaviour
- Teaching simple conversational skills like 'how are you', 'can you help me…', 'I like …' etc. will help open opportunities for communication and interaction
- Teach the child to observe and understand non-verbal behaviour like body postures, hand movements, facial expressions - a smile, frown, straight face etc.

- Teachers and parents can use social stories which are pictorial representations of real-life situations and how to deal with them.
- Provide opportunities to the child to discuss and problem solve their difficult social situations
- Simulations and real-life situations provide the best stage to practice social skills. Hence, teachers and parents should provide support to children in such situations
- Since social skills are to be used in social settings, children should be exposed to various social situations to learn to interact in them

The other side of the coin of social skills is **self-regulation**. These two sets of skills help a person in functioning in social contexts. Social skills training helps the person know how to act, talk and behave in social settings. Self-regulation allows a person to control his or her emotions and behavior when alone or when in a social situation. Self-regulation implies the ability to control one's emotions. It means how the person calms himself down in difficult situations and how they choose the appropriate action when dealing with others. Self-regulation skills enable individuals with intellectual disability to manage their own behavior and enhance the quality of their life.

Self-regulation can be taught to children in the safe spaces of their school and classroom environments. The physical and emotional environment in the class is very important for this to occur. Thus, it is suggested that the classroom environment be structured and predictable for the students.

- Arrange the classroom to promote more student independence in use of space and materials
- Clearly post, explain, and teach classroom rules and routines
- Add visuals such as labels, lists of steps, or reminders
- Incorporate technology or other organizational tools to help students organize themselves
- Encourage students to break down large assignments
- Provide students with frequent guided practice

- Give positive feedback

Apart from changing the classroom environment, we should teach self-regulation skills to the students. Four major types of self-regulation strategies are used for this and they are:

1) Self-monitoring (also called self-assessment or self-recording)- Self-monitoring is a strategy that teaches students to self-assess their behavior and record the results. When teaching self-monitoring, the teacher:

i. Defines the identified behaviour specifically (e.g., talking to a neighbour) and the student models the desired behaviour (e.g., listening to the teacher)

ii. Models the problem behaviour and the target behaviour (e.g., talking to a neighbour and listening to the teacher) and lets the student identify which is the desired one

iii. Explains when and how to record the occurrence of the desired behaviour on the self-monitoring form

iv. Role-plays the above self-monitoring procedures with the student

v. Specifies when and where the student will self-monitor the behaviour

The teacher provides guided practice for this till the time the student becomes independent.

2) Self-instruction (also called self-talk) – involves students learning to talk themselves through a task or activity. Self-instruction interventions involve the use of self-induced statements to direct or control behaviour. To learn self-instruction, the student has to be taught the following steps:

i. Discuss the importance of what we have to say

ii. Develop appropriate self-statements

iii. Model and discuss how and when to sue those self-statements

iv. Practice the use of self-statements

3) Goal-setting - A teacher has to guide students to establish achievable goals in order to reach their desired results. If the goals are unrealistic, the student can experience frustration and may start showing inappropriate behaviours. Three steps are followed

i. Choosing an appropriate goal

ii. Determining a timeline to achieve the goal

iii. Establishing methods to monitor progress

4) Self-reinforcement - self-reinforcement occurs when individuals select a reinforcer and reward themselves for reaching or exceeding a criterion. This strategy has four steps:

i. Selecting a goal to receive rewards

ii. Selecting a reinforcer

iii. Determining how students will evaluate their goal achievement

iv. Administering the reinforcer

We have to remember that self-regulation strategies may be used in isolation or used with other strategies. Likewise, needs of individual students and classroom expectations should be taken into consideration when deciding which strategy to use. Acquiring and using self-regulation strategies makes the students feel empowered and in control of their behaviour.

4.5.2 Community Living and life skill education

According to American Association on Intellectual and Developmental Disabilities, community living and participation means being able to live where and with whom you choose; work and earn a living wage; participate in meaningful community activities based on personal interests; have relationships with friends, family and significant others; be physically and emotionally healthy; be able to worship where and with whom you choose (if desired); have opportunities to learn, grow and make informed choices; and carry out responsibilities of citizenship such as paying taxes and voting.

Though this is what is the most desired situation, most adults with intellectual disability live with their families. Many also need and receive services and supports for an extended period of time. Nonetheless, when people live outside of their family home, they have several options for community living. This includes opportunities to live in apartments with individualized support, with one or two other people with support, with host families, and in small group homes with other people with disabilities and 24-hour support. Many adults with intellectual disability

may still live in large, segregated places like large group homes and residential facilities for those with disabilities. These residential facilities limit social inclusion.

If we want that adults with intellectual disability live independently or with minimal support, they need to have the skills for independent living. Research has shown that for individuals with intellectual disability to live in community than residential facilities requires building of certain skills sets and behaviours. These include:

1) where and with whom a person lives;
2) where a person works and how he or she earns money;
3) what a person does during the day;
4) the quality of relationships developed with others during daily activities;
5) what and with whom a person does activities of personal interest;
6) an individual's health, both physical and emotional;
7) if, where, and with whom they worship;
8) their interest and opportunities to engage in learning and personal growth; and
9) their ability to make informed decisions about their lives (Hewitt, 2014)

People who live in inclusive community settings have more opportunities to control these aspects of their lives than those who live in segregated community living in institutional settings. To be able to take charge of this aspect of one's life, it is important to impart **life skill education** to adults with intellectual disability.

Life skills are abilities for adaptive and positive behaviour, that enable individuals to deal effectively with the demands and challenges of everyday life (World Health Organisation, 1997). The skills include decision making, problem solving, creative thinking, critical thinking, effective communication, interpersonal relationship skills, self-awareness, empathy, coping with emotions, and coping with stress. Life skills education is based on the teaching of generic life skills and includes the practice of skills so that one can take charge of one's life. In life skills education, children are actively involved in a dynamic teaching and learning process. The methods used to facilitate this active involvement include working in small groups and pairs, brainstorming, role play, games and debates.

4.6 Universal design for learning

4.6.1 Definition

All students are different from each other. The student diversity and the learning needs that emerge from this diversity require to be addressed in the classroom. Keeping this in mind, the Center for Advanced Special Technology (CAST) developed certain principles that are drawn from neurological research and are based in learning science. The instruction to students, when based on these principles are known to maximize their learning.

Universal design for learning (UDL) is a framework to improve and optimize teaching and learning for all people based on scientific insights into how humans learn. It is a way of thinking about teaching and learning that helps give all students an equal opportunity to succeed.

4.6.2 Principles

The research into brain studies has helped the experts at CAST to develop three principles. These are based in three networks in the brain – the recognition, strategic and affective network – that play a very important part in learning. The recognition network specializes in sensing and attributing meaning to the patterns of what we see. We are thus able to understand ideas and concepts. This involves the 'what' of learning. The strategic network that is related to the executive functioning helps plan, execute and monitor our actions and motor behaviours. This is the 'how' of learning. The 'why' of learning is addressed by the affective network. The affective network recognizes patterns and assigns affective value to them. Thus, our motivation to engage in tasks stems from this network. The principles of representation, action and expression, and engagement are drawn from the three networks respectively.

Representation: UDL recommends offering information in more than one format. For example, textbooks are primarily visual. But we can provide text, audio, video and hands-on learning experiences to access the material in whichever way is best suited to their learning strengths.

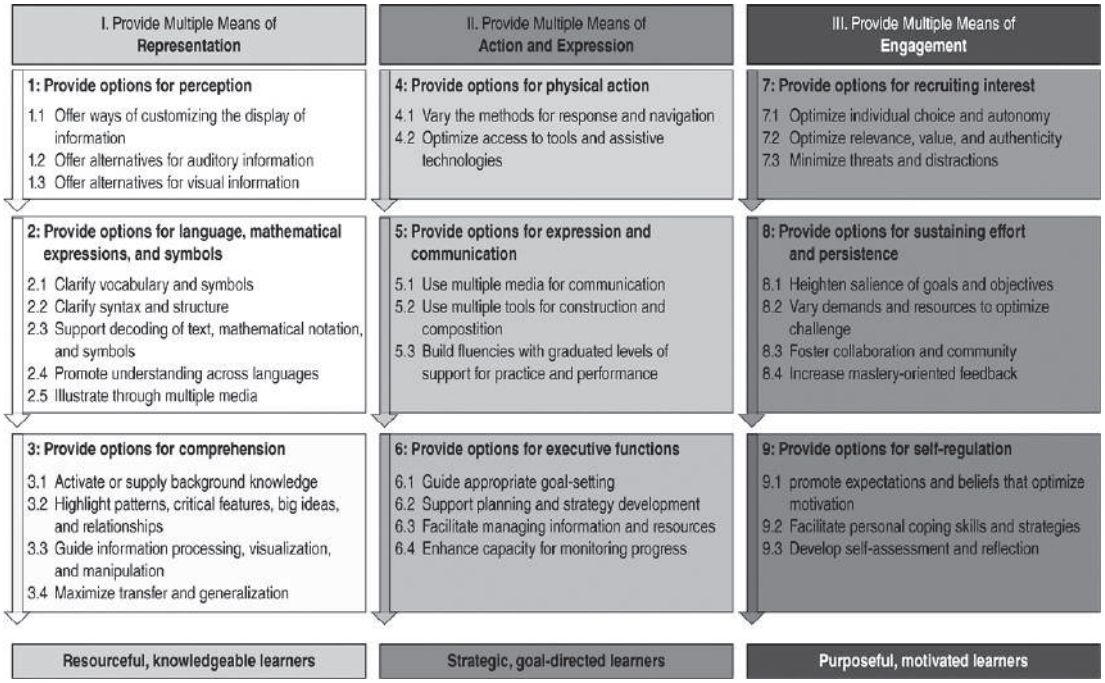
Action and expression: UDL suggests that we give students more than one way to interact with the material and to show what they have learned. For example, some students may do a pencil-and-paper test, some may give an oral presentation or do a group project.

Engagement: UDL encourages teachers to look for multiple ways to motivate students. Making choices, providing relevant assignments, using games, allowing group work etc. also keeps the students engaged in the learning activity.

The goal of UDL is to make learners purposeful, motivated, knowledgeable, resourceful, strategic and goal-directed. This can be achieved by using the principles delineated by UDL.

4.6.3 Approaches and Strategies

UDL has prescribed a list of guidelines that translate into instructional strategies. These guidelines are based on the three networks that are identified. The baseline of all the strategies is to provide multiple means to the student to represent information when information is given or shown to them. Similarly, UDL identifies multiple ways of motivating and engaging the students in the process of learning. It also prescribes multiple ways to act on their learning experiences and express their learning. The diagram given below enlists the specific



Source: CAST (2018). Universal design for learning guidelines. Wakefield, MA: Author.

4.7 Integration of above for inclusion

This section will try to give us direction for using the above discussed instructional programmes and methods for inclusion of children with intellectual disability.

4.7.1 Individualized instruction

Individualized instruction means planning instructions keeping in mind the needs of individual students. Having considered the various methods for individualizing instruction e.g. Keller Plan, use of Programmed instruction, teaching machines etc., it appears that all these methods are applicable for reaching out to the educational needs of students with intellectual disability. Since individualized instruction methods provide for altering the pace of learning, method of learning and content of learning, students with intellectual disability will benefit from them. The students can feel a part of the inclusive class, study the same content but at their pace. Instructional methods like teaching machines or mastery learning employ the use of drill and practice to help students learn. We are aware that children with intellectual disability need repetition to learn information and skills. In special education classes we see individualization of instruction happening in the form of Individualized Education Plans (IEP). The said methods can be incorporated in the transaction of the EP for children who required more support (children with moderate, severe and profound intellectual disability).

4.7.2 Collaborative Methods

Collaborative methods include methods that focus on working with each other while teaching and learning occurs. Thus, we find collaboration between students in the form of peer tutoring and cooperative learning. When students with intellectual disability work with their peers in same age or reverse peer tutoring structures their motivation to learn increases and it also enhances their self-esteem. The development of age appropriate social skills and relationships is also a documented outcome of peer tutoring for our students. Cooperative learning requires the use of appropriate social skills and self-regulatory behaviours on part of all students. For a student with intellectual disability, the acquisition of these skills and academic learning are known outcomes. Teacher collaborations in form of team teaching is very essential for the student's inclusion. The team teaching can happen in the form of collaborations between general education teacher and special education teacher as well. When this occurs the child is able to keep pace with the entire class and yet get individualized attention and support as and when needed.

4.7.3 Methods for social inclusion

Academic inclusion can be achieved by the use of individualized or collaborative instructional methods. This however may not ensure social inclusion of students

with intellectual disability. The interventions that were suggested in the previous section are not interventions for students with intellectual disability only. These can be prescribed for all students in the school. School wide implementation of social skill programmes, life skill education programmes will help develop the socio-emotional and independent living skills of all. It can be highly recommended that the said programmes be used for all.

4.7.4 Universal Design for Learning

It will be rather inappropriate to talk about integration of this approach for inclusion of students with intellectual disability as it would refute the very philosophy and foundation of planning and implementing universal designs. The unique needs of the student with intellectual disability are as critical to planning UDL as the needs of all students in class. UDL is for inclusion of all children irrespective of their diversity.

4.8 Let us sum up

In this module on instructional programmes and methods for children with intellectual disability we looked at different ways of teaching them academic skills as well as skills for social inclusion. Right from individualized instructional methods to methods that can be used in small or large group settings have provided an impetus to planning and transacting effective instructional programmes. We have also delved on the methods for promoting social inclusion by using strategies for development of social skills and self-regulation skills. Considering that adults with intellectual disability may want an option to live as independently in community as possible, the importance of life skill education was discussed and we studied how it can be promoted. The educational scenario is buzz with the concept of universal design for learning which guides the development of inclusive instructional designs. The principles governing the concept of universal design for learning and the guidelines for its implementation assure us that children with intellectual disability can be taught different skills in inclusive setups.

4.9 Unit End Exercise

1. Write in 5 sentences what do you understand by the term ‘individualized instruction’?

2. Which type of individualized instructional method is most suited to children with intellectual disability? Why do you think so? Discuss this in maximum 10 sentences.
3. Differentiate between peer tutoring and cooperative learning. Write atleast 4 points of differentiation.
4. How will you plan for team teaching with a general education teacher? Suggest 3 ways.

1. List the components of a social skills intervention programme.
2. Describe the principles of UDL.
3. Explain the guidelines that help plan for multiple ways of engagement in a classroom.

4.10 References

Blake, H. E., & McPherson, A. W. (1973). Individualized Instruction - Where are we? In J. E. Duane, *Individualized Instruction - Programs and Materials* (pp. 7-15). Engelwood Cliff, New Jersey: Educational Technology Publishers.

Elsbree, A. R. (2014, February 12). *Cooperative structures*. Retrieved from Cooperative Learning Resources: https://sites.google.com/site/cooperativelearningresources/edss-511

Gordan, E. E. (2005). *Peer tutoring: A teacher's resource guide.* R & L Education.

Gresham, F. M., Sugai, G., & Horner, R. H. (2001). Interpreting outcomes of social skills training for students with high-incidence disabilities. *Exceptional Children, 67*(3), 331-344.

Heathers, G. (1977, February). A working definition of individualized instruction. *Educational leadership*, 342-345.

Hewitt, A. (2014). Embracing Complexity: Community Inclusion, Participation and Citizenship. *Presidential Address: American Association on Intellectual and Developmental Disabilities 138th Annual Meeting*. Orlando, Florida.

Johnson, D. W., Johnson, R., & Holubec, E. (1990). *Circles of learning: Cooperation in the Classroom.* Edina, MN: Interaction Book Company. In Smith, B.,

& MacGregor, J. (1992). *Collaborative Learning: A Sourcebook for Higher Education.* University Park, PA: National Center on Teaching, Learning and Assessment.

Lieberman, L. J., & Houston-Wilson, C. (2009). *Strategies for inclusion: A handbook for physical educators.* Champaign, IL: Human Kinetics.

Meehan, M. L. (1973). What about team teaching? *Educational Leadership*, 717-720.

Olson, C. O. (1967, July). Why teaching teams fail. *Peabody Journal of education, 45*(1), 15-20.

World Health Organisation (1997). *Life skills education for children and adolescents in schools.* Geneva: World Health Organisation.

Smith, B., & MacGregor, J. (1992). *Collaborative Learning: A Sourcebook for Higher Education.* University Park, PA: National Center on Teaching, Learning and Assessment. Retrieved November 29, 2019, from https://www.evergreen.edu/sites/default/files/facultydevelopment/docs/WhatisCollaborativeLearning.pdf

Unit - 5 □ Teaching Strategies & TLM

5.1 Introduction

While teaching learners with intellectual disabilities, an instructional hierarchy (acquisition, fluency, maintenance and generalization) is followed. The initial step in the hierarchy is to teach the learner a new task (acquisition), then is to perform the learned task to a higher level of accuracy (fluency), after that it is maintain the level of accuracy even after instruction is stopped (maintenance) and lastly to generalize the learned skills in environments or situations when required (generalization). Additionally, teaching principles such as simple to complex, known to unknown, concrete to abstract and whole to part are used while teaching tasks to learners with intellectual disabilities. The concepts are taught in different steps to facilitate to better learning; the steps followed in teaching any concept are matching, identification and naming. Further, it is also imperative to support teaching with interesting and interactive teaching learning material. For a teacher, it is very crucial to know how to select the appropriate material to accommodate the functional and academic needs of learners with disabilities. Furthermore, it also important to adapt the material, instruction, environment and assessments to ensure equitable opportunities to learners with disabilities in learning and expression of their knowledge.

5.2 Learning Objectives

By the end of the module, you should be able to:

1. State the stages of learning, principles of teaching and steps in teaching concepts
2. Describe various teaching strategies to teach learners with intellectual disabilities
3. Analyze the criteria for selection of appropriate teaching-learning materials
4. State principles of material adaptation

5.3 Stages of learning, Principles of teaching, and Steps in teaching concepts

5.3.1 Stages of Learning

Acquisition

At this stage, a new task is introduced to the learner for the first time. The learner is beginning to learn a new skill or concept. Initially, you will find the learner

making errors and over the time, s/he learns how to complete the target skill correctly but is not yet accurate or fluent in the skill. The goal, at this stage is to improve accuracy. During this stage, high level of learner-teacher interaction is necessary as the learner is in the process of learning a new task.

Fluency

Once the learner learns to perform the activity to a higher level of accuracy, there is a need to concentrate on building fluency. At this stage, the learner is able to complete the target skill accurately but takes time to finish it. Therefore, the goal of this phase is to increase the speed of responding (fluency).

The teacher should plan the activities in a manner that there should be some amount of repetition but not much as it will then make the task less enjoyable and interesting. To keep learners's motivation high during this essential stage of learning, give regular feedback and rewards for their progress. It is important that learners learn to perform an activity to a higher level of accuracy, as it makes all the difference between learners learning well or continuing to experience difficulties.

Maintenance

The goal of instruction is retention of the knowledge, skill, or behavior. The learner retains the attained mastery levels of performance when the direct instruction was effective. However, continued practice is still needed through infrequent intervention, particularly if there was difficulty in mastering the skill in the first place. Over time, it should be ensured that learners maintain their levels of performance without any further teaching taking place

At the end of the maintenance stage, learners should be able to complete tasks on their own, with accuracy and fluency, without receiving any help whatsoever from their teacher. Furthermore, it is to be hoped that as they progress through each of these stages, they will become increasingly motivated to learn new skills for themselves.

Generalization

While the first three stages of hierarchy concentrate on skill/activity learning, generalization represents a change in emphasis to skill/activity. The goal of instruction at this phase is implementation of the skill or behavior across settings, individuals, and/or time. The learner at this stage automatically transfers learning to new situations

or settings. Generalization in and of itself needs to be a target for instruction. Here, it is important that the activities used in initial instruction are implemented to the generalization settings.

Up till now, learners have been working on a single task. During generalization they are presented with two or more tasks (which have both been taught separately and progressed to the maintenance stage) and have to select the right response. To do this they are shown to discriminate the critical features of each task, for example, the signs for addition, subtraction, multiplication and division in numerical operations and then select the correct operation.

A second type of generalization activity is known as differentiation. Learners give the same response to a task even through various aspects of it have changed. For example, learners are taught to identify/read a numeral 8, presenting in different colour, size and or background. The learner's response will be same though the material presented is different.

The goal of this phase is to get the learner to use the skill in the widest possible range of settings and situations, or to accurately discriminate between the target skill and 'similar' skills. The teachers should take entire role in teaching learners how to generalize skills, whether it is via the process of discrimination or differentiation. Therefore, the teaching periods need to be followed by intensive practice sessions where learners are given a large number of generalization activities to complete on their own.

5.3.2 Teaching Procedures

Teaching procedures for acquisition

We can look at the teaching procedures in three ways.

1. Procedures which describe how tasks are presented.

2. Techniques which can be used to help learners complete new skills.

3. Procedures for how to respond after the task has been completed.

Ways of presenting the task.

Modelling (demonstration)

The first procedure while teaching a new skill is to model the task for the learner. The teacher starts by getting the learner's attention, perhaps by saying, 'It's my turn, watch me, are you ready?' and then proceeds to complete the task, probably commenting on its key features as well. Introducing new tasks in this way draws learners's attention to what is to be learned and is preferred to relying solely on a verbal description. Verbal presentation are rarely as effective as showing a learner precisely what to do. Usually, tasks are modeled on several occasions before moving on to the next step.

Leading

Learners complete each step of the task at the same time as the teacher. While leading, the teacher says to the learner, 'Let's do this together, are you ready?' The teacher then starts and the learner joins in, copying exactly what the teacher does. Teacher and learner therefore perform the new task together.

Imitation

This is slightly different from leading. When the learner imitates her teacher, the teacher performs the whole of the task first and only after it has been completed does the learner have a turn. When leading, teacher and learner perform the task together; when imitating the teacher completes it first and is then followed by the learner.

Instructions

On many occasions teaching methods are accompanied by verbal instructions. Vocabulary and sentence structure should be within the learner's range of competence and should be the same or similar from one day to the next, as learners can easily become confused if they are changed too often.

What may well seem like a small change in instructions will frequently lead to the nature of the task being changed quite dramatically. This can be illustrated by taking the example of teaching sight vocabulary to learner with the aid of flash cards. Typically the flash cards are laid out in front of the learner. The teacher points to each card in turn with the accompanying questions, 'What does this word say?'. This is a recall task and the learner tries to remember the name of the word. If the request is changed to 'Point to the word which says_____', the task becomes one of the recognition rather than recall. In this case the actual word is given to the

learner, who then scans the array of words and points to the correct one. This is an easier activity than actually reading the word.

Test

During leading and imitation the learner performs the task after observing the teacher. Once the task is completed accurately under these circumstances, the teacher will want to see whether the learner can perform it on her own, following the appropriate instructions. Typically the learner is told, 'Now it is your turn, are you ready?' An instruction is given and the learner then tries to finish the activity without any teacher assistance.

Ways of helping the learner to succeed.

Techniques such as prompting and fading, cues, shaping and chaining are used to help learners learn a complete skill. The above techniques are explained in detail in Unit-2.

Feedback

Feedback helps to keep learners motivated and interested in their work. It should be both positive and frequent to be most effective. Highlight areas of educational progress. A particularly powerful form of feedback is to give learners knowledge of results. By this, they can see whether they are improving and will appreciate those aspects of the task that are being performed correctly and note those which have resulted in errors and need further practice.

Rewards

Rewards play an important role in improving learners's learning and can take several forms. Praise is probably the easiest and the most natural type of reward, which can be provided by a teacher and for many learners, will be particularly effective.

Teaching procedure for fluency building

Practice

Once a task is performed accurately, it needs to be practiced, so it can also be completed fluently. Haring (1978) has defined practice as 'the opportunity to perform

a task repeatedly until the quality and fluency of performance increased to a specified level'. The purpose of practice therefore, is to give the learner as many opportunities as possible to perform the task.

At the acquisition stage of teaching, a high level of learner-teacher interaction is required when learner perform a task in order to monitor their responses carefully. This is not necessary for fluency-building. Learner will already be able to complete the task accurately. Therefore, a particular feature of providing practice during fluency building is learner working independently with as few distractions as possible.

Feedback

A possible drawback of providing repeated opportunities for practice, is where learners lose motivation and interest through the repetitive nature of the activities involved in developing fluency. Unfortunately, however, this stage is essential for future progress and cannot be left out just because it might not be appealing. Many learners will acquire fluency very quickly and will require little time devoted to practice activities.

Rewards

Feedback is usually paired with rewards, the two procedures combining to sustain the learner's enthusiasm to work. The most likely combination of rewards is social with token (points, starts, tokens, etc.) since they can be given immediately and so are particularly effective during fluency building.

Teaching procedure for maintenance

Maintenance represents a change in role for the teacher from the active involvement of acquisition and fluency to the more passive position of facilitator. The teacher provides time during the school day for learners to work on activities so that they reach a point where no further practice is required. It should be seen as a period where 'learning' can occur, a time where the learner performs a skill to high levels of accuracy and fluency, but without being supported directly by the teacher and her use of teaching methods. Learner should be engaged with the same type of practice tasks that were used during fluency building. However, any rewards that had been used previously are gradually withdrawn. The aim is for learner to continue using a skill and derive intrinsic satisfaction, rather than being motivated by the teacher

and her use of rewards. At the end of this stage, learner will be able to complete tasks with accuracy and fluency without any help at all from the teacher.

Teaching Procedures for Generalization

First three stages of the instructional hierarchy focus on presenting a learner with a single task within a familiar format which requires a single type of response. However, eventually learners need to use those skills in different and more complex settings than the ones they have hitherto experienced. Several teaching procedures can be adopted to teach learners to generalize (modeling, instructions, cues, testing, prompting, practice, feedback, rewards and a correction procedure) which represent procedures used both before and after the learner complete the task. However, it is likely that suitable instructions alone will be sufficient for most learner with perhaps the occasional prompt or use of cues.

5.3.3 Principles of teaching

Every teacher wants to make maximum involvement and participation of the learners in the learning process. S/he sets the classroom in such a way so that it becomes attractive for them. S/he uses different methods, rules, principles etc in order to make his lesson effective and purposeful. These settled principles, tenets, working rules or general truths through which teaching becomes interesting, easy and effective are called the maxims of teaching. They have universal significance. To plan for effective instruction, knowledge of principles/maxims of teaching is of utmost significance. Their knowledge helps him to proceed systematically.

The different maxims of teaching are briefly explained below.

1. From Known to Unknown

This maxim is based on the assumption that the learner knows something. We are to increase his knowledge and widen his outlook. We have to interpret all new knowledge' in terms of the old. It is said that old knowledge serves as a hook on which the new one can be hung. Known is trustworthy and unknown cannot be trusted. So while teaching we should proceed from known and go towards unknown. For example, while teaching any lesson, the teacher can link the previous experiences of the learner with the new lesson that is to be taught Teaching of English. When a learner enters into school, he possess some knowledge and it is the duty of teacher to enlarge his previous knowledge. Whatever he possesses should be linked with

the new knowledge. If we link new knowledge with the old knowledge our teaching becomes clearer and more definite.

This maxim facilitates the learning process and economies the efforts of the teacher and the taught. For example a teacher is to teach English to the learners and he is to teach the word 'water'. He reminds them the Kashmiri word 'Aab' which they already know and then tells them that in English we say 'water'. This way of teaching helps the learners to understand things fully. This way the teaching becomes definite, clearer and more fruitful.

2. From Simple to Complex

Class-room teaching is formal where the teacher tries to teach and the learners try to learn things. In this process of teaching-learning, the teacher should see that simple things are presented first to the learners. That way they will start taking interest. Once they become interested, thou gradually complex type of things can also be learnt by them. By learning simple things, they feel encouraged and they also gain confidence. On this basis, they become further receptive to the complex matter. On the other hand, if complex types of things are presented to the learner first, he become, upset, feels bored and finds himself in a challenging situation lot which he is not yet ready being immature and unripe.

Gradually more difficult items of learning may be presented to the learners. It will smoothen teaching being done by the teacher and make learning convenient and interesting for the learners. For example, while teaching sentences of English simple sentences should be taught first and complex type of sentences may be taken afterwards.

Concrete things are solid things and they can be touched with five senses. But abstract things can only be imagined. So it is rather difficult to teach the learners about abstract things. The learners are likely to forget them soon. On the other hand, if we teach the learners with the help of concrete objects, they will never forget the subject matter.

For example when we teach counting to the learners we should first examine concrete nouns like, laptop, book, Pen etc. and then proceed to digits and numbers. The stars, the moon, the sun etc. being taught first whereas the abstract thing:, like planet, satellites etc. should be taught afterwards.

The main objective of teaching is to teacher and the learner's objective is to learn something. In this process of teaching and learning, simple or easy things should be first presented to the learners and gradually he should proceed towards complex or difficult things. The presentation of simple material makes the learners interested, confident and feels encouraged. As they will show interest towards the simple material, they becomes receptive to the complex matter. On the other hand, if complex matter is presented first, the learner becomes upset, feels bored and finds himself in a challenging situation. For example in mathematics we first present the idea of +, - , x and then division.

3. From Concrete to Abstract

Concrete things are solid things and they can be visualized but abstract things are only imaginative things. The learner understands more easily when taught through their senses and never forget that material. On the other hand if abstract things or ideas are presented, they forget it soon. As **Froebel** said, "Our lessons ought to start in the concrete and end in the abstract". For example when we teach the solar system, we first visualize the sun through our senses and gives the concept of eight planets, galaxies, meteorites etc. Through this process, the learners understand the materials more easily. Some power of imagination also develops in them .But if we reverse the situation, it will become difficult for learners to understand anything. Another example, when we teach counting to the learners we should first take the help of concrete objects like beads, stones etc. and then proceed to digits and numbers.

4. From Specific to general

While teaching, the teacher should first of all take particular statements and then on the basis of those particular cases, generalization should be made. Suppose the teacher is teaching Present Continuous Tense while Teaching English, he should first of all give a few examples and then on the basis of those make them generalize is that this tense is used to denote an action that is going on at the time of speaking

A teacher should always proceed from particular to general statements. General facts, principles and ideas are difficult to understand and hence the teacher should always first present particular things and then lead to general things. Suppose the teacher is teaching continuous tense while teaching English, he should first of all give few examples and then on the basis of those make them generalize that this

tense is used to denote an action that is going on at the time of speaking. Hence a teacher should proceed from particular to general.

5. From Whole to Part

In teaching, the teacher should try to acquaint the learner with the whole lesson first and then the different portions of it may be analyzed and studied intensively. This principle holds good while teaching a thing to the small learners. At the early stages, the learner loves to speak full sentences because in daily life situations, full sentences are used. The learner should be given a full sentence. Then he may have full familiarity with the different words contained in that sentence. Later he may have the knowledge of words. Then he will have the knowledge of different letters forming the words.

Suppose a poem is to he taught to the learners. They should be acquainted with the full poem first. Gradually they may be asked to grasp the poem stanza by stanza In the case of average learners, their first attempt may be on full stanza, taking it as a whole and then to the different lines con I. lined in the stanza as parts. It will help the teacher to teach better and the learners to learn things conveniently.

This maxim is the offshoot of gestalt theory of learning whose main emphasis was to perceive things or objects as whole and not in the form of parts. Whole is more understandable, motivating and effective than the parts. In teaching, the teacher should first give a synoptic view of lesson and then analyze it into different parts. In teaching, the teacher should try to acquaint the learner with the whole lesson first and then the different portions of it may be analyzed and studied intensively.

5.3.4 Steps in Teaching Concepts

In teaching concepts to learners with intellectual disabilities, there are primarily three main steps, namely

i) Matching

ii) Identification

iii) Naming

Matching

The initial step in teaching a concept involves matching. It usually starts with matching of objects and the learner is moved to the representative forms. It is taught in the following ways,

- Matching of one object with one object/picture/thing for matching for example, matching blue ball with another blue ball, or apple with apple
- Increase gradually the number of objects/things for matching based on the correct response
- If the learner gives incorrect response, show how the objects can be matched together, for example if the learner matches apple with mango, then show the learner by matching apple with apple.

Identification

Once the learner learns to match, the next step you should teach is "Identification". The same principles and procedures you should follow. First, select two objects/ things for identification.

- Before you ask the learner to identify, ask him to match/group the objects/ things.
- Increase gradually the number of objects/things for identification based on the correct response.
- If the learner shows wrong object, say the correct name of that object and then show and say the name of the one, which you have asked. For example,

Identification of Brinjal and Ladies finger, If the learner shows ladies finger when asked to show brinjal, say "this is ladies finger" pointing to ladies finger. Then show the brinjal and say "this is brinjal".

Naming

The last step is to teach learners to name the objects/things. This is a simple activity where you ask the learner to name the object/picture, when shown and asked 'what is this? Or 'How is this called'. Many a time, intellectual disability learners who are non-verbal may not reach this stage. Their approximate word/gesture can be appreciated and encouraged.

5.4 Teaching Strategies – Task Analysis, Prompting & Fading, Shaping, Chaining, Reinforcement, Play way method, Project method

5.4.1 Task Analysis

Due to the intellectual impairment, the learners with intellectual disability have limited capacity to learn, retain and recall the learned skills. The tasks like eating, dressing or bathing, which non-disabled learners learn to do by themselves after

certain age are to be taught to learners with intellectual disability. Further, it is observed that learners with intellectual disability are unable to learn the task as a whole, but when presented the task in simple steps, they are able to make better progress. The process of identifying these small steps is known as task analysis.

What is task analysis?

To tell you in simple words, it is the analysis of a task into simpler steps and arranging them in a sequential order. Macarthy (1987) states that task analysis is a teaching strategy in which the task is broken down into teachable components and arranged in sequential order. It is a blueprint for instruction/ teaching, through which a learner should proceed to achieve the terminal goal. It describes an end point of what must be learned but not the methods that will be employed for learning. Therefore, it is not a teaching methodology.

Generally, teaching methodology describes the procedure for teaching a task along with materials to be used. For example, if the task is sorting out coloured object of red, yellow and blue. The task analysis for this task could be:

a. Sort red coloured objects from a group of red and yellow colour objects.

b. Sort red coloured objects from a group of red, yellow and blue colour objects.

c. Sort red and yellow coloured objects from a group of red and yellow coloured objects.

d. Sort red and yellow coloured objects from a group of red, yellow and blue coloured objects.

e. Sort red, yellow and blue coloured objects from a group of red, yellow and blue colour objects.

The steps stated above tells you what is to be taught (content) and not how it is to be taught (procedure). 'How' is the procedure for teaching the steps that describe the method of teaching, which includes selection of appropriate teaching material and manipulation of the material, as well as the process of transfer of skill from teaching to learner. For example, the procedure for teaching sorting red coloured objects from a group of red and yellow coloured objects will be as follows.

Take red and yellow coloured objects in a bowl. Keep one bowl in front of the learner. Pick up one red coloured object from the bowl and place it in the bowl.

Tell the learner to pick up red coloured object from the group of coloured objects and guide him to place in the bowl in front of him. If learner has difficulty, take red coloured object in your hand and bring it closer to the learner so that he can see the colour of the object in your hand and look at the group of objects. If the learner has still difficulty, bring the red coloured object nearer to the red coloured object in the bowl so that he can see the similarity. Then, tell the learner to pick up the red colour object and place in the bowl.

Now, did you notice the difference between the content i.e., what is to be taught and methodology ie., how the content is to be taught. Therefore, we say that task analysis tells us what is to be taught and it does not describe how it is to be taught. 'How to teach' is the procedure which includes methods and materials.

Need for task analysis

Task analytic approach helps us in pinpointing learners functioning level on a specific task and also provides basis for sequential instruction. In addition, we can tailor-make the sub-tasks as per each learners pace of learning. It is very important when we are teaching learners with severe and profound intellectual disability. For them, the steps must be sequenced with more precision and care, not ignoring any minute detail.

Use of task analysis checklist

For each task the teacher must develop this checklist by breaking down the task into sequential sub-tasks, which forms the checklist.

- This checklist can be used both for assessment and evaluation of learner's performance. Before, teaching a task, we have to find out, which sub-tasks is he able to perform. This refers to assessment of learners functioning level before starting to teach a specific task. Based on the assessment information, we decide from which step to start teaching. After teaching we evaluate learner's performance on a regular basis and record in the task analysis recording sheet. This refers to evaluation.
- Systematic recording of evaluation data tells us how the learner is progressing. It also helps us to identify the step/steps in which learner is not showing progress, which may require further slicing of the sub-task and planning of instruction.

- It gives feedback to both the teacher and the learner. In case of learners with severe and profound intellectual disability, who take a long time to learn either a whole task or a part of the task, it will be encouraging to see even if he achieves few steps. We can convince parents, that he has learned this many steps of a specific task.
- Helps us in systematic teaching, as the steps are arranged in a logical sequential order.

Procedure for analyzing the task

To analyze the tasks, follow the steps given below.

- Identify and describe the task, which you want the learner to learn.
- Then, analyze the task into its essential components and arrange them in a sequential order.
- Find out the current level functioning of the learner in the task.
- Consider the need for task slicing of sub-task.

If a task has numerous sub-tasks, take a set of only 10-12 sub-tasks sequentially at a time, to teach. When the learner learns then take another 10-12 sub-tasks and finally link all of them from the total task.

Methods for analyzing the tasks

For analyzing task, a few methods have been suggested, hence, any of which you may use. After identifying and specifying the task to be taught, you have to do a systematic analysis of the task and organize the sub-tasks in a hierarchical order. The following are some of the methods.

a. **Watch a master:** In this method, you observe another person performing the task and write down the steps. Ask your friend to do the task, which you have selected for the learner for teaching. Observe him/her keenly and write the steps.

b. **Self-monitoring:** perform the selected task by yourself and list the steps. Sometimes, doing the task and writing the steps may be difficult as the writing will interrupt the performance of task.

c. **Backward chaining**: In this method, focus at the terminal objective and write down the components in the preceding level of difficulty – i.e., recording from last step to first step.

d. **Brainstorm:** First, write down all the component steps irrespective of the sequence. Later, arrange the steps in a logical order.

To check whether your statements of sub-tasks are clear, or whether you have noted down all the components of the task, do the exercise as suggested below. We need two persons, one to read the statements and another to follow the instructions and perform. A few audiences to observe the person performing the task will be helpful. Ask the person who has to read the statements to face the wall and the other to face audience. Instruct the person who has to perform the task to follow strictly the way the steps are read. The person will complete the task if the statements are clear, if not she will end up not completing the task. It is a very useful exercise to check the clarity of the statements and you will enjoy doing this activity, as well as correct errors in the listing.

5.4.2 Prompting & Fading

A prompt is a form of temporary assistance used to help a learner perform in a desired manner. When a learner is unable to perform a task, a prompt (temporary assistance) is used to help the learner perform the task. As the learner learns to perform the task, the temporary prompt is faded (slowly removed) from use. Different types of prompts and methods of fading are discussed below.

Using prompting and fading

If a learner does not perform a task/activity when we make a verbal request, prompts are introduced in the following manner until the learner has made the desired response.

Level-1 Verbal Request (VR)

Level-2 VR + Verbal Prompt (VP)

Level-3 VR + VP + Gestural Prompt (GP)

Level-4 VR + VP + Modelling Prompt (MP)

Level-5 VR + VP + Physical Prompt (PP)

For example, a learner is requested to wear a shirt. If the learner does not wear the shirt, give verbal prompt and wait for few seconds. When no response occurs then, the next level prompt (GP) is given. Similarly depending on the response the prompt levels will be increased. The prompts are introduced in the “least-to-most prompts sequence” as indicated above. This helps in finding out precisely at what

prompt level the learner is able to perform a task and also in gradual fading of prompts.

- Verbal request – The teacher requests the learner to perform the task.
- Verbal prompts.

Giving additional instructions, emphasizing important words by saying them louder or longer, giving single word reminders, bringing attention to each important part of the instruction by pausing, are some of the verbal prompts used in teaching tasks.

Gestural prompts

Gestural prompts are pointing the place where the response is to be made, making noise by tapping finger where the response is to be made, and using finger to relate the part of the task along with a verbal prompt.

Modelling

Modelling is a method of teaching by demonstration. In this, the teacher models the performance of a task and the learner imitates the model. The modelling prompt is used when learner fails to perform the activity following a verbal prompt and gestural prompt.

Physical prompt

Here, a teacher uses her hands to support a learner to go through the steps of a task. The teacher may give complete physical support/partial physical support depending on the type of support required by the learner.

5.4.3 Shaping

Shaping refers to sequential, systematic reinforcement of successive approximations of target behaviour until the behaviour is achieved. Suppose a teacher wants Harish to remain in his seat for an entire 20 minutes work period. She has observed that Harish has never remained in his seat for longer than 5 minutes with an average of 2 minutes. A programme in which Harish earns a reinforcer for remaining in his seat for 20 minutes will never happen and Harish will never earn a reinforcer. Instead of this approach, the teacher defines her target behaviour as Harish remaining in his seat for the full 20 minutes but sets up a graduated sequence of criteria.

- Harish remains in his seat for 3 minutes.

- Harish remains in his seat for 5 minutes.

- Harish remains in his seat for 10 minutes.

- Harish remains in his seat for 15 minutes.

- Harish remains in his seat for 20 minutes.

Each step in the sequence will be reinforced until established. Then the criterion for reinforcement will be shifted to the next step. Shaping procedures may be used to establish new behaviours of many kinds, ranging from verbal behaviour in severely disabled learners to study behaviours in college learners.

Shaping appears deceptively simple. Its efficient use requires great skill on the part of the teacher. First, the teacher should have the skill to precisely describe the target behaviour. Second is the skill required planning a shaping programme. The steps planned should be neither too small nor too large. Finally the teacher must consider how long to remain at each plateau – just long enough to establish the behaviour solidly, but not so long that the learner becomes struck at that level.

There are six steps that should be followed in shaping behaviour.

1. Select the target behaviour in precise and behavioural terms.
2. Obtain baseline data on how often the target behaviour is occurring in the natural environment.
3. Select appropriate reinforcers.
4. Reinforce successive approximations.
5. Reinforce the target behaviour each time it occurs.
6. At the appropriate time, reinforce the target behaviour on an intermittent schedule.

5.4.4 Chaining

Chaining refers to the actual process by which each of the responses is linked to one another to form the behavioural chain. The identification of response sequence is done through a task analysis.

Backward Chaining

When backward chaining is used, the components of the chain are acquired in reverse order. The last component is taught first, and other components are added

one at a time. For example, to teach the task “taking off shirt”. The learner is given the instruction, “Raghu, take your shirt off”, and his shirt is pulled over his head until the arms are free and the neckband is caught just above this eyes. If the learner does not automatically pull the short off, he is physically guided to do so. Primary and social reinforcers are then given. During the next training session, the neckband is left at his neck, in subsequent sessions, one arm, then both arms are left in the sleeves. The verbal instruction, “Raghu, take off your shirt”, is always presented and reinforcers given only when the task is completed.

Forward Chaining

When forward chaining is used, the teacher starts with the first link in the chain, trains it to criterion, and then goes on to the next. The learner may be required to perform all the steps previously mastered each time, or each step may be separately trained to criterion and then the links made. To use forward chaining to teach undressing skills, the teacher would start with the learner fully dressed, deliver the instruction, “Raghu, take your shirt off”, and then provide whatever prompting was required to get Raghu to cross his arms and grab the bottom of his tee-shirt. When Raghu reliably performed this behaviour, she would add the next step until Raghu shirt is.

Total task presentation

We can also use total task presentation. Here, the learner performs all of the steps in sequence until the entire chain is mastered. Total task presentation may be particularly appropriate when the learner has already mastered some or all of the components of a task but has not performed them in sequence. However, it is also possible to teach completely novel chains in this manner. Many academic chains are forged using a total task presentation. The arithmetic teacher working on addition with carry over usually requires her learners to solve an entire problem, with whatever coaching is required, until they have mastered the process.

One cannot say definitely that which chaining technique is most effective, although there is some indication that total task presentation may be most effective in teaching complex assembly tasks to retarded learners. Classroom teachers are again advised to try what seems in their professional judgment to be the best procedure.

5.4.5 Reinforcement

If we were to examine the course of events in our daily lives, we would readily see that our continued performance of certain behaviours is due to the results or performing consequences of those behaviours. Every action we engage in results in some consequence. When our behaviour results in a naturally occurring, desirable consequence, this experience serves as a motivating force for our continued performance. However, some times this natural process may be insufficient to maintain all desirable behaviours and we need to look for more powerful ones that motivate learning.

What is reinforcement?

Reinforcement describes a relationship between two environmental events, a behaviour (response) and an event or stimulus (consequence) that follows the response. The relationship is termed reinforcement only if the response increases or maintains its rate as a result of the consequence. Reinforcement is frequently the critical component of programmatic attempts

- to teach new behaviours
- to increase existing behaviours that are occurring infrequently
- to maintain behaviours at acceptable levels.

Positive reinforcement

Positive reinforcement is the contingent presentation of a stimulus, immediately following a response, that increases the future rate and/or probability of the response. There are three operative words in this definition.

- The word **increases** makes it clear that the stimulus presented as a consequence following a response will have the effect of increasing the probability that the response will occur again.
- The second operative word is **presentation.** The stimulus is intentionally presented to the learner following the production of a response.
- The third operative word is **contingent**. The teacher will not present the consequence to the learner unless and until the required response is produced. If a teacher states the contingency, “Krishna, when you finish all your math

problems, you may play with the airplane models," the teacher is using positive reinforcement (if airplane models are reinforcing to Krishna). The reinforcing stimulus (playing with airplane models) will be presented to the learner contingent upon production of the requested behaviour (completion of math problems).

Negative reinforcement

Negative reinforcement is the contingent removal of an aversive stimulus immediately following a response that increases the future rate and/or probability of the response.

- The first operative word is, **increases**, which implies that some form of reinforcement is taking place.
- The second operative word is **removal**.

In positive reinforcement a stimulus is presented to the learner, in negative reinforcement something is removed from the learner's environment.

- The third operative word is contingent.

The teacher will not remove the aversive condition unless and until the requested response is produced. If teacher states the contingency "Krishna, you must stay in the room by yourself and finish all your maths problems before you may join the rest of the class in the playground", that teacher is using negative reinforcement. The aversive condition of being left behind in the classroom while the rest of the class goes to the playground will be removed contingent upon completion of the maths assignment that Krishna should have completed earlier.

Negative reinforcement works because the learner performs the behaviour to escape the aversive stimulus. It is not necessary, however, for an aversive stimulus to be present in order for negative reinforcement to work. Negative reinforcement also works when a learner performs some behaviour in order to avoid an aversive stimulus.

Selecting Effective Reinforcers

A teacher cannot state with any real degree of certainty what will or will not be a reinforcing consequence for any given learner. What acts as a reinforcer for a particular learner depends upon that person's reinforcement history (that is, what has motivated the learner previously) and the conditions of a deprivation state (in other words, what the learner desires but does not have or does not get frequently).

Therefore, what will serve as a reinforcer may be different for each learner in the class. Hence, there is a need to select reinforcer for each learner.

For selecting reinforcers that are effective for each learner prepare a "reinforcer menu"

(Figure-1). Each learner would be asked to list the potential reinforcers in the order of preference. A reinforcer menu should include a variety of potential reinforcers that teacher can reasonably make available. To determine for reinforcer preference lower functioning learners, it may be necessary to conduct the reinforcer sampling with actual objects or events. It is usually best to bring to a sampling session up to five items that the teacher thinks are potential reinforcers. These may include both edible and social items and then allowed to choose. The teacher then lists the items in the order of preference based upon the number of times each was selected.

Presentation of reinforcers

Making Reinforcement Contingent

If reinforcement is to be effective, the learner must get the reinforcer only after performing the target behaviour. There is a contingency in place: an "if…., then" requirement has been stated. Such a statement establishes a clear and explicit relationship between performing the behaviour and receiving the reinforcer. If Karishma finds that – regardless of whether she has performed target behaviour or not – she can get a lollipop at the end of the day when the teacher is tired and/ or has a few pops left over, Karishma may decide that the teacher does not mean business as no contingency is actually in force.

Making Reinforcement Immediate

To be effective, a reinforcer should be delivered immediately after the target behaviour is performed. This will establish a connection between a particular behaviour and its consequence. Immediacy of delivery is also necessary to avoid the hazard of inadvertently reinforcing an intervening behaviour. The longer the delay between the desired behaviour and receipt of the reinforcer, the greater the possibility that the learner may engage in a behaviour not under the contingency or not desired. If the reinforcer is delivered following any intervening behaviour, it is the latter whose probability will be increased.

Types of Reinforcers

1. Primary Reinforcers

Primary reinforcers are stimuli that have biological importance to an individual. We can assume that they are innately motivating, because they are necessary to the perpetuation of life. Therefore, primary reinforcers are described as natural, unlearned, or unconditioned reinforcers. Given their biological importance, we may expect that they will be highly motivating to individual learners. The two most common and appropriate primary reinforcers for use in the classroom are food and liquids.

Edible reinforcers are used mainly with younger learners and learners of low functioning ability. Such reinforcers are usually used when teaching a new behaviour. Because of their high motivational value, they quickly affect behaviour.

If primary reinforcers have to be effective, the learner whose behaviour is to be reinforced must be in a state of deprivation in relation to that reinforcer. Using an edible reinforcer with a learner who has just returned from lunch will have a diminished chance of effectiveness, because the learner is not hungry. This by no means suggests that learners should be starved so that food will be an effective reinforcer, but the necessity for a state of deprivation is a major drawback in the use of primary reinforcers.

Another drawback is satiation. Satiation occurs when the deprivation state that existed at the beginning of an instructional session no longer exists, and the learner's cooperation and attention have worn thin. A teacher of severely disabled learners who conducts a training session lasting perhaps 30 minutes may come to a point in the session when the primary reinforcer loses its effectiveness.

There are at least five ways a teacher may plan to prevent or delay satiation: 1

1. Assign a particular reinforcer to each instructional task. There is no need to use a single reinforcer all day long, with any given learner. Use the ordered list of several potential reinforcers compiled as a result of reinforcer sampling.
2. Shorten the instructional session in which the edible reinforcer is being used. Shorter sessions with fewer trials (controlled presentations) decrease the chances of satiation. Several short sessions may be held during the day.
3. If satiation occurs, try switching to an alternate reinforcer. Alternating salty foods and sips of liquid may be a very effective way of delaying satiation.

4. Decrease the size of the pieces of edible given for correct responses.

5. Have an array of edible reinforcers available for the learner to select from following each correct response. Keep next to the learner a plate with pieces of three or four different edibles from which to select.

2. Secondary Reinforcers

No teacher wants to make the learners dependent upon primary reinforcers for working or behaving appropriately. Primary reinforcers, even for very young or severely disabled learners, are a temporary measure to enable rapid acquisition of appropriate behaviour. Primary reinforcers, if used, should eventually be replaced by secondary reinforcers.

Secondary reinforcers include social stimuli, such as words of praise or the opportunity to engage in preferred activities; and a symbolic representation, such as a token, exchangeable for another reinforcer. Unlike primary reinforcers, secondary reinforcers do not have biological importance to individuals. Rather, their value has been learned or conditioned. Thus, secondary reinforcers are often called conditioned reinforcers. Some learners may not have learned to value secondary reinforcers and must be taught to do so before secondary reinforcers will be effective.

3. Pairing

Learners for whom secondary reinforcers have no value often need primary reinforcement in order to acquire appropriate behaviour. However, to avoid dependence upon primary reinforcers, their use should always be in conjunction with some form of secondary reinforcer. The combined use of primary and secondary reinforcers is known as pairing (The primary reinforcer is paired with a secondary reinforcer). For example, when Suma behaves appropriately, her teacher may give her a bite of food and simultaneously tell her what a good job she has done. Through pairing we condition or teach the learner to be motivated by the secondary reinforcer alone gradually. Once this association has been established, the secondary reinforcer may be as effective as the primary reinforcer. The teacher may then gradually withdraw the primary reinforcer.

4. Social reinforcers

A category of secondary reinforcers that teachers use almost unconsciously includes demonstrations of approval or attention. There are a wide variety of forms of verbal

or physical interactions associated with a job well done. The range of potential social reinforcers includes various nonverbal expressions, teacher proximity to the learner, physical contact between teacher and learner, such as pat on the back/head, the granting of privileges that carry status for the learner among peers, and words and phrases that convey pleasure and approval of the learner's performance.

Expressions

Smiling, laughing, nodding, clapping.

Contact

Hugging, touching, shaking hands, holding hands, patting head, back.

Proximity

Sitting next to the learner at lunch, sitting next to the learner on bus trips, placing the learner's desk next to the teacher's, for very young learners sitting on teacher's lap during story time, being teacher's partner in a game.

Privileges

Having good work displayed, being the leader of an activity, being the classroom monitor, being the team captain.

Words and phrases

"I like the way you are sitting". "That is an excellent work." "You should be proud of what you have done." "That is just what I wanted you to do." "You should show this to your parents."

Of the many social reinforcers, words and phrases are the most often deliberately used expressions by teacher. However:

- Praise must be delivered contingent on performance of the behaviour to be reinforced. Noncontingent delivery of praise removes the dependent relationship between learner performance and teacher's affirmative attention and therefore, does not increase the future probability of the behaviour.
- Praise should sound sincere. The praise statement should vary in both content and tone according to the situation and the preference of the learner being praised.

5. Activity reinforcers

An activity is a secondary reinforcement perhaps most often used by teachers. The systematic use of such activity reinforcers was described by and is referred to as the Premack Principle. The Premack Principle states that individuals engage in certain behaviours at low frequencies. These behaviours therefore have a low probability of occurrence. Certain other behaviours have a high probability of occurrence. When low frequency behaviours are followed by high frequency behaviours, the effect is to increase the probability of the low-frequency behaviour. In other words, any activity that a learner voluntarily performs frequently may be used as a reinforcer for any activity that he seldom performs voluntarily. When a teacher tells a learner that she may work on her painting in the back of the room when she has finished the math assignment, or when a mother tells her learner he may play outside when he has finished eating his breakfast, they are using the Premack Principle, where math assignment and eating breakfast are low frequency occurrences in the respective tasks while painting and play are high frequency occurrences.

6. Generalized Conditioned reinforcers

When a reinforcer has been associated with a variety of behaviours or with access to a variety of other primary or secondary reinforcers, it may be termed as a generalized conditioned reinforcer or simply a generalized reinforcer. For example, a smile or words of praise are reinforcing following a variety of behaviours: praise from the boss after a particularly difficult work assignment or from a spouse for a delicious dinner, a smile from a teacher following a clever verbal response in class, or a hug from the mother for picking up dirty clothes.

A second type of generalized reinforcer includes those that are exchangeable for something of value. Money is the most obvious example of this kind of reinofrcer. Money, which has little or no intrinsic value, is associated with access to many types of reinforcers: food, shelter, clothing, or admission to a concert.

7. Token reinforcers

As the use of money is unrealistic in most school settings, a generalized reinforcer known as a token reinforcer has become widely used. Token reinforcers are simply symbolic representations exchangeable for some reinforcer of value to learners.

Token reinforcers are exchangeable for a wide variety of primary and other secondary reinforcers. They are used as a transition between primary reinforcers and secondary

reinforcers. A token system may be adapted for use with a single learner and a single behaviour, one learner and several behaviours, groups of learners and a single behaviour, and groups of learners and several of the same or different behaviours.

A system of token reinforcement requires two components: the token itself and a back-up reinforcer. The token itself is delivered immediately upon the desired response. This token can be an object, such as button, star, play money, paperclip, or metal washer. It can also be a symbol, such as check marks, a hole punched in a card, points, or the ubiquitous happy face. In general, tokens should be portable, durable, and easy to handle. Follow the steps given below while using token reinforcement.

- Select the target behaviour for each learner.
- Present the target behaviour clearly so that they can understand.
- Post the rules for receiving tokens and review them frequently with learners.
- Select an appropriate token. It should not be one that is easily forged or duplicated, one that is expensive to distribute to learners.
- Formulate the rules under which tokens may be exchanged.
- Develop a reward menu and post it in the classroom where learners can see easily.
- Implement the token economy. Start small and on a limited basis and build on a firm foundation.
- At first, provide immediate reinforcement for acceptable behaviour. Give tokens as soon as appropriate behaviour occurs. Initially, allow immediate token exchange and slowly move token exchange to designated time during the day.
- Gradually change from a continuous to an intermittent giving of tokens.

Revise the reward menu often. Do not let learners become bored with the programme.

Schedules of Reinforcement

Continuous schedule of reinforcement

Schedules of reinforcement refer to patterns of timing for delivery of reinforcers. Delivery of reinforcement on a continuous basis is referred to as a continuous

schedule of reinforcement (CRF). That is, each time the learner produces the target response she or he immediately receives a reinforcer. This schedule may be seen as having an one-to-one ratio – Response: Reinforcement.

Because of this dense ratio of response to reinforcement, CRF schedules are most useful in teaching new behaviours (acquisition), especially to young and disabled tudents. It is necessary to ensure that a learner who is learning a new behaviour will receive a reinforcer for each response that is closer to a correct response.

Problems with CRF schedules

- A learner whose behaviour is on a CRF schedule may become satiated on the reinforcer, especially if a primary reinforcer is being used. Once correct responding is frequent, the continuous receipt of an edible item will reduce the deprivation state and thereby reduce motivation for correct responding.
- Continuous delivery of reinforcers may lead to accusations that teachers are training learners to expect some type of reinforcement every time they do as they are told.
- CRF schedules are not the most efficient way to maintain behaviour following its initial acquisition or control. Once behaviour has been acquired, or its frequency increased, by reinforcement on a CRF schedule, teachers may terminate the intervention program. The transfer from continuous reinforcement to no reinforcement results in rapid loss of the behaviour. This problem may be solved through use of a variety of less-than-continuous schedules.

Intermittent Schedules of reinforcement

In intermittent schedules, reinforcement follows some, but not all, correct or appropriate responses. Because each occurrence of the behaviour is no longer reinforced, intermittent schedules put off satiation effects. Behaviours maintained on intermittent schedules are also more resistant to extinction. In addition, intermittent schedules require greater numbers of correct responses for reinforcement. As a result, the learner learns to delay gratification and to maintain appropriate behaviour over longer periods of time.

The two categories of simple intermittent schedules most often used to increase frequency of response are, ratio schedules and interval schedules.

Ratio schedules

Under ratio schedules, the number of times a target behaviour occurs determines the timing of reinforcer delivery. Under a fixed ratio schedule (FR), the learner is reinforced on completion of a specified number of correct responses. Under a Variable Ratio schedule (VR), the target response is reinforced on the average of a specified number of correct responses.

Interval schedules

Under interval schedules, the occurrence of at least one correct or appropriate response plus the passage of a specific amount of time are the determinants for delivery of the reinforcer. Under a fixed interval schedule (FI), the learner is reinforced the first time he or she performs the target response following the elapse of a specified number of minutes. Under a Variable Interval (VI) schedule, the intervals are of different lengths, while their average length is consistent.

Response duration schedules

Under response-duration schedules, the continuous amount of time of target behaviour is the determinant for delivery of the reinforcer. Under a fixed-response-duration schedule (FRD), the learner is reinforced following completion of a specified number of minutes (or seconds) of appropriate behaviour. Under a Variable Response Duration (VRD) schedule, continuous appropriate behaviour is reinforced on the average of a specified time period.

5.4.6 Play way method

Play way method was conceived by Friedrich Wilhelm Froebel, who is also father of the Kindergarten method. 'Play' according to Froebel is the work of the learners. It is 'the purest, the most spiritual, and product of man at this stage.'

It is believed that a learner understands his needs and goals while playing. So it is very important to teach learners with the play way method. It has been proven that maximum amount of learning results while playing games because then the environment is very relaxed, this makes learning fun and interesting.

The play way method is based on the following principles,

i) A practical approach helps in easy learning for the learner.

ii) The complete atmosphere of freedom is conductive for learning.

iii) The customized method designed and adopted should suit the needs of the learner.

iv) Learning methods used should be related to real life rather than books.

v) This method provides a plethora of opportunities for the learnerto express themselves.

Why Play-way method

i) It turns entire learning into fun element by involving play in it.

ii) It develops the feeling of satisfaction among learners.

iii) Every learner is given equal exposure and ample of opportunities for learning and participation.

iv) Along with knowledge, it inculcates various other skills in a learner.

v) It helps learners to connect with peers and teachers easily.

vi) It facilitates the overall and holistic development.

For learners with intellectual disabilities, this method is effective and ensures better understanding because the learners are learning by doing, and getting hands-on experience. Play was method also helps in retention of taught skills and concepts. Another benefit of play way method is that it is highly adaptable, and can be adapted for learners with intellectual disabilities to facilitate their learning.

5.4.7 Project method

Project method is one of the modern methods of teaching in which, the learner's point of view is given importance in planning of instruction. The method is based on the philosophy of Pragmatism and the principle of 'Learning by Doing.' In this, learners are given opportunities to perform constructive activities in natural condition. It takes the learners beyond the walls of the classroom and makes learning realistic and experiential. Project method focuses on the active involvement of the learners in the task. It promotes a better knowledge of the practical aspects of knowledge and enhances social skills, as it requires interaction with the social environment. A teacher plays a role of facilitator rather than the role of an expert, and allows a great degree of freedom to choose from various options.

Steps involved in Project Method

1. Creating Situation

In the first step, a teacher creates various situations for the learners based on their competencies and abilities.

2. Selection of a Problem

The teacher helps learners to select the problem and guide them. Learners have freedom to choose any topic of their choice. At this stage, autonomy to learners is given and respected.

3. Planning

The teacher discusses with learners about the problems in various angles and points. In this process the teacher acts only as a guide and gives suggestions at times but actual planning is left at the learners.

4. Execution

The learners begin to collect relevant information and materials. Teacher should allow sufficient time and right to learners according to their own speed, interest and ability. During this step, the teacher should carefully supervise the learners and check up if they are progressing as per plan or not.

5. Evaluation

It is done by both learners and the teachers. Here, the learners evaluate their task and determine whether they have achieved or not. The teacher also gives inputs on the performance and feedback to make improvements.

6. Reporting and Recording

At this step, each and every step of work is reported. It includes details of tasks undertaken by the learner and how they approached it.

A teacher plays a passive but significant role in this method. If a learner is facing difficulties in execution of some steps, the teacher suggests better methods of techniques that may be used by them. In case of learners with intellectual disabilities, this becomes very crucial as they get to know different ways to approach the problem. Also, learners with intellectual disabilities who find it difficult in social situations, this method help them improve their social skills and support and suggestions by teacher help boost up their confidence and morale.

5.5 Concept and type of Teaching materials and Learning materials, Functional Aids and Criteria for selecting appropriate TLM's

5.5.1 Concept and type of Teaching materials and Learning materials

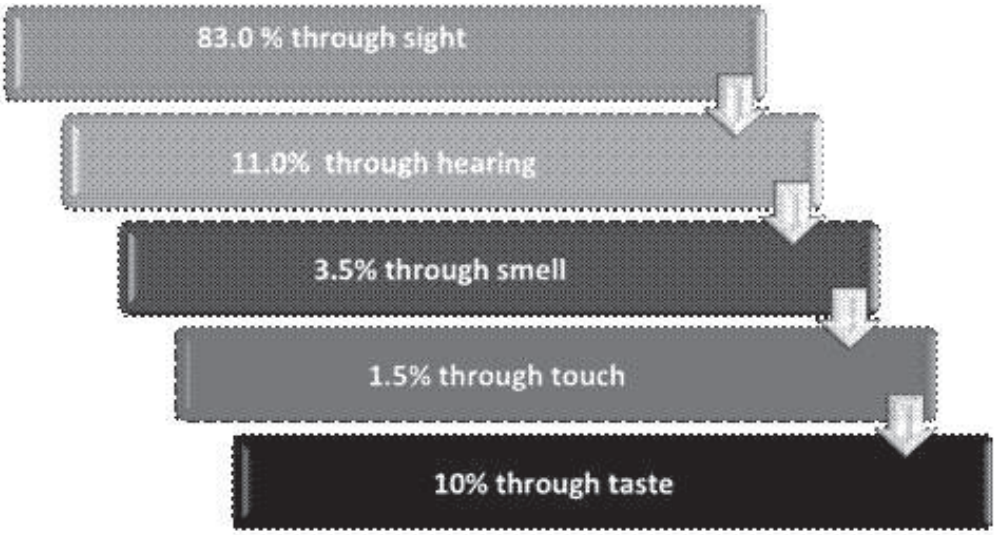
Teaching material or teaching Learning material (TLM) or instructional material is the term used to describe a collection of materials that a teacher may use in teaching and learning situations to help achieve desired learning objectives. Teaching materials may aid learner in concretizing a learning experience so as to make learning more exciting, interesting and interactive. TLMs are the tools that are used in instructional activities, which encompass active learning and assessment. It comprises of all the material and physical means an instructor might use to implement instruction and facilitate learners' achievement of instructional objectives.

TLM can be classified on their types, which include prints, visuals and audio-visuals.

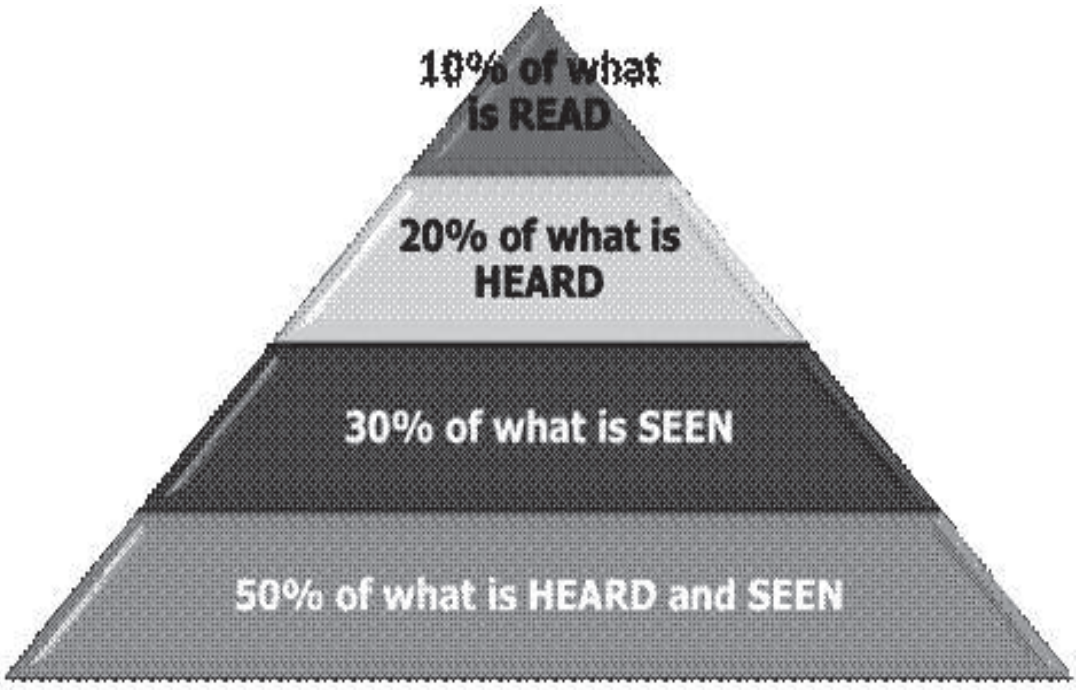
Prints	Textbooks, pamphlets, handouts, study guides, manuals
Audio	Cassettes, microphone
Visuals	Charts, real objects, photographs, transparencies
Audiovisuals	Slides, tapes, films, filmstrips, television, video, multimedia
Electronic Interactives	Computers, graphing calculators, tablets

TLMs are usually prepared by high level of experts or professionals in their field of specialization and covers topics as per the course or syllabus. The planning, implementation and evaluation of the learners are done with the help of these developed materials.

The figure below shows how learners learn using different senses,



Further, based on exposure to various learning modalities, the learners are able to retain,



Need of Teaching Learning Material

1) Every individual has the tendency to forget. Proper use of teaching materials helps to retain concept permanently.
2) Learners can learn better when they are motivated properly through different teaching materials.
3) Teaching materials develop the proper image when the learners see, hear taste and smell properly.
4) Teaching materials provide complete example for conceptual thinking.
5) The teaching materials create the environment of interest for the learners.
6) Teaching materials helps to increase the vocabulary of the learners.
7) Teaching materials helps the teacher to get sometime and make learning permanent.
8) Teaching materials provide direct experience to the learners.

5.5.2 Functional Aids

Functional aids are the aids that are used by a learner to support daily living activities. It includes self-care equipment or basic assistive technology, products to be used in everyday functional activities. Functional aids generally can be used by learners even after learning the concepts.

A form of assistive technology, aids for activities for daily living, include a wide range of devices. categories of equipment may span, but are not limited to, eating and meal preparation, grooming, bathing and showering, dressing, transferring to and from beds, vehicles, or wheelchairs, mobility, writing and basic communication, environmental control, home management, time management, organization and scheduling, money management, shopping, leisure/recreation/play, community living, and school and work activities. Common examples include tub benches, large-print or talking devices, and adapted utensils or utensil or tool holders that can be used across many activities.

Such technologies adapt the environment, rather than the person, to support identified needs, choice, and control. Aids for Activities of Daily Living may compensate for impairments and functional limitations and enable a quicker, safer, or more-efficient performance of everyday activities. Products may address vision, hearing, fine and gross motor, sensory, cognitive, communication, safety, and learning needs. These

aids are often distinguished from other assistive technologies as low, simple, or basic technology.

5.5.3 Selection of Teaching Learning Material and Aids

i) While selecting the teaching learning materials, a teacher should keep in mind that the aids are age appropriate, and suit the level of learner.

ii) TLMs should be developed to motivate learners with intellectual disabilities in learning. They should arouse and sustain their interest in the content taught.

iii) TLMs should be designed and developed using locally available resources to reduce the cost of production and increase the replication. Readily available material should be used to develop material in less time.

iv) More importantly, the material should represent the accurate facts and should not manipulate the information. For example, if using pictures of animals, then pictures should be selected in an manner that different in size of animals should be evident and according to real body proportions.

v) TLMs should be attractive, symmetrical and colorful for learners so that they take interest in learning through them.

vi) TLMs containing text should be prepared in easy and simple language. Easy, simple and short sentences help in better understanding of the content.

vii) While selecting the TLMs, a teacher should also make sure that the material selected is easy enough to make complex and difficult concepts understandable to all the learners, especially learners with disabilities.

viii) Also, TLMs should be related to the curriculum and easy to manipulate in class according to needs of various learners, different contexts and settings.

5.6 Principles of adaptation, Adaptation of ADL material & functional academics

5.6.1 Principles of adaptation

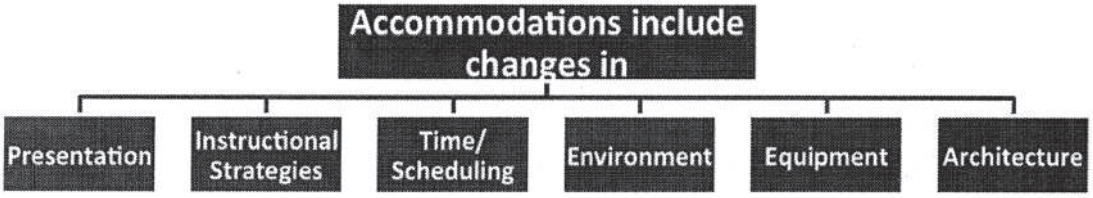
Adaptations are the changes made to the environment, curriculum, instructions and/or assessment practices in order to cater to needs of learners with disabilities and for them to become successful learners. It is based on the strengths and needs of the learner. Adaptations include accommodations and modifications.

Accommodation is any adaptation made to curriculum, instruction or the learning environment, as well as teaching methods and testing procedures that *does not* substantially alter curriculum objective. It does not change WHAT the learner needs to learn i.e., the content. Changes in the way instruction is delivered or the format of materials are made to help learners progress with the general curriculum and increase participation in classroom and school activities.

Accommodations include changes in the way learners access instruction and demonstrate proficiency but do not fundamentally change the course content standards or expectations.

Some examples of accommodations are,

- Using visual aids such as graphic organizers or semantic maps
- Providing alternative formats for assignments
- Seating near the teacher
- Extend time for taking tests
- Shortened assignments
- Peer support in note taking
- Tape record lectures
- Use of computer/laptop for writing

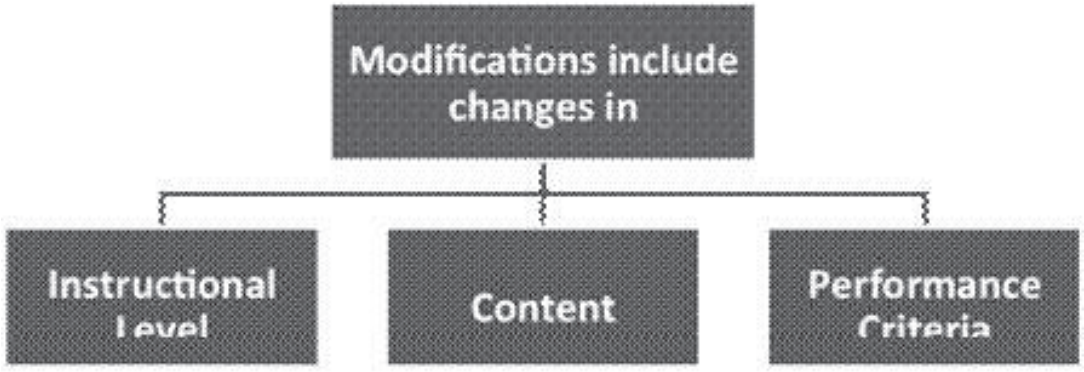


Accommodations are the changes made in order to provide a learner equal access to learning and equal opportunity to demonstrate what is known. It ***must not*** alter the content of the curriculum or of tests.

Modification does not alter what learners are expected to learn, but still allow them to interact meaningfully and productively with other learners in classroom and school learning experiences.

Examples of modifications are,

- Use of calculator on a math test
- Alternative books or materials o the same theme or topic
- Test questions reworded using simpler language
- Alternative assignment/assessment
- Questions re-worded using simpler language
- Projects substituted with written reports
- Important words and phrases highlighted



Modification is any type of adaptation made to curriculum, instruction or environment that substantially alters the curricular objectives. In simple words, changes that change what the learner has to learn are considered modifications to allow learners to access the content at a different cognitive level.

Modifications made during assessments may include orally reading/signing a reading test, provide large print or Braille test booklet, have a teacher provide clarification or simplify language, use of dictionary, etc.

Principles of Adaptations

1. Adapt only when necessary

Many learners with disabilities may lead their tasks and activities independently and require very few additional accommodations and supports for participation. Therefore, one should adapt only when adaptation is needed to increase learners' participation, success and enjoyment.

2. Adapt on an individual basis

The teacher should be certain that adaptations, which are considered and designed for an activity, in fact, are relevant for a particular learner. Before purchasing material, it should be kept in mind that it is going to suit the needs of the learner. While developing the material, the teacher should assess the needs of learners first and then design the material.

3. View any adaptation as temporary

Consider adaptations as transitional until the person can learn the skills and behaviors to participate in the standard or typical way. Some modifications, like use of a wheelchair, or prosthetic device, may always be necessary. However, prevent learners with disabilities from becoming unnecessarily dependent on these adaptations, thereby further limiting future options and opportunities for this learner to enjoy these activities in more inclusive settings.

4. Adapt for congruence

Any adaptations or modifications should make sense, not only for the person using them, but to others observing their use. Unique or exaggerated adaptations and modifications, i.e., those which may not be usually seen or experienced by nondisabled peers, may have an unintended consequence of further limiting the inclusion and acceptance of the learners with a disability. They may just seem too "weird" or more importantly to young children, unfair. In fact, they help reinforce stereotypes about disability.

5. Adapt for availability

Adaptive equipment, materials and support provided in one environment may not be readily available in another comparable environment. Consideration should be given to assuring that materials and services (e.g., activity aides) arranged or developed aren't so specialized that the learners using these adaptations don't have their options and opportunities limited to using them in only one setting.

5.6.2 Adaptation of ADL material

Due to a disability or after sustaining an injury, one may find it difficult to perform activities of daily living (ADLs). Activities such as, bathing, dressing, grooming, toileting, and feeding are self-care activities are included in the spectrum of activities of daily living.

It may also be necessary to use adaptive equipment (AE) to perform ADLs. Adaptive equipment are devices that are used to assist with completing activities of daily living. The amount of assistance needed to perform ADLs varies from person to person depending current strength and range of motion, functional abilities, health status and medical diagnosis and precautions.

Adaptations in equipment for dressing

i. Upper Body Dressing

Upper body dressing (UBD) includes putting on and taking off any clothing items from the waist up. For the individual with paraplegia, the upper extremities (arms) are usually functioning properly, and UBD is usually completed without difficulty. However, sitting balance and safety precautions should be addressed before attempting UBD from the edge of the bed or while sitting without support on any surface. If balance is impaired, it may be easier to sit in a wheelchair or standard chair for additional back support. If a brace is worn around the torso, loose garments with front closures are suggested. Additionally, comfortable, wrinkle-resistant clothes allow for easier application and neat appearance.

Upper body dressing techniques depend on several factors including:

* Amount of movement in the arms
* Strength of active arm muscles
* Sitting balance and endurance
* Fine motor coordination/hand strength

A person may be able to use adapted techniques/adapted clothing, adaptive equipment and/or splints to increase independence when doing UBD.

ii. Lower body dressing

Lower body dressing (LBD) includes putting on and taking off any clothing item from the waist down. When dressing the lower body, persons with a paraplegic level of injury might find it helpful to use a combination of alternative techniques and adaptive equipment. The most common position for performing LBD is circle sitting or long sitting in bed. This allows the person to reach his/her feet from a large base of support, which increases balance.

Some of the most commonly used pieces of adaptive equipment (AE) used during dressing include:

* Dressing sticks
* Reachers
* Long-handled shoe horns
* Button hooks
* Velcro®
* Elastic shoe laces
* Sock aids
* Legs straps

iii. Bathing - Adaptive equipment for bathing

One may use some of the following to assist with safety and completion of bath:

* Tub chair/tub bench with a back
* Transfer board
* Hand held shower
* Long handled sponge
* Grab bars
* Thermometer

One may use some of the following to assist with safety and completion of bath:

* Shower chair (with tilt/recline feature)
* Transfer board or mechanical lift
* Hand held shower
* Universal-cuffs or other splints to assist with holding items
* Wash mitt
* Thermometer

This is just a small sampling of the equipment that may be used to increase independence with bathing. Occupational therapist will help one develop a bathing program more appropriately.

iv. Toileting - Adaptive equipment for toileting

Toileting includes the ability to pull down clothing in preparation for elimination, cleaning of the perineal area and pulling clothing up after completion. A person is often able to independently complete the process with the correct technique and needed equipment.

Examples include:

* Leaning on one elbow to raise a hip and pull down clothing from side to side
* Drop-arm bedside commode for safe transfers
* Toilet aid to reach perineal area
* Leg straps to assist lifting legs

v. Grooming - Adaptive equipment for grooming

Grooming tasks include brushing teeth, washing face, combing hair, shaving and applying make-up. As with UBD, a person with paraplegic level of injury usually has full use of their arms and grooming is completed without difficulty from a wheelchair as long as items are in reach.

Necessary Adaptive Equipment and orthotics may include:

* Universal-cuff to hold toothbrush, razor, make-up, etc.
* ADL wrist splint to stabilize wrist
* Wash mitt
* Long handled brush
* Lap tray
* Built-up handles

vi. Feeding - Adaptive equipment for eating

Feeding, like upper body dressing and grooming, is usually not difficult for a person with a paraplegic level of injury. Feeding is usually done in a supported seated position in bed with a bedside table or from wheelchair level with a lap tray. There are several splints and pieces of adaptive equipment available to assist with this process.

These items include:

* Universal-cuff to hold utensils
* ADL wrist splint to stabilize wrist
* Non-skid bowl
* Plate guard
* Scoop dish
* Adaptive utensils
* Long straw
* Mobile arm supports

Common types of adaptive equipment

1. Adapted Utensils - Forks, spoons, and knives that are modified to assist with feeding. These may include utensils with built-up handles, weighted handles, and angled utensils.
2. Adl Splint - Allows user to hold utensils without grasp or wrist control.
3. Bed Ladder - Series of connected loops attached to end of bed to assist with bed mobility.
4. Bed Mobility - Movement of the body in the bed. Includes rolling and transitioning from sitting edge of bed to lying down.
5. Bedside Commode: Portable commode with armrests that can be used beside the bed or over the toilet.
6. Built-Up Handles - Larger handles used to assist user with weak grasp to perform ADLs.
7. Button Hooks - Assist user who has poor hand control to fasten buttons.
8. Circle Sitting - Sitting position in which legs are supported on bed, mat, or floor with knees bent and out to the side with bottom of feet touching each other.
9. Dressing Sticks - Assist user to reach legs without bending for putting on pants.
10. Drop-Arm Bedside Commode - Portable commode with removable armrests that can be used beside the bed or over the toilet.

11. Elastic Shoe Laces - Shoe laces made out of elastic material, which are laced into shoes and permanently tied to allow shoes to slip on/off.
12. Environmental Control Units: Electronic system that allows user to control aspects of his/her environment.
13. Grab Bars - Mounted onto wall to assist with balance and transfers.
14. Hand Held Shower: Showerhead with a hose that allows user to hold shower in his/her hand to direct the spray. A HHS with the controls on the handle is recommended.
15. Lap Tray - Wooded or plastic tray attached to wheelchair to provide support for arms.
16. Leg Straps - Attach to users legs at thigh, knee, and ankle to assist with moving legs during activity.
17. Long-Handled Brush – Hairbrush placed at the end of flexible, extended handle to allow user to reach hair.
18. Long-Handled Shoe Horns - Extra-long shoehorn to allow user to keep heel of shoe up without bending over while putting on shoes.
19. Long-Handled Sponge: Bath sponge placed at the end of extended handle to allow user to reach legs and feet without bending.
20. Long Sitting- Sitting position in which legs are supported on bed, mat, or floor with knees straight.
21. Long Straw - Extended, reusable straw to allow user independently drink from a cup.
22. Mobile Arm Supports - Mounted arm supports that assist user with feeding and other ADLs.
23. Mouthstick - Allows person with limited arm function to use mouth to access switches.
24. Non-Skid Bowl - Dish with non-skid material on bottom to provide stability during feeding.

25. Plate Guard - Attaches to rim of plate to allow user to scoop items onto fork/spoon.
26. Raised Toilet Seat: Attaches to existing toilet to increase the height for easier transfers.
27. Reachers - Allows user to retrieve items out of reach.
28. Scoop Dish - Dish with one side sloped upward to allow user to scoop items onto fork/spoon.
29. Shower Chair (With Tilt/Recline Feature) - Rolling chair with tall back that will recline to assist with balance/safety in a roll-in shower.
30. Skin Inspection Mirror - Dual sided mirror attached to extended, flexible handle to assist with inspecting skin for pressure sores.
31. Sock Aids - Allows user to put sock on without bending.
32. Swivel Utensils - Utensils attached to moving handle to assist user with getting food into mouth.
33. Toilet Aid - Toilet tissue aid designed to assist user in cleaning perineal area when reaching is difficult.
34. Transfer Board (Also Known As A Sliding Board) – Plastic or wooden board used to bridge the gap between two surfaces to make a transfer safer and easier.
35. Tub Chair/Tub Bench With A Back - Placed into tub or shower to provide a seated surface while bathing.
36. Tub/Shower Chair: Fits into tub or shower to provide surface for bathing. A shower chair with a back and seatbelt is recommended for increased stability and balance.
37. Tub Transfer Bench: Base of bench extends outside tub to make transfers easier. A tub transfer bench with back and seatbelt is recommended for increased balance and stability.
38. Universal-Cuff (U-cuff) – Splint that allows user to hold ADL items without grasp.

39. Wash Mitt - Large mitt that can be used by a person with limited hand function to bathe

5.6.3 Functional academics

Functional academics refer to functional literacy and numeracy areas that are used in our day-to-day living. Living independently requires some skills which are considered academic, even if they do not lead to higher education or the completion of a diploma. Many learners with intellectual disability are capable of learning and utilizing these skills and master these certain skills to function independently in everyday environment and to gain successful employment. Those skills include:

- **Math Skills** - The functional math skills include telling time, counting and using money, balancing a checkbook, measurement, and understanding volume. For higher functioning learners, math skills will expand to include vocationally oriented skills, such as making change or following a schedule.
- **Language Arts -** Reading begins as recognizing symbols, progressing to reading signs (stop, push), and moves on to reading directions. For many learners with disabilities, they may need to have reading texts supported with audio recordings or adults reading. By learning to read a bus schedule, a sign in a bathroom, or directions, a learner with disabilities gains independence.

Functional literacy and numeracy skills are generally taught to those learners who are capable of learning to read and write to some extent.

5.7 Integration of above for Inclusion

For learners with intellectual disabilities, adaptations play a significant role, as they aim to ensure equitable learning opportunities to learners and bring them at par with their peers. To ensure a successful inclusion where all learners benefit and learn to their fullest potential requires.

i) A teacher should have understanding of the stages of learning, steps and principles of teaching, and most importantly of learners and their preferred learning modalities so as to design the instruction accordingly.

ii) A teacher must incorporate various strategies of teaching and plan the instruction using appropriate teaching strategy. For every topic, the most appropriate teaching strategy should be chosen to benefit the learners.

iii) While planning for the instruction, a teacher should also plan for designing interactive and interesting teaching learning material. The TLMs should be used not just for academic tasks but also for functional tasks.

iv) With sound pedagogical knowledge, knowledge of teaching strategies and TLM, a teacher should focus on making adaptations in these aforementioned components, for effective implementation of instruction. Adaptations should be made at every step of instruction delivery and even beyond that while assessing the learners, in order for child to achieve desired learning outcomes.

v) A teacher should offer a variety of tasks and activities for better retention of the concepts. The activities should be designed in a manner of simple to complex and gradually increase the level of the learner.

vi) At every step, the teacher should provide learners with a constructive feedback so they can improve in time.

vii) During assessment, necessary support should be ensured to the learners to ascertain the true level of understanding. In addition, a teacher should also make sure that adaptations in assessment are ensured only when it is desired by the learner. Unnecessary support makes the learners dependent and hampers their progress and development.

5.8 Let us sum up

- An instructional hierarchy (acquisition, maintenance and generalization) is followed while teaching learners with intellectual disability. First step is to teach a learner to learn a new task (acquisition), second to perform the task to a higher level of accuracy (fluency), third to maintain the level of accuracy even after instruction has been stopped (maintenance) and lastly to generalize the task/skill/activity in the situations or environments when required (generalization).
- Teaching procedures such as modeling, leading, imitation, instructions, feedback and rewards are used during the stages of learning.
- Certain principles/maxims are followed while teaching learners with intellectual disability. They are (a) simple to complex, (b) known to unknown, (c) concrete to abstract and (d) whole to part.

- The steps followed in teaching any concept are matching, identification and naming.
- If learning has to be effective, different types of strategies and reinforcement methods are to be used in teaching learners with intellectual disability.
- Task analysis is breaking of the task into simpler steps and arranging them in a sequential order. It helps in pinpointing learners functioning level on a specific task and also provides basis for sequential instruction.
- The methods employed in analyzing the task are watch a master, self monitoring, backward chaining and brainstorming.
- Reinforcement is frequently the critical component of pragammatic attempts to teach new behaviours, to increase existing behaviours that are occurring infrequently and to maintain behaviours at acceptable level.
- Positive reinforcement refers to the process of presenting a stimulus as a consequence of a response that results in an increase in the probability that the behaviour will increase in future.
- Negative reinforcement refer to the procedure of removing an aversive stimulus as a consequence of, or contingent upon, a response resulting in an increase in the rate of the particular response in future.
- Different types of reinforcers are used in teaching learners with intellectual disability. They are primary reinforcers, secondary reinforcers, social reinforcers, activity reinforcers and generalized conditioned reinforcers.
- Continuous schedules of reinforcement and Intermittent schedules of reinforcement are used in delivering the reinforcers while teaching new behaviours and in maintaining the learned behaviours.
- Shaping is the reinforcement of successive approximation towards the target behaviour.
- A prompt is a temporary help given to a learner to perform a task in a desired manner. Prompts such as verbal prompt (VP), Gestural Prompt (GP), Modeling Prompt (MP) and Physical Prompt (PP) are provided to learners depending on the performance while teaching a task.

- Fading is weaning of the temporary assistance (prompt) given to the learner as he learns to perform the task.
- Teaching material or teaching Learning material (TLM) or instructional material is the term used to describe a collection of materials that a teacher may use in teaching and learning situations to help achieve desired learning objectives.
- TLM can be classified on their types, which include prints, visuals and audio-visuals.
- Functional aids are the aids that are used by a learner to support daily living activities.
- Adaptations are the changes made to the environment, curriculum, instructions and/or assessment practices in order to cater to needs of learners with disabilities and for them to become successful learners. It includes accommodations and modifications.
- Accommodations are the changes made in order to provide a learner equal access to learning and equal opportunity to demonstrate what is known. It ***must not*** alter the content of the curriculum or of tests.
- Modification is any type of adaptation made to curriculum, instruction or environment that substantially alters the curricular objectives.
- Functional academics refer to functional literacy and numeracy areas that are used in our day-to-day living.

5.9 Unit End Exercise

1. Explain the following:

(a) acquisition,

(b) fluency,

(c) maintenance,

(d) generalization.

2. Explain the steps followed in teaching any concept with an example
3. What is task analysis? Explain its importance?
4. Explain the methods used in analyzing a task.

5. Select a task, analyze the task and check the clarity of the statement following the procedure explained.
6. Define reinforcement. Explain different types of reinforcers.
7. Explain shaping and chaining with an example.
8. What is prompting and fading? Explain different prompts with an example.
9. What is Teaching Learning Material? Explain the criteria of selection of TLMs.
10. Define adaptations. Describe the principles of adaptation.

5.10 References

1. Alberto, A.P. and Troutman, A.C. (1995) Applied Behaviour Analysis for teachers (4th edition). Columbus: Merrill Publishing Company.
2. Baine, D. (1988) Handicapped learners in developing countries: Assessment, curriculum and instruction. Alberta: University of Alberta.
3. Bauer, A.M. and Sapona, R.H. (1991) Managing classrooms to facilitate learning. New Jersy: Printice Hall.
4. Berdine, W.H. and Cegalka, P.T. (1980) Sequencing for instruction: Task analysis in teaching trainable intellectually disabled. Columbus: Charles E.Merrill Publishing Co.
5. Bull, S.L. and Solity, J.E. (1987) Classroom management – Principles to practice. London: Croom Helm.
6. Cooper, J.O., Heron, T.E. and Heward, W.L. ( ) Applied Behaviour Analysis. Columbus: Merrill Publishing Company.
7. McCarthy, F.E. (1987) Task Analysis. In C.R.Reynolds and L.Mann (Eds.) Encyclopedia of Special Education, Vol.3. New York: Johnwiley and Sons.
8. Myreddi, V. and Narayan, J. (1998) Functional Academics for learners with intellectual disability – A guide for teachers. Secunderabad: NIMH.
9. Narayan, J. and Kutty, A.T.T. (1989) Handbook for the trainers of the intellectually disabled persons – Preprimary level. Secunderabad: NIMH.
10. Schloss, P.J. and Smith, M.A. (1994) Applied Behaviour Analysis in the classroom. Boston: Allyn and Bacon.

11. Solity, J. and Bull, S. (1987) Special Needs: Bridging the curricular gap. Milton Keynes: Open University Press.

12. Waller, J.E. and Shea, T.M. (1984) Behaviour management: A Practical approach for educators (3rd edition). ST.Louis: Times and Bacon Inc.

Online resources:

https://www.indiastudychannel.com/resources/120148-Teaching-Aids-Their-Needs-Types-and-Importance-Of-Teaching-Aids-In-Teaching-Learning-Process.aspx

https://www.britannica.com/topic/aids-for-activities-of-daily-living

https://www.thoughtco.com/functional-skills-for-learners-independence-3110835

http://www.family-friendly-fun.com/disability-support/adaptive-equipment.htm

https://www.nchpad.org/108/843/Principles~for~Adapting~Activities~in~Recreation~Programs~and~Settings

মানুষের জ্ঞান ও ভাবকে বইয়ের মধ্যে সঞ্চিত করিবার যে একটা প্রচুর সুবিধা আছে, সে কথা কেহই অস্বীকার করিতে পারে না। কিন্তু সেই সুবিধার দ্বারা মনের স্বাভাবিক শক্তিকে একেবারে আচ্ছন্ন করিয়া ফেলিলে বুদ্ধিকে বাবু করিয়া তোলা হয়।

— রবীন্দ্রনাথ ঠাকুর

ভারতের একটা mission আছে, একটা গৌরবময় ভবিষ্যৎ আছে, সেই ভবিষ্যৎ ভারতের উত্তরাধিকারী আমরাই। নূতন ভারতের মুক্তির ইতিহাস আমরাই রচনা করছি এবং করব। এই বিশ্বাস আছে বলেই আমরা সব দুঃখ কষ্ট সহ্য করতে পারি, অন্ধকারময় বর্তমানকে অগ্রাহ্য করতে পারি, বাস্তবের নিষ্ঠুর সত্যগুলি আদর্শের কঠিন আঘাতে ধূলিসাৎ করতে পারি।

— সুভাষচন্দ্র বসু

Any system of education which ignores Indian conditions, requirements, history and sociology is too unscientific to commend itself to any rational support.

— Subhas Chandra Bose

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