Communication Needs & ICT

Advanced Certificate Course in Inclusive Education
(Cross Disability)

Rehabilitation Council of India
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## PROGRAMME:
Advanced Certificate in Inclusive Education (Cross Disability)

### Block IV: COMMUNICATION NEEDS AND ICT

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Block 4: Editor’s Page

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The Advance Certificate Course in Inclusive Education (Cross Disability) study material is divided into 5 Blocks. In Block 1 and 2; you have learnt about different disabilities specified under RPwD Act, their educational implications and assessment, and recent developments in legislations pertaining to inclusive education; further you would have studied about the diversities in an inclusive school environment; and learnt to apply inclusive teaching learning process through UDL, ILFE and creation of inclusive learning resources. Block 3 would have trained you on understanding curriculum; provision of disability specific accommodation, adaptations and modifications; teaching practices of at elementary and secondary level; classroom transactions; utilization of co-curricular activities; and alternative methods of evaluation. In block 4 that you’re about to read; the content is divided into 5 units; which will equip you to identify the various communication needs of individuals with special needs and technology based interventions to address them.

Unit 1, titled “Communication and Behavioral Issues”; describes the various communication disorders and their effect on academics. It also details the methods in which we can make the communication more effective and accessible at school and in community. Alongside you also learn about the positive behavior support that can be provided in an inclusive setting.

Unit 2, titled “Addressing Concerns: Communication and Behaviour”; explains the various concerns and issues related to communication and behaviour across different disabilities, namely: Sensory Disability, Intellectual Disability, Specific Learning Disability, Multiple Disabilities, Autism and ADHD. Awareness of these characteristics is helpful in understanding the children with different special needs as well as in planning inclusive educational and learning activities for them. The unit also prepares you to understand the factors that influence the occurrence of problem behavior, conducting functional assessment; and strategies for management of behaviours.

Unit 3, titled “Modes of Communication”; gives a detailed description of the various verbal and non-verbal modes of communication. It also gives you an insight about evaluation of communication skills of learners, along with understanding the various aspects of interpersonal and interactive communication amongst the children. The unit also portrays the role of reading and writing in communication; and how we can use Art as a means to communicate.

Unit 4, titled “Communication Strategies and Augmentative and Alternative Communication (AAC)”; illustrates the meaning, functions and categories of AAC, that will help us understand its importance for language development. It also details the factors to be considered while selecting an AAC system for a child; and how we can use Visual Aids to support communication needs of a student.

Unit 5, titled “Information and Communication Technology (ICT)”; helps us appreciate the benefits of ICT for communication of individuals with special needs. It also discusses the various methods of incorporating ICT specific to communication skills in inclusive education, by adapting them for specific needs of different disabilities. It also elaborates on the competencies required by the teachers for its effective integration in classroom. The unit also provides you a guide towards identifying digital resources and existing technologies for facilitating communication of students with special needs.
## Block IV: COMMUNICATION NEEDS AND ICT

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Unit 1: Communication and Behavioural Issues

1.1 Objectives

After going through this unit, you will be able to:
- organize effective classroom communication
- analyze communication disorders among children with special needs
- identify communication difficulties on academics
- facilitate communication in school and community
- enhance positive behavior support in inclusive setting

1.2 Introduction

Communication is a social act or behavior between minimum two people. We communicate in many different ways for many different reasons. In order for communication to occur, one person must send a message and the other person must receive the message. The person who purposefully expresses a behavior towards another person is using expressive communication. However, for communication to occur between two people, there must be an intent or purpose on the part of one person to impact the other. In simple terms, communication is the exchange of thoughts, information or ideas. Communication through speech and languages is a complex process but natural human process that grows out of the child’s pre linguistic communication. It involves cognition and audition.
Communication has a major role in all walks of life; it has an additional significant place in the teaching-learning processes. Various research has shown that the teaching comprises of mainly two components i.e. the knowledge of the teacher and his/her mastery over the communication skills for the transferal aspect of the knowledge. The either one without the other downfalls the meaning as well as the purpose with which it was introduced. A teacher may be very knowledgeable, but this knowledge will not serve the purpose unless it is transferred in a manner it is intended to.

Most commonly, we think of communication occurring through speech. Messages can be transmitted in other ways like writing, reading, sign language, electrical impulses. Because speech and language development occurs in most individuals who are not disabled, failure to learn or produce sounds that have meaning in the way that sounds are used in a given culture is indicative of almost all major disabilities. When a deficit is suspected, it must be identified and appropriate remediation initiated as early in the child’s life as possible so that the child will be able to communicate with others in his/her culture and at school age, learn to read and write.

1.3 Effective Classroom Communication and Accessible Communication

Communication is an essential human behavior. We use communication to play, to learn, to teach and to interact with other human beings. We use it to form a friendship and to be part of a community. Through communication, we can learn more about the world that we live in, without communication we become isolated from our fellow human beings and cannot form meaningful relationships (Miles & Riggio, 1990). All children learn to communicate before they learn words, sign, or usage of pictures. Children learn to understand that the communication of others has a purpose and meaning. They begin to understand the messages from other people before they use communication expressively. Therefore receptive communication is important for learning expressive communication. Children must also have a reason to communicate before they can communicate expressively.

<table>
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<tr>
<th>Physical Environment</th>
<th>Auditory Environment</th>
<th>Visual Environment</th>
<th>Tactual Environment</th>
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</thead>
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<tr>
<td>Good lighting condition.</td>
<td>Sound level should be comfortable and at a low level so that the children are comfortable.</td>
<td>Limiting visual clutter of the object may help.</td>
<td>Braille and object markers are to be placed at appropriate places specially the route.</td>
</tr>
<tr>
<td>Ventilated room.</td>
<td>The timetable should be in such a way that for those who do not tolerate loud noise are not in the room when noisy activities are going on.</td>
<td>Good lighting avoiding glare</td>
<td>The furniture and the activities cupboard should be labeled using objects/braille.</td>
</tr>
<tr>
<td>Uncluttered &amp; organized placement of furniture’s.</td>
<td>Background noise in the environment should be reduced.</td>
<td>Educators should wear darker colors.</td>
<td>Teaching material should tactual.</td>
</tr>
<tr>
<td>Free &amp; safe space to move.</td>
<td></td>
<td>Display should be placed at children’s eye level.</td>
<td></td>
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<tr>
<td>Background visual clutter should be avoided.</td>
<td></td>
<td>Use of good contrast in the physical environment</td>
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</table>
Child’s sitting position should be comfortable and consistent.

Child’s work areas should be consistent.

Activity material should be accessible eg: Toys, books, activity stuff.

Location of the classroom should be away from the main road.

Hearing aids & other ALD – Assistive listening devices can be used to facilitate learning.

Effective classroom management should also involve:

1. Bonding
2. Access to meaningful Communication
3. Functional Age appropriate activity
4. Use of anticipation calendar system
5. Use of real life Concrete exposure
6. Breaking the activity into small steps
7. Pacing and Meaningful repetition
8. Systematic & consistent instruction

For effective classroom management, teachers should be aware of the value of classroom environment. Educators base their practice on the fundamental belief that all students can learn and meet our (Parents, Educators, Community) expectations. Recognizing the distinctive traits and talents of each learner, educators are dedicated to and skilled at making knowledge accessible to all students. Educators know that ongoing achievement depends on their conviction in the value and dignity of all human beings as well as the potential that exists within each child. Educators should be able to communicate and move towards exploring the potential of each child.

Educators, therefore remain attentive to human variability, its influence on learning, and the interconnectedness of people in different contexts. Educators become acquainted with students across social and educational settings, not simply within their own learning environments. Educators should motivate and enhance active learning in the classroom. Active learning means students meaningful engagement with the material, meaningful participation in the class, and collaborate with each other. Don't expect your students simply to listen and memorize; instead, instead help them to determine a process, analyze an argument, or apply a concept to a real-world situation.
Classroom setup is an important element in a learning environment because it is an essential piece of classroom management that supports both teaching and learning. The physical atmosphere of the classroom can help prevent behavior issues as well as promote and improve learning. The shaping of the learning environment is essential for teachers and students. In fact, research studies show that the physical arrangement of the classroom can affect both student and teacher behavior, and that a well-structured classroom management plan of design has the ability to improve learning and behavior. In order to create an engaging and safe, supportive learning environment, using classroom management for the way you arrange your desks matters. The learning environment should include active participation of students, effective teaching-learning process and meaningful social interaction.

Here are some suggestions for making your classroom more communicative and inviting for all students who have difficulties with language and communication:

a) **Speak slowly, clearly, and naturally:** If your pace tends to be fast, focus on ensuring that each syllable is clear. Try using shorter sentences. Ask your students to signal you if you are speaking too fast.

b) **Face your students and avoid putting your hand in front of your face:** Children especially with deafness sometimes want to see the face and lips of person/educator they are struggling to understand.

c) **Positive signal to noise ratio:** For example, if one of your neon lights is making a loud buzz, ask maintenance to fix it. Ask school administrators to avoid placing classrooms with students with disabilities next to noisy classrooms.

d) **Be careful when you use idioms:** Such as "rains like cats and dogs" or "back seat driver." Students with learning disability or students with deafness, may not understand these expressions or may take them literally.

e) **Tone of voice, facial expression and gestures:** Students with language and communication disabilities often have difficulty processing these non-verbal signals. While it is important to speak naturally, recognize that if you are sarcastic, some students in your class may not understand your intended meaning.

f) **Wait for answer:** When you ask student with a language and communication disabilities a question, they will often pause before they answer the question because they need to make sure they heard the words in sequence, and they need to translate the words into concepts. In addition, they may need time to form their thoughts and turn them into words. Allow a silent period between your question and their answer.

g) **Supplement language in your classes:** Supplement language in your class with pictures, objects, kinesthetic activities, and other ways of teaching that use all of the senses. Allow
and encourage students to tape-record your classes. Many students with language and communication difficulties listen to the words several times and review the recorded version for main points. If possible, provide a written outline of your talk. This will help any student with language problems prepare for class and know where to focus.

These strategies if you incorporate in your teaching, will help many more students’ engaged and active participants. This includes not only students with language and communication difficulties, but other students as well. Although integrating these recommendations may take some extra effort, but using these strategies will enable students to learn from you who once were not able to understand you. Some students who were excluded from your class will be included. And that is what good teaching-learning process is all about.

1.4 Communication Disorders

A communicative disorder can be defined very generally as an attribute of the way a person talks or listens that is considered by the person and/or others to be abnormal. For a person to be classified as having a communication disorder on the basis of this definition two conditions have to be met. First, there has to be something noticeably different about how the person talks or listens. If the person is not aware of the difference and most people would not detect it, the person would not likely be looked upon as having a communication disorder. This is because it probably would not interfere with communication as call adverse attention to the person or cause him or her to be self-conscious or maladjusted.

Deviations for normal speaking and listening ordinarily are not classified as communication disorders unless a second condition also is met. The deviation has to be regarded as “abnormal” by at least one person whose judgment is respected by the individual who has it. This person can be a professional such as speech language pathologist or audiologist, a family member or friend or the person by himself or herself.

Table # 2: Communication disorders includes the following disorders

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<th>Hearing Disorders</th>
<th>Speech Disorders</th>
<th>Language Disorders</th>
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<td>Voice (Phonation) Disorders</td>
<td>Child Language Disorders</td>
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<td>Sensorineural Hearing Loss</td>
<td>Articulation Disorders</td>
<td>Aphasia and related Disorders</td>
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<tr>
<td>Mixed Hearing Loss</td>
<td>Nasal Resonance Disorders</td>
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<tr>
<td>Auditory Nerve and Central Audio Nervous System Hearing Loss</td>
<td>Fluency (Rhythm) Disorders</td>
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Voice disorders may be due to congenital deformities of larynx, e.g., stenosis, or cleft, or due abnormal neuromuscular control of larynx. Change in the cry of the infant is an indication of pathology of larynx or trachea. These disorders include dysarthria associated with cerebral palsy, dysfluency disorders, e.g., stuttering. The dysarthria in a child with cerebral palsy is associated with drooling and swallowing difficulties, besides other sensory and motor deficits that coexist in such children.

A speech disorder involves a judgment on the part of the listener as to whether or not child’s speech differs significantly from the norm. Norm simply means what is to be expected considering the child’s age and cultural background. There is no specific norm or universal
norm because of different socio-linguistic cultural heritages. In evaluating the speech of pupils in the classroom, if the teacher notices that a child possesses one or more of above mentioned disorders and is not receiving speech therapy, an immediate referral should be made to the speech-language pathologist.

The communicative disorders can also be classified as:

**Figure # 1 : Classification of Communication Disorders**

1. **Classification by Etiology**: Not all communication disorders have a physical cause, some are psychological in origin. It is possible to have a dysphonia of organic etiology but some dysphonia are psychogenic. Dysphonia refers to a disorder of voice quality.

2. **Classification by Degree**: Symptoms are described as being mild, moderate or severe. Someone may have a severe or a mild dysarthria. Dysarthria refers to the voice disorder because of impaired motor control problems of throat, tongue or lips.

3. **Classification by time of onset**: Communication disorders can be either congenital or developmental or they may be acquired at some point after the normal acquisition of skills had taken place as a result of accident or illness.

4. **Classification by Symptom**: This type of classification includes, Dysphasia, Dyspraxia, Dysarthria, Dementia, Fluency Disorders and Disorders in Hearing.

**Language Disorders**: Language disorders are those involving the linguistic aspects of oral communication. The meaning communicative intent, and linguistic code of the utterance cannot be conveyed successfully. Language disorders may be described in terms of the linguistic dimensions in which they fall. Thus they may occur as semantic or meaningful disorders. They may be defined as pragmatic or use problems. We might describe them as syntactic or structural problems that is in the grammatical and phonologic dimensions of language. But language disorders may also be described according to the process used in the linguistic activity. Thus we may find expressive problems found largely in the talking aspect and receptive language problems difficulties in understanding. We find recall or central brain processing difficulties that are linguistic in nature.

Language disorders which may be broken up into the categories of language delay and language deviance. Language delay refers to marked slowness in the development of language and language deviant refers to language development that does not synchronize with or parallel to the expected age related stages.

Language disorder may involve in any of the three components of language 1] form of language (phonologic, morphologic and syntactic) 2] the content of language (semantic system) 3] the function of language in communication (pragmatic system) in any combination.

1. **Form of language**
a. Phonology is the sound system of a language and the linguistics rules that govern the sound combination
b. Morphology is the linguistic rules system that governs the structure of words and the construction of word forms from the basic elements of meaning.
c. Syntax is the linguistic rules governing the order and combination of words to form sentences and the relationships among the elements within a sentence

2. *Content of language:* Semantics is the psycholinguistic system that patterns the content of an utterance, intent and meanings of words and sentences.

3. *Function of language:* Pragmatics is the sociolinguistic system that patterns the use of language in communication, which may be expressed motorically, vocally or verbally.

### Table # 3: Characteristics of Communication Disorders and type of Disability

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<th>Disability</th>
<th>Characteristics of Communication Disorder</th>
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<td>Intellectual Disability</td>
<td>Delayed Language&lt;br&gt;Disorders may be present in all aspects of language production and reception</td>
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<tr>
<td>Cerebral Palsy</td>
<td>Poor muscle control and impaired breathing&lt;br&gt;Language Delay&lt;br&gt;Voice Disorders</td>
</tr>
<tr>
<td>Learning Disabilities</td>
<td>Problem in reading and writing&lt;br&gt;Unknown brain dysfunction interferes with auditory and visual perception&lt;br&gt;Language production and reception is affected</td>
</tr>
<tr>
<td>Multiple Disabilities</td>
<td>Inability to speak&lt;br&gt;Limited receptive words&lt;br&gt;Require Augmentative communication device</td>
</tr>
<tr>
<td>Autism</td>
<td>Learn to communicate by using talking device&lt;br&gt;Disordered speech in terms of syntax and semantics</td>
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**Remedial Therapy:** This will depend on the nature and severity of the disorder and require assessment by a psychologist, speech and language pathologist and special educator. The psychologist will assess the child's intelligence, memory, attention as well as learning style. The speech and language pathologist will assess and introduce remedial help in speech and language domain. Family members of children with developmental language disorder are taught speech and language stimulation techniques so as to nurture language development. In children with severe impairments in receptive skills, visual symbols can be provided for spoken word, in such cases sign language or use of gestures may be taught to facilitate communication.

### 1.5 Effect of Communication Difficulties on Academics

"*Student achievement*" is usually defined by a student's success in an academic discipline, a demonstrated level of competency on some type of standardized test or even teacher made test (TMT). For the purposes of this Block, student achievement is defined as an increase in academic development regarding student success in the classroom. Academic development is the demonstration of learning of a subject (course) content and process. There are several factors that have been linked to student achievement, ranging from parental involvement to students' emotional security, such as affluence of parents or the students' ability to effectively lead (Ryan & Cooper, 2000). This sub unit focuses specifically on the communicative aspects of learning and the influence communication disorders (difficulties) has on student achievement in academics.
Speech cum language are central to the human experience; they are the vital means by which people convey and receive knowledge, thoughts, feelings, and other experiences. Acquisition of communication skills begins early in childhood and is foundational to the ability to gain access to culturally transmitted knowledge, to organize and share thoughts and feelings, and to participate in social interactions and relationships. Speech cum language skills allow a child to engage in exchanges that lead to the acquisition of knowledge in his or her community and the educational arena. Communication skills are crucial to the development of thinking ability, a sense of self, and full participation in society (Rosenbaum S & Simon P, 2016).

The foundation being that there is a significant correlation between communication in the classroom and the academic performance of students, in this approach the learning process as itself is a function of communication, whereby communication is understood as a two-way interactive process. This is not to say that learning is communication, nor is it to say that academic performance exists in a simple causal relationship to successful classroom communication.

### Table # 4: Communication and Academic Impact

<table>
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<th>Communication Problem</th>
<th>Academic Impact</th>
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| Expressive Language (Speaking) Disorder   | Difficulty putting ideas into words  
Difficulty putting words into organized sentences  
Trouble getting others to understand what they are trying to communicate  
Social isolation-unwilling to participate in class  
Interferes with ability to demonstrate what is learned |
| Receptive Language (Listening)Disorder    | Difficulty following/understanding directions  
Difficulty learning vocabulary  
Problems understanding instruction  
Difficulty retaining information  
Reading comprehension problems |
| Pragmatic Language (Social) Disorder      | Peer relationships  
Appropriate use of language in social contexts  
Social isolation  
Reduced participation  
Difficulty solving problems and making decisions |
| Articulation/Phonological Disorder        | Difficulty being understood (intelligibility aspect)  
Low self esteem  
Reduce participation is classroom discussions and oral reading  
Reading/Decoding/Phonics |
| Central Auditory Processing (Hearing) Disorders | Difficulty hearing in noisy environments  
Difficulty remembering information  
Problems discriminating sounds/words  
Problems listening  
Reading/Spelling problems |
Language Processing

<table>
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<th>Disorder</th>
<th>Delayed response time</th>
<th>Delayed processing of language based information</th>
<th>Difficulty categorizing information</th>
<th>Problems with language concepts and vocabulary</th>
</tr>
</thead>
</table>

Stuttering/Disfluency

| Difficulty participating effectively in social and educational activities | Teasing/social penalties | Difficulty communicating effectively | Limited participation in classroom discussions |

Voice Disorders

| Feelings of inferiority about voice | Limited classroom participation |

Language provides the main method of establishing and maintaining social relationships. Language constitutes a principal means of organizing behavior and is central to the normal acquisition of many cognitive and academic skills, particularly literacy. Language is the medium of instruction in the classroom (Berlin, Blank and Rose, 1980).

Speech cum language disorders or disruptions in communication development can have wide-ranging impacts on the ability not only to communicate but also to acquire new knowledge and participate fully in society. Most children acquire speech and language by a seemingly automatic process (natural process) that begins at birth and continues through adolescence. Typically, basic communication skills are developed (although not complete) by the time a child enters kindergarten, enabling the child to begin learning from teachers and interacting fluently with peers and caregivers (Oller et al., 2006). Severe disorders in speech or language acquisition thus have both direct and indirect consequences for child and adolescent development, not only in communication but also in associated abilities such as reading and academic achievement that depend on speech and language skills. When combined with other developmental risks, such as poverty (Williams, 2013), severe speech and language disabilities can become high-impact, adverse conditions with long-term cognitive, social, and academic sequelae and high social and economic costs.

Speech cum language skills are important for children's literacy development. Difficulty in understanding and processing language can lead to delays in the development of phonic skills and reading. Problems in comprehension and production of oral and written language result in academic failure which are not alleviated over time (Weiner, 1985). The ability to understand written communication is an essential tool for learning, as it supports learning across other areas of the curriculum.

**Speech and language skills are essential to academic success and learning. Learning takes place through the process of communication. The ability to communicate with peers and adults in the educational setting is essential for a student to succeed in school.**

**Let us now understand the impact of Speech and Language Disorders on Learning:**

Children who have speech cum language disorders often have a difficult time in keeping up with their peer group, despite having normal non-verbal intelligence. The common difficulties faced are as follows:

a) Following Directions: Directions involving multiple steps or many descriptive words are difficult for children having speech cum language disorders.
b) Comprehending Materials that are presented verbally: Children with language disorders often have difficulty understanding information presented in verbal mode, especially in noisy environments like the classroom setting (wherein sound to noise ratio is negative).

c) Reading: Children with a language-based learning disorder will often have difficulty in learning to read, or will read at a level below their age.

d) Cognitive Tasks: Language can have a significant effect on the ability to commit information to memory which can greatly impact academic performance. Deficits in reasoning, problem solving, and organizational tasks may also result from a cognitive communication disorder.

e) Understanding Social Cues: Often children speech cum disorders have difficulty in understanding how to use social cues, and may have difficulty in interacting with peer.

Successful communication between the teacher and student is necessary condition for effective academic achievement. Effective teaching pre-supposes effective communication. The teacher makes effective communication possible by identifying the needs of the students, addressing these needs at the appropriate level, and creating a relaxed atmosphere in which a free, democratic flow of discussion is possible. Active classroom participation is not in itself sufficient, however; the cognitive processes must be brought into play. If the needs of the students have been accurately identified, and if appropriate verbal and non-verbal communication is employed, the chances of success are correspondingly high. Effective communication can be learned, and it is the responsibility of educator’s training institutions as well as of the teachers themselves, to ensure an adequate awareness of modern communication theories.

1.6 Facilitating Communication in the School and Community

Let us understand this concept with the intervention methods those are commonly used for children with pre-linguistic communication and emerging language (Paul & Yale, 2009):

1] Didactic Method: Didactic methods are based on behaviorist theory and take advantage of behavioral technologies such as massed trials, operant conditioning, shaping, prompting, and chaining. Reinforcement is used to increase the frequency of desired target behaviors. Teaching sessions using these approaches involve high levels of adult control, repetitive periods of drill and practice, precise antecedent and consequent sequences, and a passive responder role for the client. The adult directs and controls all aspects of the interaction.

2] Naturalistic Method: These approaches attempt to incorporate behaviorist principles in more natural environments using functional, pragmatically appropriate social interactions, instead of stimulus-response-reinforcement sequences. Naturalistic approaches focus on the use of “intrinsic,” rather than tangible or edible reinforcers. Intrinsic reinforces include the satisfaction of achieving a desired goal through communication, rather than more contrived, extrinsic reinforcers such as getting a token or being told “good talking.” Finally, and perhaps most important, naturalistic approaches attempt to get clients to initiate communication, rather than casting them always in a responder role.

3] Developmental or Pragmatic Method: These approaches emphasize functional communication, rather than speech, as a goal. As such, they encourage the development of multiple aspects of communication, such as the use of gestures, gaze, affect, and vocalization, and hold these behaviors to be necessary precursors to speech production. Activities provide multiple opportunities and temptations to communicate; the adult responds to any child
initiation by providing rewarding activities. Thus the child directs the interaction and chooses the topics and materials from among a range that the adult provides. Teachers strive to create an affectively positive environment by following the child’s lead, and react supportively to any behavior that can be interpreted as communicative (even if it was not intended in that way).

Facilitating communication in the school and community can be inculcated efficiently if barriers to learning, development and participation is removed or minimized:

a) Create an environment in which all children feel equally valued.

b) Children should be allowed to communicate in their first language even when this is different than the language of instruction used in school, whether sign language or another minority language. If you or none of the other teachers in our school speak the child first language (mother tongue) try to find someone who does, such as someone from her / his family or community.

c) Children should be allowed time to express their thoughts and opinions. Many children with disabilities will need more time than other children to express themselves.

d) Try to ask questions to children (especially those who are struggling with academic learning) that you are confident they will be able to answer. This will build confidence and motivate children to continue their learning.

e) Be generous, genuine and honest with praise. This will help children to build confidence and to develop a healthy self-esteem.

f) Children should be encouraged to state their opinion and we should try to use their suggestions wherever this is possible.

g) We should encourage both boys and girls to become involved in all curricular and extracurricular activities.

h) If a child suddenly changes behavior or acts differently from the way s/he used to, we should try to find out why. If we suspect that this may be caused by abuse (verbal, emotional, physical or sexual) we should seek advice and help from organizations that work with child rights and child protection.

i) We should evaluate the academic, social, emotional and physical development of children, instead of just measuring their performance to others. The progress children make should be evaluated based on their individual learning plans. These plans should be developed paying close attention to possible barriers to learning, development and participation the child may face.

j) Organize the classroom and seat the children to optimize opportunities for communication, interaction and learning for all the children – with special focus on those children who experience barriers to learning, development and participation.

k) Make sure that you let all the children in the class know that you care about them and their needs.

l) Identify atleast one good quality that every student has demonstrated over the past month.

<table>
<thead>
<tr>
<th>Schedule for children with deafblindness to enhance communication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natural daily Activities: ( early morning routines) rising, toileting, washing, dressing, eating breakfast, brushing teeth, getting ready for school, travelling to school</td>
</tr>
<tr>
<td>Daily living activities: (school arrival) greeting, taking care of coat and school bag, toileting</td>
</tr>
<tr>
<td>Body movements : ( physical interaction)</td>
</tr>
<tr>
<td>Daily Living activities: snack time, preparing eating, cleaning</td>
</tr>
<tr>
<td>Play with toys:- which includes Body movements i.e gross motor equipment</td>
</tr>
<tr>
<td>Daily Living activities: lunch, moving to lunch area, place and getting bib, eating, some helping, clean up</td>
</tr>
<tr>
<td>Free play or rest time</td>
</tr>
</tbody>
</table>
Returning home: body movements activities and play with toys with parents, siblings or other caregiver; outdoor play , group activities with the family. Free play time, eating dinner, toileting, bathing getting ready for bed.

Facilitating communication in classroom:

<table>
<thead>
<tr>
<th>Level</th>
<th>Form</th>
<th>Content</th>
<th>Social</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre symbolic , with limited interactive skills</td>
<td>Comprehend signals (e.g objects, vocalization, touch cues)</td>
<td>Develop anticipation Act on objects. Establish topics for interaction.</td>
<td>Maintain joint attention. Take turns by acting on objects.</td>
</tr>
<tr>
<td>Early symbolic level with emerging dialoguing skills</td>
<td>Understand and use transitional symbolic forms. Develop early vocabulary of object , people , activity names. Expand topics for interaction. Sequence early time concepts( discriminating finished, now, waiting activities)</td>
<td></td>
<td>Maintain joint attention for longer periods. Imitate turn taking through acting out. Respond to questions by naming or pointing to objects. Make choices. Comment / label. Reject.</td>
</tr>
<tr>
<td>Symbolic level with developing conversational language</td>
<td>Expand vocabulary across meaning categories. Combine words in new ways to convey novel meanings. Expand topics for conversation.</td>
<td></td>
<td>Respond to specific question forms ( who, when, where, what ) interact with peers. Initiate more frequently. Participate in conversation by providing new information. Expand functions.</td>
</tr>
</tbody>
</table>

Note: Children with autism benefit from intensive, early intervention program that focuses on increasing the frequency, form, and function of communicative acts. Intervention methods that draw from a range of philosophies and make use of varying degrees of adult direction have been shown in various researches to be effective in increasing language and communicative behaviors.

1.7 Positive Behavior Support in Inclusive Setting

Let us first understand the concept of Positive Behavior Support. Positive Behavior Support (henceforth, PBS) involves identifying the purpose of challenging behavior (please read Block 4- unit 2 ), teaching appropriate alternative responses that serve the same purpose as the challenging behaviour, consistently rewarding positive behaviors, minimizing the rewards for challenging behavior, minimizing the physiological environmental, and curricular elements that trigger challenging behaviour.
Challenging behaviours such as these do meet some basic needs for a student. Students who act out do get more attention or even higher levels of physical contact. But while meeting their immediate needs, disruptive behaviour (such as aggression) interferes with others, especially in inclusive settings. It can also endanger the person exhibiting it and others and contribute to a negative attitude toward individuals with disabilities. Thus, it does not meet anyone's long-term needs, the teacher's need to have a functional classroom; other students' need to be safe; and the need of students with challenging behaviour to learn socially appropriate ways to meet their needs and become more independent (Johnston, 2006).

PBS strategies include altering (modification) the classroom environment, increasing predictability and scheduling, increasing choice making, adapting the curriculum, appreciating positive behaviors, and teaching replacement skills.

PBS also broadens intervention from one approach by reducing challenging behaviour to multiple approaches: changing systems, altering environments, teaching skills, and appreciating positive behaviour. The goal in PBS is not to "eliminate" behaviour. Rather, it is to understand the behaviour’s purpose so that the student can replace it with new, pro-social behaviours that achieve the same purpose (Carr et al, 1994; Horner et al., 1992).

PBS helps students learn better ways to make their feelings and needs known. Everyone shares responsibility for the behaviour. PBS bears consideration for three reasons. First, we now know that simply suppressing a behaviour by punishing a student is counterproductive. It may have the short-term effect of reducing behaviour, but studies now show that punishing challenging behaviours without a school wide system of support is associated with increased aggression, vandalism, truancy, tardiness, and dropout (Mayer & Sulzer-Azaroff, 1996; Walker, Colvin, & Ramsey, 1995).

Further, reactive approaches using punishment do not teach the student a skill to use in the future. Second, once teachers know why a student's behaviour is occurring, they are in a much better position to teach a more appropriate way of responding, a way that will serve the long term interests of both student and teacher. This behavioural approach dramatically differs from traditional behaviour modification.

There are times when a student’s behaviour can create barriers to learning and inhibit wellbeing for both the student and for those around them. As learning, behaviour, and wellbeing are inseparable, this sub unit examines matching the learning environment and its design with student learning needs, interests, and strengths. It also examines student expression, the impact of adult responses, and ways to support student self-advocacy and self-regulation.

**Positive Behaviour Support Strategies:** For Positive Behaviour Support (PBS) in inclusive setting it is necessary to follow few strategies:

1. As educator is necessary to understand student’s behaviour. Behaviour is defined as the way one acts or conducts oneself, especially towards others. It is often a response to a particular situation or stimulus.
2. Behaviour cannot be addressed separately from learning and wellbeing.
3. Develop with students an environment that supports positive behaviour for learning.
4. Focus on developing and teaching agreed expectations and consequences.
5. Developing good communication strategies is key to building collaborative relationships that foster understanding and cooperation.
6. Teach behaviour expectations by integrating them into the classroom programme. Provide generous quantities of positive adult/educator attention and other reinforcement. Pre-teach the skills needed.
7. Use praise consistently and frequently, especially when students are first learning a skill or focused on managing their behaviour in a new way. Work in close partnership with those that know the student well when a more individualised approach is needed.
**Positive Behaviour Support Checklist:** Teachers might consider the following checklist in offering choices to a student with challenging behaviour (Carr et al., 1994):

a. Assess choice-making skills
b. Identify types and extent of choices available
c. Provide opportunities for choice whenever appropriate and feasible
d. Create options that are related to factors controlling challenging behaviour (e.g., if a student is motivated by escape from task demands, provide an array of tasks from which to choose; if motivated by attention, provide opportunities for interaction such as teachers, aides, or peer tutors, with whom the student can choose to interact)
e. Allow person to choose one of the available options and honour that choice
f. Honour choices not offered unless they would result in disruption or prevent important goals from being met
g. Provide natural consequences for failure to make choices (e.g., you choose for the student)
h. Embed choice into activity or task when possible
i. Monitor for success

**Positive Behaviour Support Plan:** A PBS plan summarises the three main elements (1. understanding why the person engages in challenging behaviour 2. finding the environmental causes for challenging behaviour, and then modifying them so that the behaviour is unnecessary and 3. teaching the person new skills to meet their needs without having to resort to challenging behaviour) and uses them to describe practical ways of more effectively supporting the person who uses challenging behaviour. The plan is explicitly targeted at achieving the two objectives of improving quality of life and reducing the impact of challenging behaviour.

Thus, Positive Behaviour Support Plan clearly describes:

- why the person uses challenging behaviour;
- how the environment must be changed to make this behaviour unnecessary;
- specific approaches to teaching the person new skills so that they do not have to rely on challenging behaviour to have their needs met;
- what the objectives of the plan are; and
- how all people in the person's life (i.e. their ‘team’), will contribute to implementing the plan.

Hence, we can state that Positive Behavior Support, involves four main steps:

1. Identifying the purpose of challenging behavior
2. Teaching appropriate alternative responses that serve the same purpose as the challenging behavior
3. Consistently rewarding positive behaviors and minimizing the rewards for challenging behavior
4. Minimizing the physiological, environmental, and curricular factors that trigger challenging behavior.
1.8 Summary

- We do not communicate in isolated sentences. The prerequisite skills for processing a series of sentences in communication include [a] the ability to compare new information with old information [b] the ability to evaluate the truth of a message [c] the ability to identify factual errors and absurdities. These communication strategies involve adaptability on the part of both pupil and teachers.
- When communication is effective, both the student and the teacher benefit. Communication makes learning easier, helps students achieve goals, increases opportunities for expanded learning, strengthens the connection between student and teacher, and creates an overall positive experience.
- Learning environment refers to the diverse physical locations, contexts, and cultures in which students learn. Since students may learn in a wide variety of settings, the term is often used as a more accurate or preferred alternative to classroom.
- A communication disorder is any disorder that affects an individual's ability to comprehend, detect, or apply language and speech to engage in discourse effectively with others. The delays and disorders can range from simple sound substitution to the inability to understand or use one's native language.
- Difficulties in pronouncing sounds, or articulation disorders, and stuttering are examples of speech disorders.
- When a person has trouble understanding others (receptive language), or sharing thoughts, ideas, and feelings completely (expressive language), then he or she has a language disorder.
- Problems in comprehension and production of oral and written language result in academic failure.
- PBS is a comprehensive, research-based proactive approach to behavioral support that endeavors to generate comprehensive change for students with challenging behavior.
- PBS is a scientific approach that aims to protect a person’s rights and to promote quality of life for them and their families and it is true ‘discipline’ that is effective, evidence-based and promotes positive learning.
- The success of the teaching-learning process depends on the teacher’s knowledge and the teacher’s ability to transfer the same to the students. Communication plays a vital role in the transfer of knowledge to take place.

1.9 Experiential Learning

Visit an inclusive set up school, a place where you can observe a class and answer the following questions:
A] Are there any children who do not communicate much?
B] Can you infer the reason for their lack of communication participation in classroom activities?
C] Observe and evaluate the factors involved in communication disabilities in children.
D] How simple or complex is the language structure when they communicate with each other? Give specific example.
E] Make a checklist of PBS that teacher is offering in the class.

1.10  **Check Your Progress**

1. As an educator, how will you facilitate communication in school amongst children with disabilities?
2. List down the various types of speech and language disorders affect school-age children?
3. How do parents and school personnel can work together to ensure that children get the communication support?
4. Discuss “**PBS as an effective approach for challenging behavior**” with suitable examples.
5. As an educator, develop a classroom management plan for an inclusive classroom.
6. How you can use Technology for Effective Communication between Teachers, Parents and Students?
7. Discuss importance of communication in teaching learning process.
8. How communication difficulties affect academic performance of students?
9. List down the factors that may affect students' academic achievement

1.11  **Unit End Assignments**

1. Write a short note on Classroom Management for an Effective Learning Environment.
2. Discuss the strategies for fostering effective classroom communication.
3. How do speech, language, and hearing disorders affect learning?

1.12  **Assignment for Self-Evaluation**

Observe a child with autism spectrum disorder and list the difficulties he/she is facing with social communication and interaction.

1.13  **References**


Interventions for achievement and behavior problems (pp. 269-288). Bethesda, MD: National Association of School Psychologists.


**Websites:**


Unit 2:
Addressing Concerns: Communication and Behaviour

2.1 Objectives

- Acquire knowledge of different behavior problems among children with sensory disability
- Understand the meaning of behaviors and related needs of intellectual disability
- Acquire knowledge of developing strategies for addressing Behavior of autism and ADHD
- Acquire knowledge and competencies to developing strategies for addressing Behavior of specific learning disability
- Acquire competencies to formulate hypothesis regarding the functions of behavior and plan replacement behavior of Multiple Disabilities.

2.2 Introduction

Communication is not only the essence of being human, but also a vital property of life. It is through communication that relationships are formed and sustained. All babies including babies with severe disabilities communicate. All parents must learn how to interpret and respond to their baby’s communications in order to form the bonds that become the foundation for development. When a child has Sensory Impairment or Autism spectrum disorder or Learning Disability or Intellectual disability, it may be more difficult to understand what she/he is trying to tell us and we may not be sure how we can best communicate and interact with her/him. However, we should remember that all behaviors communicate, all problem behavior also has a communicative intent. That is the individual displaying the challenging behavior is communicating a message. The behavior may serve the purpose of getting attention, tangible object or activities, or sensory feedback.

Thus Challenging behaviours are those behaviour that are considered to be atypical because they occur to such intensity, frequency or duration that deviate from a relative expected social or cultural norm and the physical safety of the person or others may be in jeopardy & often limit or deny access to the use of ordinary community facilities. (Emerson 1995, p.24).
behaviour can possibly interfere with the inclusion of the individual displaying it, in the mainstream of everyday life & cause a barrier to forming close personal relationships. Children with special needs often engages in problem behaviour as they may face challenges in communicating their need to drink or eat, their request for people and affection, their need for more or less sensory stimulation, their physical discomfort, their sexual needs & frustration. Very often we try to eliminate the behaviour without trying to understand the behavioural intent. It is essential that practitioners respect the communicative intent of behaviour.

2.3 Sensory Disabilities

*Deafblindness*... *...means combination of hearing and visual impairments, causing such severe communication, development and educational problems that they cannot be accommodated in either a program specifically for the deaf or a program specifically for the blind.*

It is an unique disability causing extreme developmental disadvantage especially in

- Access to information from the environment
- Communication
- Moving around.

It affects all areas of development, including the formation of very early parent-child relationships, communication, cognition, motor and perceptual development and social and emotional development. Majority of children with deafblindness have some useable sight and / or hearing.

The term multisensory impairment is often used as an alternative to “deafblindness”. Sensory Impairments affect an individual’s ability to understand what is happening and to communicate needs. Frequently, their reasons to communicate are not easily understood by their communication partners. It is the responsibility of the communication partner to understand and support the learner in using more efficient and appropriate forms of communication. The process of supporting the learner to find better ways to communicate requires creative problem solving.

**Fundamental Assumptions of variables that influence Occurrence of Problem Behavior.**

a. **Behavior has a Purpose:** Problem Behaviors serve a specific function (e.g.to get something or to avoid or escape something) The behavior may serve the purpose of getting attention, tangible objects or activities, or sensory feedback. For example the individual who engages in some type of self injury is comforted, if a task is difficult the person might engage in a problem behavior to get a break from the activity.

b. **Behavior Communicates:** Problem Behavior has a communicative intent. That is the individual displaying the problem behavior is communicating a message. The individual may not have an alternate means of expressing this message. It may be easier and more efficient to use the problem behaviour to convey the intended message than to learn an alternative response.

c. **Behavior is connected:** Problem behaviours do not occur randomly. From repeated associations with events, an individual learns to use behaviour to exert some control over specific situations. The individual may have learnt that throwing materials immediately calls someone who says, “Don’t throw I will sit here with you”.

d. **One Behavior Multiple Purpose:** One behaviour can serve multiple purpose. An Individual can learn that in one situation hitting results in a break from work in another activity hitting may lead to attention from staff and peers.
<table>
<thead>
<tr>
<th>Curricular/Instructional variables-</th>
<th>Environmental Variables: (Important Social and Physical environmental factors include.)</th>
<th>Living and Working environment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unpredictable schedule or changes in routine.</td>
<td>Uncomfortable temperature (too hot &amp; too cold). Noisy environment. Inappropriate lighting (too bright or inadequate). Number of people present. Inadequate space around the individual. Uncomfortable seating. Gaining social attention. Escape or avoidance of demands. Gaining access to preferred activities or objects. Sensory feedback, e.g. hand flapping, eye poking. Pursuit of power and control over own life. Presence of staff and amount of staff attention.</td>
<td>Presence of peers &amp; amount of peer attention Changes in staff Presence of particular staff (preferred &amp; non preferred) Family background. Cultural factors or values. Economic environment. School and day-occupation setting. Type of accommodation. Rapport with other people in the person’s life. Training and skill of the carers. Opportunity for social interactions.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Psychiatric Influences (Is there a family history of psychiatric disorders?)</th>
<th>Health / Medical / Personal variables:</th>
<th>Significant Life Events</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Depression. • Mood disorders. • Schizophrenia.</td>
<td>o Illness o Allergies. o Menstrual Cramps o Fatigue o Hunger or thirst. o Medication (effects &amp; side effects). o Mood (e.g. anger, anxiety) o Unrecognised pain or discomfort. o Epilepsy. o Syndrome-specific conditions.</td>
<td>• Moving or moved house. • Family disturbance e.g. new addition to the household, death of a family member</td>
</tr>
</tbody>
</table>
Strategies for Addressing Behaviour

1. Manipulating situation: To minimize contact with people, places or things that trigger behaviour problem
2. Teaching new skills: Teaching the child new skills can remove or replace challenging behaviours.
3. Receptive communication & access to information: When someone gets incomplete or inaccurate information about the world, the world becomes a confusing place for him and events in his life may seem like a continuous series of surprises, so he feels frustrated, threatened and isolated. Some of the self-abusive behaviours may be expressions of anxiety or frustration. When more meaningful information about the world is given to an individual with deafblindness troubling behaviours will decrease.
4. Expressive communication: Some children may have learned that troubling behavior is an effective way to communicate expressively. When the child learns to appropriately seek assistance, make requests and indicate rejection, he can decrease reliance on more inappropriate ways of communication
5. Choice Making: Allowing a child who is deafblind to make choices and decisions is an important way to decrease the likelihood that troubling behavior will occur.
6. Other Skills: In addition to teaching more communication skills, teaching a child more daily living, leisure & community skills can have a positive impact on behaviour
7. Improving quality of life: Children with deafblindness often have physical problem such as poor digestion, disturbed sleep and chronic pain. Like others they also want to do a variety of meaningful and enjoyable activities and to have influence over what happens in their lives. Thus providing safe, comfortable and satisfying lifestyles reduces problem behaviour.

Improvements can often be made by changing the situations and environment, or the things that come before and after problem behaviors occur. And since behavior is often a form of communication, teaching more adaptive and appropriate ways of communicating can often reshape problem behaviors into more appropriate requests, protests and responses.

The three components that are documented and considered in looking at a specific behavioral episode are called A-B-C (antecedent-behavior-consequence) analysis, and include the following components:
1. Antecedent: The event that occurs immediately before the behavior
2. Behavior: The occurrence of the target problem behavior (record frequency)
3. Consequence: The event that immediately follows the occurrence of the behavior.

Sample - Functional Analysis: Targeting Behavior for Change

<table>
<thead>
<tr>
<th>Target Behavior</th>
<th>Where did it occur?</th>
<th>When did it occur?</th>
<th>With whom did it occur?</th>
<th>How long did it last?</th>
<th>What happened after it occurred?</th>
</tr>
</thead>
</table>

Selecting replacement behaviour:
1. A positive educative approach to intervening with problem behaviour calls for targeting a replacement behaviour that serves the same purpose as the problem behaviour.
2. We should be working to find out what alternative behaviour can communicate the same message as the problem behaviour.
3. A positive educative approach to intervening with problem behavior calls for targeting a replacement behavior that serves the same purpose as the problem behavior.

<table>
<thead>
<tr>
<th>Target  Shivam’s behavior</th>
<th>Replacement behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hitting self.</td>
<td>Shivam will be taught to point to biscuit in his communication system or taught to sign hungry.</td>
</tr>
<tr>
<td>Purpose of the behavior.</td>
<td></td>
</tr>
<tr>
<td>Gaining teachers attention when he is hungry</td>
<td></td>
</tr>
</tbody>
</table>

2.4 Intellectual Disabilities

According to IDEA, intellectual disability refers to a significantly sub-average intellectual functioning that exists along with deficits in adaptive behavior. Children with intellectual disabilities usually have trouble understanding social rules and the consequences to their actions. They may have trouble solving problems and thinking logically. People with intellectual disabilities (ID) have a wide range of needs

[2] The nature and severity of these behavioral problems vary with the degree of ID.
[3] In children with ID, the social environment in which they live and interact also shapes their behavior.
[4] Behavioral problems also affect the child's learning in a number of settings, including at school and at home.

Things to Remember

- Behavior is LEARNED
Therefore…
- New behaviors can be taught
- Old behaviors can be unlearned

What is Behavior Management?

- All action a teacher engages in that enhances the probability that children, individually and in groups, will develop effective skills that are productive and socially acceptable.
  - When effectively implemented behavior management is:
    - comprehensive rather than piecemeal
      - part of the overall tactics of teaching
    - proactive rather than reactive
      - sets the occasion for student success
    - positive rather than negative
      - is designed to teach students new skills
    - inclusive rather than exclusive
      - includes ALL relevant people (students, parents, and other school personnel)

Not all different behavior must be changed or modified. Behaviors that we worry about are those that are safety hazard to the child or other in the environment. We would also look at those that interfere with the child’s access to learning opportunities and social participation.
Examples of Challenging behaviors
1. Self-injurious behaviors (such as eye poking, hitting self, head banging, biting self),
2. Aggressive behaviors (such as hitting others, throwing object, screaming, spitting, kicking),
3. Inappropriate sexual behaviors (such as public masturbation)
4. Stereotype behaviors (such as repetitive rocking, echolalia)
5. Avoidance behavior and/or attention seeking behavior like head banging, hitting, constant talking, crying, sleeping at inappropriate times screaming, rocking or running away.

Functional Assessment of Behavior
Before asking, “what can I do?” We should ask, “Why is the student engaging in problem behavior? What conditions or specific situations appear to be contributing to the problem? What purpose does the problem behavior serve for the person? Could the student be using problem behavior to communicate specific messages?”
Understanding why an individual engages in challenging behavior generally requires a functional assessment which gather both broad and specific contextual information (e.g., environmental influences) in an effort to explain specific reasons for the problem behavior.

Gather broad information
The first step in the functional assessment is to gather broad contextual information about the student: skills and abilities; preferences and interests; general health and quality of life.

Gather specific information
The teams gather specific information that will
(a) pinpoint the conditions that are regularly associated with the problem behavior and
(b) identify the function or purpose of the individual’s behavior.

Tools for gathering information:
- Direct Observations
- Team discussions of observed situations
- Scatter Plots and SABC analyses

Generating Hypothesis statements
Once the assessment process is completed and predictable patterns emerge that explain when and why the student engages in problem behavior, you are ready to develop hypothesis statements. Hypothesis statements guide the development of positive behavior support Plans.

Specific Hypothesis
A specific hypothesis pulls together the specific information gathered during the functional assessment process. Specific hypothesis consist of three component statements:
- When this happens: (a description of specific antecedent,(During Circle time)
- the student does this: (a description of the problem behavior),(Hitting self)
- In order to: (a description of the possible function of the problem behavior),(avoid circle time)

Global Hypothesis
A global hypothesis address broad influences related to an individual Skills, health preferences, daily routines, and overall quality of life. In effect a global hypothesis provides a
Example of Global Hypothesis for Priya

Priya enjoys interacting with others and being busy. She seems happiest when she is interacting one-on-one with a teacher or participating in an adult-led activity in which she receives personal attention. She will occasionally sit alone for about 15 minutes when listening to music, although she seems to be growing bored with this activity. Priya has no formal means of communication. Although she enjoys interacting with others, she has never been observed to initiate (other than with problem behaviors) a social interaction with her teacher or peers. Her independent play skills are severely limited to a few activities. Priya’s classroom peers, who also have significant learning needs, provide little opportunity for sustained peer interaction or play. Priya has limited access to nondisabled peers at lunch and recess. Priya’s self-injury seems to signal her desire for social interaction, something to do, teacher assistance, or comfort when she is ill. Given her current situations, Priya’s self-injury may be her only means for achieving these outcomes.

<table>
<thead>
<tr>
<th>Antecedent and setting-event Modification</th>
<th>Strategies</th>
<th>Instructional</th>
<th>Social or Health examples</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Remove a problem event</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Avoid giving difficult word problems for independent seat work.</td>
<td>• Avoid giving caffeinated drinks.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Avoid giving difficult word problems for independent seat work.</td>
<td>• Avoid brining student to large crowds.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Avoid exposing student to long delays.</td>
<td>• Avoid exposing student to long delays.</td>
<td></td>
</tr>
<tr>
<td><strong>Modify a problem event</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Shorten lessons.</td>
<td>• Change voice intonation.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Reduce the number of problems on a page.</td>
<td>• Modify a boring schedule.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Use suggestive rather than directive language (e.g., “What should you do now?”).</td>
<td>• Use suggestive rather than directive language (e.g., “What should you do now?”).</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Increase fiber in diet.</td>
<td>• Treat the illness.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Treat the illness.</td>
<td>• Treat the illness.</td>
<td></td>
</tr>
<tr>
<td><strong>Mix difficult or unpleasant events with easy or pleasant events.</strong></td>
<td>• Mix difficult word problems with easy ones.</td>
<td>• Schedule non preferred activities (e.g., cleaning) among preferred activities (e.g., leisure).</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Mix mastered tasks with acquisition tasks for independent seatwork.</td>
<td>• Precede directives for non preferred activities (e.g., “Brush your teeth”) with easily followed directives.</td>
<td></td>
</tr>
<tr>
<td><strong>Add events that promote desired behaviors.</strong></td>
<td>• Provide choice of tasks, materials, and activities.</td>
<td>• Schedule preferred activities in daily routines; involve student in planning to increase predictability.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Include student preferences in curriculum development (e.g., meaningful, functional curriculum).</td>
<td>• Provide a rich variety of activities from which to choose.</td>
<td></td>
</tr>
</tbody>
</table>
• Use cooperative learning strategies to encourage participation.

• Provide increased opportunities for social interactions before problems arise.

• Provide opportunities for daily exercise.

• Promote a healthy diet.

| Block or neutralize the impact of negative events. | • Allow the individual to take frequent breaks during difficult work activities. | • Provide opportunities for rest when the student is tired or ill. |
| • Reduce academic demands when the student appears agitated or upset. | • Provide time alone or time to regroup after a negative experience. |

**Alternative Skills Interventions**

<table>
<thead>
<tr>
<th>Alternative Skills to Be Taught</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Replacement Skills</strong>&lt;br&gt;One-to-one replacement skills that serve the exact function as the problem behavior.</td>
<td>• Teach the person to communicate, “I need help,” to replace head-banging during difficult situations.&lt;br&gt;• Teach the student to initiate social interactions (e.g., “play with me”) to replace teasing peer.</td>
</tr>
<tr>
<td><strong>General Skills</strong>&lt;br&gt;Broad skills that alter problem situations and prevent the need for problem behaviors.</td>
<td>• Expand social play skills so that the child has more opportunities to make friend.&lt;br&gt;• Teach the individual to self-initiate activities using a picture schedule to prevent boredom.</td>
</tr>
<tr>
<td><strong>Coping and tolerance</strong>&lt;br&gt;Skills that teach students to cope with or tolerate difficult situations.</td>
<td>• Use desensitization techniques to teach the individual to accept medical examinations.&lt;br&gt;• Teach the person to relax during stressful events.&lt;br&gt;• Teach the person to control angry outbursts.</td>
</tr>
</tbody>
</table>

### 2.5 Autism and ADHD

"Autism spectrum disorder" means a neuro-developmental condition typically appearing in the first three years of life that significantly affects a person's ability to communicate, understand relationships and relate to others, and is frequently associated with unusual or stereotypical rituals or behaviours. (RPWD-2016)

Attention deficit hyperactivity disorder (ADHD) is one of the most common childhood disorders and can continue through adolescence and adulthood. Symptoms include difficulty staying focused and paying attention, difficulty controlling behavior, and hyperactivity. Most individuals with autism and ADHD will display challenging behaviors of some sort at some point in their lives and are quite challenging for us to understand and address. These behaviors can often be the result of the underlying conditions associated with autism. They are more likely to appear when a person is feeling unhappy or unhealthy. Medical concerns, mental health issues, or sensory responses that we cannot see might bring pain or discomfort to a person with autism that we might not understand, especially when he is unable to say so. Since behavior
often represents communication, it is essential to replace behavior by building more adaptive skills.

Communication-based intervention refers to an approach that reduces or eliminates problem behavior by teaching an individual specific forms of communication. Because the communication forms that are taught are more effective ways of influencing others than the problem behavior, they eventually replace the problem behavior itself. By communication training, we mean that individuals are taught specific language forms including, ss that can be used to influence other people in order to achieve important goals.

Developing and expanding functional communication: As a special educator we should find a way to build effective communication that is appropriate for the person across his daily activities. Use language instruction, PECS, sign language, communication devices or other tools. For example, teach an over-stimulated child to ask for quiet time (using his words, PECS, pointing to a picture, or an iPad app), instead of running away.

PECS

Although some behavior is biologically driven, much behavior is learned over time and through experiences, and shaped by what happens before and after the behavior takes place. Challenging behaviors can have a significant impact on the individual in many ways. They can:

- Interrupt academic learning and as a result limit long term growth and development
- Limit experiences and keep a person out of many opportunities for growth over his lifespan, including play, mainstream classrooms, recreational options, and eventually his work options, living conditions and ability to be integrated into the community.
- Cause pain, injury, especially when aggression and self-injury are involved
- Compromise an individual’s psychological state, resulting in depression, stress, anxiety, and reduced self-confidence and self-respect
- Impair social relationships, as well as long term interactions with siblings, parents and other family members
- Affect finances as a result of employability, medical and supervision expenses
- Reduce independence and choice

What are some Challenging Behaviors Commonly Displayed by Individuals with Autism?

- Disruption. Behaviors might include banging, kicking or throwing objects, knocking things over, tearing things, yelling, crying, or swearing.
- Elopement refers to running away
- Non-compliance is used to describe when an individual does not or refuses to follow the directions, rules or wishes of someone else.
- Obsessions, compulsions, and rituals
  - Physical aggression  hitting, biting, grabbing, hair pulling, slapping, kicking, pinching, scratching, pulling, pushing, head butt, or throwing things.
  - Property destruction (his or those belonging to others).
  - Self-injury head banging, hand-to-head banging, body slamming, hitting or punching oneself, eyeball pressing, biting oneself, wound picking, and hair pulling.
- Sexual inappropriateness  Lack of impulse control and poor social understanding might result in acting on sexual impulses that others know to keep private,
- Threatening behavior such as holding up a knife
- Tantrum might involve crying, screaming, yelling and stubborn or defiant behavior.
- Verbal aggression generally involves the use of threats, bullying tactics, negative language, ultimatums and other destructive forms of communication.

**Things to consider.**
- The behaviour.
- The age of the student.
- How long it takes to teach new skills.
- Interest & motivators.
- Communication skill & systems.

**Things to remember-**
- Behaviour is communication.

**Things to determine –**
- Functions of the behaviour.

<table>
<thead>
<tr>
<th>Possible Cause</th>
<th>Potential Areas of Focus</th>
<th>Questions to ask</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical</td>
<td>Could this person be in pain? e.g. ear infection? Toothache?</td>
<td>Could this person be in pain?</td>
</tr>
<tr>
<td>Seizure</td>
<td>Could this be seizure related?</td>
<td></td>
</tr>
<tr>
<td>Sedation (multiple medications)</td>
<td>Is this individual sedated? Is he on too many medications? Is he on the wrong medications or dose?</td>
<td></td>
</tr>
<tr>
<td>Insomnia/Inadequate sleep</td>
<td>Does the person get enough sleep?</td>
<td></td>
</tr>
<tr>
<td>Allergies</td>
<td>Are there seasonal, food or environmental allergies involved?</td>
<td></td>
</tr>
<tr>
<td>GI Issues/Nutrition</td>
<td>Is behavior related to meal times or food? Has there been a change or concern about bowel habits?</td>
<td></td>
</tr>
<tr>
<td>Dental concerns</td>
<td>Is there tooth pain?</td>
<td></td>
</tr>
<tr>
<td>Vision/Hearing</td>
<td>Is there a change in or problem with perception?</td>
<td></td>
</tr>
<tr>
<td>Genetic</td>
<td>Fragile X, Down Syndrome, etc.</td>
<td>Could this behavior be related to an undiagnosed genetic syndrome?</td>
</tr>
</tbody>
</table>
Mental health | Co-occurring mental illness | Could he be experiencing anxiety, depression, ADHD? OCD?
--- | --- | ---
cognitive | Intellectual ability/Processing abilities | Are the demands on the individual too high or low for his cognitive level?
communication | Adequacy of communication system | Does this person have a functional communication system? Does he use it spontaneously (without prompt)?
Sensory Dys-regulation | Unmet or overwhelming sensory factors | Is the behavior supplying sensory input/attempting to meet sensory needs?
 | Sensory defensiveness | Is the behavior in response to sensory overload? Are there big responses to things in the environment? (Loud noises, etc.)
Environmental factors setting, activity | Location, time of day, | Is he too exhausted at the end of the day to handle this demand? Is this task beyond his motor ability?
Family / Staff dynamics | Changes in family environment | Have he had losses/changes in family?
 | Changes in staffing | Has a favored staff member left? Are new staff members adequately trained? Is there a shift in schedules/patterns?
Environmental reinforcement of behavior | Family/ Staff / Educator / Caregiver responses to behavior | Is the behavior responded to with attention? Removal of a request? Other?

Whenever behavior occurs, it is important to consider its purpose, or what is most often called its function.

The Functions of Challenging Behavior

- Behavior generally serves one of several functions:
  
a) Obtaining a desired object or outcome
b) Escaping a task or situation
c) Getting attention, either positive (praise) or negative (yelling)
d) Trying to self-calm, self-regulate or feel good (sensory input)
e) Blocking or staying away from something painful or bothersome (sensory avoidance)
f) Responding to pain or discomfort
g) Attempting to gain control over an environment or situation (self-advocacy)

Improvements can often be made by changing the situations and environment, or the things that come before and after problem behaviors occur. And since behavior is a form of communication, teaching more adaptive and appropriate ways of communicating can often reshape problem behaviors into more appropriate requests, protests and responses.

“A young woman with autism speaks”

“Before I was able to express myself with my speech, the only way I knew how to escape from situations and people I didn’t like was to hit and bite and run. I didn’t want to hurt anyone, but I just couldn’t stand being there anymore and I couldn’t explain my thoughts or feelings in any other way. So many things bothered me, it was like being in intense pain. Now that I’ve had years of practice – first with signing and then my communication device – I can use my speech and other forms of communication to ask for a break or to move to a quiet space, instead of using aggression. Things are much better for me now.”
In the field of Applied Behavior Analysis, the three components that are documented and considered in looking at a specific behavioral episode are called A-B-C (antecedent-behavior-consequence) analysis, and include the following components:

**ABC SHEET**

Student: ______________________________________
Observer: ______________________________________

Target Behavior:

Antecedent: The event that occurs immediately before the behavior
Behavior: The occurrence of the target problem behavior (record frequency)
Consequence: The event that immediately follows the occurrence of the behavior.

Sample - Functional Analysis: Targeting Behavior for Change

<table>
<thead>
<tr>
<th>Target Behavior</th>
<th>Where did it occur?</th>
<th>When did it occur?</th>
<th>With whom did it occur?</th>
<th>How long did it last?</th>
<th>What happened after it occurred?</th>
</tr>
</thead>
</table>

Ways to Calm an Escalating Situation

a) Be on alert for triggers and warning signs.
b) Try to reduce stressors by removing distracting elements, going to a less stressful place or providing a calming activity or object.
c) Remain calm, as his behavior is likely to trigger emotions in you.
d) Be gentle and patient.
e) Give him space.
f) Provide clear directions and use simple language.
g) Focus on returning to a calm, ready state by allowing time in a quiet, relaxation-promoting activity.
h) Praise attempts to self-regulate and the use of strategies such as deep breathing.
i) Discuss the situation or teach alternate and more appropriate responses once calm has been achieved.
j) Debrief with the individual, as well as the team, to prepare for increased awareness of triggers and strategies for self-regulation in future experiences.

In the midst of a Crisis Situation

➢ Remain as calm as possible
➢ Assess the severity of the situation
➢ Follow the Crisis Plan and focus on safety

2.6 **Specific Learning Disability**

A Learning Disability is a neurological disorder. It results from a difference in the way a person's brain is "wired." Children with learning disabilities are as smart or smarter than their peers. But they may have difficulty reading, writing, spelling, reasoning, recalling and/or organizing information if left to figure things out by themselves or if taught in conventional ways.
A learning disability can't be cured or fixed. With the right support and intervention, however, children with learning disabilities can succeed in school and go on to successful, often distinguished careers later in life.

**Common learning disabilities**

- **Dyslexia** – a language-based disability in which a person has trouble understanding written words.
- **Dyscalculia** – a mathematical disability in which a person has a difficult time solving arithmetic problems and grasping math concepts.
- **Dysgraphia** – a writing disability in which a person finds it hard to form letters or write within a defined space.
- **Auditory and Visual Processing Disorders** – sensory disabilities in which a person has difficulty understanding language despite normal hearing and vision.
- **Nonverbal Learning Disabilities** – a neurological disorder which originates in the right hemisphere of the brain, causing problems with visual-spatial, intuitive, organizational, evaluative and holistic processing functions.

The term “challenging behaviour” has been used to refer to the “difficult” or “problem” behaviours which may be shown by children or adults with a learning disability. Such behaviours include aggression (e.g., hitting, kicking, biting), destruction (e.g., ripping clothes, breaking windows, throwing objects), self-injury (e.g., head banging, self-biting, skin picking), tantrums and many other behaviours (e.g., running away, eating inedible objects, rocking or other stereotyped movements). Characteristically, challenging behaviour puts the safety of the person or others in some jeopardy or has a significant impact on the person’s or other people’s quality of life.

**Behaviour and Communication**

Although there are many reasons for this challenging behaviour it can often be linked to a breakdown in communication. When someone is unable to express themselves, or is confused, this is when behaviours may occur.

Behavior modification assumes that observable and measurable behaviors are good targets for change. All behavior follows a set of consistent rules. Methods can be developed for defining, observing, and measuring behaviors, as well as designing effective interventions.

**Conducting functional Assessment:**
In the field of Applied Behavior Analysis, the three components that are documented and considered in looking at a specific behavioral episode are called **A-B-C (antecedent-behavior-consequence) analysis**, and include the following components:

**ABC SHEET**

Student: ______________________________________
Observer: ______________________________________
Target Behavior: ______________________________________

(Refer Table 1,2,3 of Multiple disability)
Management of Challenging Behavior of children with Learning Disability

Use of Reinforcers and Punishment

Reinforcers are consequences that strengthen behavior. Punishments are consequences that weaken behavior. Students' behaviors are managed and changed by the consequences of classroom behavior. To manage behavior through consequences, this multi-step process can be used:

1. The problem must be defined, usually by count or description.
2. Design a way to change the behavior.
3. Identify an effective reinforcer.
4. Apply the reinforcer consistently to shape or change behavior.

Consequences of behavior are directly related to the events that either come immediately before or after them.

Reinforcement and punishment follow a clear set of basic principles:

1. Reinforcement or punishment always follows behavior,
2. Reinforcement or punishment follows the target behavior as soon as possible,
3. Reinforcement or punishment fits the target behavior and must be meaningful to the child, and
4. Multiple reinforcers, or punishments are likely more effective than single reinforcer or punishment.

Schedules

Schedules define and identify the amount of work required or the time that must elapse between reinforcers. Some schedules are continuous, providing a reinforcement or punishment every time the target behavior occurs. Fixed or variable interval schedules are time related, and fixed or variable ratio schedules are related to how much work is completed.

Positive reinforcement

The appropriate application of positive reinforcement has repeatedly been demonstrated to increase both on-task behavior and work completion (for reviews, see Barkley, 1990; DuPaul & Stoner, 1994; Goldstein, 1995; and Walker & Walker, 1991). That is, when a desired behavior is exhibited, teachers frequently respond with a consequence that is likely to increase the reoccurrence of that behavior. Rahul’s class teacher offered frequent praise when he was sitting quietly in his seat.

Material reinforcers provide the child with something tangible. Social reinforcers are more versatile, and, even if material reinforcers are used, a kind word from the teacher should always accompany them.

Shea and Bauer (1987) described the following process to apply positive reinforcement effectively:

- Select a target behavior to increase, define the behavior, and choose a reinforcer.
• Observe the child and watch for the behavior.
• Reinforce the target behavior every time it is exhibited.
• Comment in a positive way about the behavior when providing reinforcement.
• Be enthusiastic and interested.
• Offer assistance.
• Vary the reinforcer.

Structuring a token economy successfully in the classroom.

<table>
<thead>
<tr>
<th>IFEED-AV rules</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Immediately</strong></td>
</tr>
<tr>
<td>The I stands for reinforcing the student immediately.</td>
</tr>
<tr>
<td><strong>Frequently</strong></td>
</tr>
<tr>
<td>The F stands for frequently reinforcing a student when a student is learning a new behavior or skill.</td>
</tr>
<tr>
<td><strong>Enthusiasm</strong></td>
</tr>
<tr>
<td>The first E stands for enthusiasm in the delivery of the reinforcer. It takes more effort to pair it with an enthusiastic comment.</td>
</tr>
<tr>
<td><strong>Eye contact</strong></td>
</tr>
<tr>
<td>It is also important for the teacher to look the student in the eyes when giving a reinforcer, even if the student is not looking at him or her.</td>
</tr>
<tr>
<td><strong>Describe the behavior</strong></td>
</tr>
<tr>
<td>D stands for describing the behavior that is being reinforced.</td>
</tr>
<tr>
<td>An example is, &quot;Wow, you got yourself dressed - look at you! Good job dressing.&quot;</td>
</tr>
<tr>
<td><strong>Anticipation</strong></td>
</tr>
<tr>
<td>Building excitement and anticipation for the earning of a reinforcer can motivate students to do their very best.</td>
</tr>
<tr>
<td><strong>Variety</strong></td>
</tr>
<tr>
<td>It is necessary to change reinforcers frequently to make the reinforcement more effective.</td>
</tr>
</tbody>
</table>

Negative reinforcement

Negative reinforcement requires the child to work for the removal of an unpleasant consequence.

• A student follows a teacher's directions to avoid having to go to the principal.
Modeling

Through modeling, observation, and then imitation, children develop new behaviors. By watching the model, a child can learn a new behavior, inhibit another behavior, or strengthen previously learned behavior (e.g. saying "thank you").

When teachers are patient, fair, consistent, and optimistic, their students exhibit these traits as well.

Shaping

Any behavior that remotely resembles the target behavior should initially be reinforced. Prompts can be used and then faded.

Punishment

Punishment suppresses undesirable behavior but may not necessarily eliminate it (McDaniel, 1980). In some cases, suppression may be of short duration, and when the punishment is removed, the behavior may reoccur. Punishment can involve presentation of an unpleasant consequence or the loss of a pleasurable consequence following the occurrence of the undesirable behavior.

Response cost

Response cost is a punishing technique that translates to the equivalent of losing what you possess or have earned. Earned consequences are considered reinforcers. When they are lost, this is response cost.

Time-out

Time-out from reinforcement excludes children from the opportunity to participate with others and receive any kind of positive reinforcement.

The least restrictive form of time-out consists of removal of certain reinforcing activities or objects from the misbehaving child for a short period. Time-out, in a restricted environment outside of the classroom is the most extreme form of this type of discipline. The child cannot see the classroom nor interact with others.

2.7 Multiple Disabilities

IDEA’s Definition of Multiple Disabilities, …means simultaneous impairments (such as intellectual disability-blindness, intellectual disability-orthopedic impairment, etc.), the combination of which causes such severe educational needs that they cannot be accommodated in a special education program solely for one of the impairments. The term does not include deafblindness.
Behavior can be affected by having disabilities, especially a combination of disabilities. When planning strategies for addressing behavior issues of persons with multiple disabilities everyone must keep in mind the links between communication and behavior. Lasting change comes from providing more information, teaching new skills, modifying activities or environments, and finding new ways to give the child more choices and influence.

**Finding out what Behavior Means**

Decreasing challenging behavior begins by understanding why a child is behaving in a certain way. Behavior that is undesirable to others may be the way a child has learned to most effectively respond to a given situation or relationship.

*Because people with multiple disabilities are often not effective “formal” communicators, they may communicate through their behavior.* It is important to respect the message in the behavior, rather than focusing on simply eliminating or treating the behavior. Behavior must be understood within a social and environmental context.

**Assessment, Investigations, Treatment:** Assessment of challenging behaviour is dependent on the adequacy of the history.

**Describing the Behaviour**

- What marks the beginning and the end of an episode?
- What usually happens before, during and after an episode?
- How frequent and severe is the behaviour at its worst?
- Where and when does the behaviour occur?

**Historical Background to the Behaviour**

- When did the behaviour first begin?
- What else was happening at the time?
- Who was present at the time?
- What has happened since then?
- Is the behaviour getting worse, better, staying the same?
- Has the Behaviour been constant or remitted and recurred over time?
- Is this a new behaviour or a long-standing behaviour which has now become unmanageable?
- What treatment has been tried? What worked? What failed?
- What treatment is presently in place?

**Forms & functions of behaviours:**

- An intervention can be successful, positive and respectful of the person’s dignity and rights if the practitioners gather detailed information regarding the function and purpose of problem behaviour.
- Forms of communication have reasons or functions. One form of communication such as head banging may have many different functions.
- The communication forms and functions can change with the environment and the physical states of the child.

**Other functions of behaviour:**
Sometimes the child exhibits inner directed behaviours. They do things to and with their bodies to bring pleasure or sensory inputs, self stimulatory behaviour such as rocking, light gazing, behaviour like tapping feet, biting lips are inner directed behaviours.

☐ So it is important to assess the kinds of sensory inputs the child is trying to find or avoid. Areas to be assessed are vestibular, tactile, proprioceptive, auditory, visual, smell or taste.

**Sexuality issues should also be considered.**

### Common functions & communicative intent of problem behaviour

<table>
<thead>
<tr>
<th>Functions</th>
<th>Possible message</th>
</tr>
</thead>
<tbody>
<tr>
<td>To gain access to social interaction</td>
<td>“Play with me.” “Watch what I’m doing.” “Did I do good work?” “Spend time with me.”</td>
</tr>
<tr>
<td>To gain access to activities, objects, food</td>
<td>“I want to play outside.” “Can I have what she has?” “I want to listen to more music.”</td>
</tr>
<tr>
<td>To terminate or avoid unwanted situation</td>
<td>“Leave me alone.” “This is too hard. I need help.” “I don’t want to do this.”</td>
</tr>
<tr>
<td>To gain access to stimulating events</td>
<td>“I like doing this.”</td>
</tr>
</tbody>
</table>

### Conducting functional Assessment:

The implication of functional analysis assessment results to the development of hypotheses regarding the purposes of problem and the relationship of the behavior to the environment.

**Step 1 – Identifying problem behavior –**

Name the problem behavior and the situations or settings in which they occur.

**Step 2 – Prioritizing problem behaviour –**

Many children may exhibit multiple problem behaviours, so we must determine which behaviour to target for immediate intervention.

**Step 3- Defining problem behaviour –**

Problem behavior must be defined in term of observable actions. For e.g. Shivam makes his hands into tight fights and hits his ears at least 5 times in 5 minutes is an appropriate description of problem behavior rather than saying being self aggressive.

**Step 4 – Formulating hypotheses /purpose of problem behavior-**

we need to focus on potentially influential variables that precede & follow the behavior.

The hypotheses may reflect one or more of the followings.

1. The behavior is displayed as a way of gaining attention.
2. It is a means of conveying that the person is not well or is in pain.
3. It is a means of obtaining a tangible item.
4. It is a way to avoid or to escape from a particular task, activity or person.
5. It is precipitated by events that occurred in another setting at another time (lack of sleep, change in routine etc).
6. It is a way of trying to cope with a threatening or confusing situation.
7. It is a way to gain some control or equalize power (lack of choice).
8. The individual may not know the appropriate way to behave.
9. The behavior may be a way to cope with physical or medical problems.
10. The behavior may be pleasurable (Sensory Stimulation).

**Strategies for gathering information:**

**Structured Interview**
Structured interviews with parents, caregivers, teachers, and significant others help to identify events that consistently trigger the problem behavior & events that consistently follow an occurrence of the behavior. If medical issues are influencing the problem behavior, we need to work with medical professionals.

**Systematic observation:**
In order to supplement information gathered through structured interviews, systematic observations could be done by the use of scatter plots or SABC analyses.

**Scatter plots:**
It is a method of data collection that reveals occurrence patterns associated with time of day.

**Form for collecting scatter plot data: (Table-1)**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Time</th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arrives</td>
<td>9.00-9.30</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prayer &amp; Drill</td>
<td>9.300-10.15</td>
<td>✓✓</td>
<td></td>
<td>✓</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>News Time</td>
<td>10.15-11.00</td>
<td>✓✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tea Break</td>
<td>11.00-11.15</td>
<td>✓✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yoga therapy</td>
<td>11.15-12.00</td>
<td>✓✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group Work</td>
<td>12.00-12.45</td>
<td>✓✓</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Lunch</td>
<td>12.45-1.30</td>
<td>✓✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Art &amp; Craft &amp; music</td>
<td>1.30-2.15</td>
<td>✓✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Swimming</td>
<td>2.15-3.00</td>
<td>✓✓✓</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
</tbody>
</table>

The scatter plot revealed that behavior occurred most frequently after Sean came to school after a long drive by bus and during the time when swimming class was cancelled.
Form for completing a Setting-Antecedent–Behavior-Consequence-Analysis. (Table-2)

<table>
<thead>
<tr>
<th>Time</th>
<th>Settings</th>
<th>Antecedent</th>
<th>Behavior</th>
<th>Consequence</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.30</td>
<td>Warm, entire school present for prayer, noisy</td>
<td>Stands for prayer &amp; drill.</td>
<td>Pushes his friend standing in front</td>
<td>Teachers come running to him</td>
</tr>
</tbody>
</table>

Setting column - mention the variable such as temperature, sound, light and number of people in the room.
Antecedent column - mention everything that was said and done to the individual by staff or peers, prior to the occurrence of the behavior.
Behavior column – mention everything the individual did or said.
Consequence column – all that was done or said to the individual following the challenging behavior.
SABC although time consuming they can offer valuable information to help us form hypotheses.
(Table-3)

Sample - Functional Analysis: Targeting Behavior for Change (Table-3)

<table>
<thead>
<tr>
<th>Target Behavior</th>
<th>Where did it occur?</th>
<th>When did it occur?</th>
<th>With whom did it occur?</th>
<th>How long did it last?</th>
<th>What happened after it occurred?</th>
</tr>
</thead>
</table>

2.8 Summary

1. Intervention should be based on strategies that take into account the effects of disabilities on the ability of an individual to gather information, understand the environment, communicate, and feel secure.
2. Positive behavior support plans are uniquely tailored to each individual’s needs, preferences, and long range goals.
3. Long term effectiveness is a result of multiple intervention strategies.
4. When addressing serious problem behaviors, the professionals should use a decision model. The model should include assessment activities, planning of interventions based on the results of the assessment, and careful monitoring of the interventions used and the outcomes.
5. Several environmental and curricular modifications can be used to address problem behavior as can various manipulations of reinforcement.
6. Assessment process should be ongoing as situations change and as a result, functions of problem behavior can also change.
7. We must honor the child’s preferences & work towards positive outcome that are not only important to parents and teachers but also meaningful to the students themselves.

2.9 Experiential Learning

1. The learner is expected to observe problem behaviour of children with Deafblindness, ASD and ADHD, Learning Disability, Multiple Disability And Intellectual Disability and write a report.
2. The student is expected to do assessment of function of behavior and communication intent related with a challenging behavior.
3. The student should be able to write a report on possible causes of problem behavior of two cases for each disability.
4. The student should be able to conduct functional assessment of problem behavior through SABC analysis.
5. The student should be able to formulate hypothesis and plan replacement behavior for 2 cases of each disability.

2.10 Check Your Progress

1) Behavior - Neeta throws materials when left alone for more than ten minutes.
   • Function -
   • Replacement behavior -
2) Behavior - Rahul bangs his head against the table when asked to complete a task without assistance.
   • Function -
   • Replacement behavior -
3) Behavior - When Poonam hits others.
   • Function -
   • Replacement behavior -
4) Whenever behavior occurs, it is important to consider its ____________.
5) When planning strategies for addressing behavior issues of persons with multiple disabilities, everyone must keep in mind the links between _______ and _________.
6) The common learning Disabilities are _______ _________ etc.
7) The challenging behavior may serve the purpose of __________, __________, __________ or sensory feedback.
8) ______ are consequences that strengthen behavior and ______ are consequences that weaken behaviors.
9) __________ requires the child to work for the removal of an unpleasant consequence.
10) ______ from reinforcement excludes children from the opportunity to participate with others and receive any kind of positive reinforcement.

2.11 Unit End Assignments

• What are some of the common things to consider, to remember and to determine when working on behavior management plan for persons with Autism and ADHD?
• Mention some of the important strategies for addressing challenging behavior in persons with Deafblindness and Multiple disability?
• Give examples of challenging behaviors observed in persons with Intellectual disability.

2.12 Assignment For Self Evaluation

• Discuss the importance of using reinforcers and punishment in managing challenging behavior.
2.13 References

Reading List:


Unit 3: Modes of Communication

3.1 Objectives

After going through this unit, you will be able to:
- classify the different types of communication
- enhance interpersonal and interactive communication amongst the children
- develop reading and writing as a means of communication
- evaluate communication skills of children
- organize art form as a means of communication

3.2 Introduction

Communication can be defined as the process of conveying thought, ideas, information and messages from one person to another. Communication develops through the social process. We communicate with each other in many different ways. Communication does not mean only spoken language but it includes a variety of ways by which a person gets connected with another person.

In this unit, we will focus our discussion on communication and the intersection of communication. Communication is the ability to convey information to others and the ability to receive and interpret information from others. Communication is the fundamental to learning. The ability to convey information allows the child to influence other people and their actions. The ability to receive and understand information allows the child to learn from others, who offer meaning to the ever-changing events in the child’s environment. Most of the time, meaning is exchanged via code called, language. Language is best defined as a standardized set of symbols and the knowledge about how to combine those symbols into words, sentences and texts in order to convey ideas and feelings.

Linguistic communication uses language as a medium for communication. There are different modes of linguistic communication. The primary mode of linguistic communication used by majority of hearing people to express oneself is the aural–oral. The aural-oral mode of communication enables the speaker to send messages orally and the listener to receive the same through listening. Besides, reading-writing (visual – graphic) is also used as a mode of linguistic communication. Here, sender sends the written message and receiver receives the same through
reading. This is generally considered as a secondary mode of communication as it is a learnt skill. In the case of individuals with hearing impairment, sign language is used as a part of linguistic communication. Here, sender sends the message manually and the receiver receives it visually. Speech reading is also considered as another mode of linguistic communication. However, speech reading plays only a supportive role to all the earlier modes.

In this unit, we will also emphasize on the assessment of communication because educational progress, acceptance by peers, and meaningful participation in the home and community all require the ability to communicate effectively. However, communication and cognition are tightly knotted. Understanding the one’s relationship to it, the essence of cognition, is not easily separated from the child’s communicative abilities. Thus, the strategies we describe for the assessment of communication hold also for the assessment of cognition and learning.

3.3 Types of Communication: Verbal and Non Verbal

All forms of communication can be categorized as either verbal or nonverbal. In turn, both verbal and non-verbal communication can be segmented into either vocal or non-vocal. Verbal communication (vocal category) includes spoken language whereas, non-verbal communication (non-vocal) involves written communication, sign language, finger spelling, braille, or other similar alternatives to verbal language. Some linguists, identify an aspect of non-verbal communication as paralanguage. This refers to a range of non-linguistic elements of speech, such as facial expressions, gestures, the use of time and space, and so on. Commonly, the study of non-verbal communication is divided into several specific categories like Kinesics (body language) and Oculquisites (eye behavior).

In this subunit, we will discuss linguistic and nonlinguistic communication. Linguistic communication is a systematic means of communicating by the use of sounds and /or conventional symbols. In order to communicate linguistically, the whole language should be available. Sometimes, one can communicate in even more than one language, whereas the choices are limited for a non-linguistic communicator, such as, facial expressions, body language and gestures, movements of hands etc. A remarkable point here is that even linguistic communication is accompanied by certain features of non-linguistic communication. While talking a speaker one often uses facial expressions and hand movements to convey his message with greater force. This also gives the listener an idea about the speaker’s mood, outlook and attitude

Non Linguistic Communication includes facial expressions, eye contact, body movements and touching, vocalizations, object communication, picture communication, animal communication and few AAC whereas linguistic communication includes aural – oral (speech), visual manual (Sign Language) and visual – graphical (literacy).

Non Linguistic Communication:

A] Body Language and Signals: We are all always using body language as a means of communication whether we are aware of it or not. These movements may be intentional or unintentional; they may be directed specifically to another person or they may be a reaction to a situation. They can be quite specific and clear or they may be very subtle. Often understanding this type of communication is dependent on the interpretation of the receiver, it may not be obvious what the child is reacting to or the desire expressed may be vague. Example, Moving the object to get repetition of an activity (e.g shaking a top that has stopped spinning.)
**B] Natural Gesture and Pantomime:** Gesture is a natural fragment of communication and should be encouraged in the child who is multiple disabled by receptiveness to the gestures already used. Natural gesture and pantomime are more conventional ways for us to express ourselves. They are more easily predictable and require less interpretation on the part of the receiver than non-conventional movements. They also depend more on imitation of how others communicate. Example, *Shaking the head for “no” nodding for “yes”.*

**C] Vocalization:** Vocalization involves the use of the voice without words or formal language for communication. Some vocalization is unintentional i.e. cries, laughs or screams but communicates reactions and feelings. These vocalization can also be intentionally directed toward a person to express these reactions (we are not referring here of vocal sounds that are engaged in a type of self-stimulatory play. Those are not intentional communication and are similar to other body play). Example, *Imitation of the sound a toy makes as a way of asking for it.*

**D] Object Communication:** The use of objects is a natural part of the interactions of most children and their parents or friends. A child for example will recognize that her bath is coming when she sees her mother gets a towel or when she will brings cup when she is thirsty. A child who is multiple disabled may also make natural use of objects for communication; she might for example hand a toy to a parent as a way to ask for help in activating it. Objects are used as signals for communication. Objects should always be used in conjunctions with other forms of communication such as gestures, signs and speech and in the course of ongoing conversation. Object calendar system can evolve into picture or braille systems as a child’s symbolic understanding, which in turn can be viewed as pre literacy symbols.

**E] Picture Communication:** Pictures, drawn, printed or photographed are another mode of communication. They can expressive drawn by the child to communicate his ideas or selected from a set to indicate a choice. They can be used in many ways: spontaneous communication, as a daily schedule, as a way to offer or indicate a choice, as identification of people or places as ways to comment on events and as ways to keep records of notable activities.

**F] Printing on the palm:** This is a system of forming block letters on the palm of the receiver, using on the palm of the receiver, using the index finger as a “pen”. It is often used by individuals who are deafblind and whose major mode is sign when they are communicating with non-signing people.

**G] Augmentative and Alternative Communication systems:** Augmentative systems are particularly useful in environments (such as public places or work situation) where people are not familiar with sign language, idiosyntactic speech or gestures or other forms of communication used by the student who is multiple disabled. Such systems are also extremely useful for physically disabled students incapable of sign language. They may include the following 

- **a] Object systems:** the symbolic use of objects to represent activities, places and things
- **b] Picture system:** the use of pictures as an organized system for communication. Pictures in a picture system can be organized into a picture board, a booklet or a set of cards, depending on the user’s needs and skills.
- **c] Electronic communication system:** technological devices used to receive express information. A wide variety of such devices is now available and more are being developed all the time. Example: various devices that provide synthesized speech and a graphic displays which can contain pictures, words or
other symbols. The user indicates the picture / symbol that he wants to express and the device produces speech.

H] Manual Alphabet: Manual alphabets uses a different hand/ finger of the alphabet. It requires spelling out each word and is therefore directly related to reading and writing. It can be received visually or tactually by having the receivers hand over the communicators. It is seldom used as a primary mode of communication by people who deafblind but more often combined with sign language.

I] Animal Communication: Animals communicate using many different types of signals, and they also use these signals in a wide range of contexts. Animals communicate using signals like visual; auditory, or sound-based; chemical, involving pheromones; or tactile, touch-based, cues.

Linguistic Communication:

A] Aural – Oral (Verbal Language): This is the expression of communication through speech and the understanding of it through listening. The aural- oral approach teaches infants and young children to use hearing and speech to develop spoken language for communication. Signs are not used in the aural-oral approach; however, natural gestures that are used in typical conversation are included. Some researchers also include speech reading in aural –oral mode. Speech reading (Lip-reading) may be visual or it may be tactual, through placement of the receiver’s hands on the speaker’s hands on the speakers face known as the Tadoma Method. Tadoma as their primary mode of communication because it is so difficult to receive accurate information in this way. It is used more often as a technique to teach speech to an individual who is deafblind.

B] Visual – Manual (Sign Language): This involves the use of specific hand shapes, body movements and facial expression to represent ideas and concepts. Sign language can be received visually or tactually. Tactual reception of sign language requires the receiver’s hands (or hand) to rest lightly upon the hands of the signer who signs normally. Key components of sign include the hand shape, the placement of the sign (on or near the chest) the orientation of the hand shape, the movement of the hand(s) and facial expression. Sign languages vary from country to country and there are also regional dialects within countries. Examples: Indian Sign Language, Manual English, Manually coded English.

C] Visual – Graphical (Literacy): Reading (visual) and writing (graphical) are modes of communication most often secondary modes learned after interpersonal communication is established but occasional used as the primary modes. Reading and writing can range from simplest, beginning with single words to the most complex language. Print reading can be through regular sized print or large print for people with low vision. Braille is a reading/writing system of raised dots for the blind.

Who selects the communication modes?
1. The student herself (directly, if she is able to contribute to this or indirectly through what other know of her)
2. The family
3. Specialist (Speech, language / communication specialist, classroom teacher, Audiologist, Occupational therapist)
4. Educational expert
3.4 Interpersonal and Interactive Communication amongst the Children

Interpersonal communication is the process by which people exchange information, feelings and meaning through verbal and non-verbal messages. It is face to face communication. Interpersonal communication is not just about what is actually said, the language used, how it is said and the non-verbal messages sent through tone of voice, facial expressions, gestures and body language.

Interpersonal communication includes the exchange of information between two or more people, also known as point to point communication whereas intrapersonal communication is an exchange of information that we have with ourselves.

Elements of interpersonal communication:

a. **Communicators**: For any communication to occur there must be at least two people involved. It is easy to think about communication involving a sender and a receiver of a message. However the problem with this way of seeing a relationship is that it presents communication as a one way process where one person sends the message and the other receives it.

b. **Message**: Message not only means the speech used or information conveyed, but also the non-verbal message exchanged such as facial expression, tone of voice and body language. Non-verbal behavior can convey additional information about the spoken message. In particular, it can reveal more about emotional attitudes which may cause the content of speech.

c. **Noise**: Noise has a special meaning in communication theory. It refers to anything that distorts the message, so that what is received is different from what is intended by the speaker.

d. **Feedback**: Feedback consists of message the receiver returns, which allows the sender to know how accurately the message has been received, as well as the receiver’s reaction. The receiver may also respond to the unintentional message as well as the intentional message. Feedback allows the sender to regulate, adapt or repeat to regulate, adapt or repeat the message in order to improve communication.

e. **Context**: All communication is influenced by the context in which it takes place. However, apart from looking at the situational context of where the interaction takes place.

f. **Channel**: The channel refers to the physical means by which the message is transferred from one person to another. In a face to face context the channels which are used are speech and vision, however during a telephone conversation the channel is limited to speech alone.

Thus, we can state that the communication process starts with a sender (encoder) who formulates a message for a receiver (decoder). The message is encoded using codes i.e. symbols (arbitrary). The sender can use any channel (writing, drawing, speaking, signing or using combinations) for transmitting the message to the receiver. The channel may be verbal or non-verbal. Verbal includes speech & non-verbal involves the body language and visual mode (please see sub unit 3.3) and then the receiver receives the message. For understanding the encoded message, the receiver has to decode it. If the sender's and the receiver's channel match and if they use the same codes of a language, the receiver will be able to process the information and understand it. The receiver will give some sort of feedback from which the sender can analyze and confirm the understanding of his message/information by the receiver.
However, there are many reasons why interpersonal communications may not succeed. In many communications, the message (what is said by the sender) may not be received exactly the way the sender intended. It is, therefore, important that the communicator seeks feedback from the receiver to check that their message is clearly understood. The skills of active listening, clarification and reflection may help but the skilled communicator also needs to be aware of the barriers to effective communication and how to avoid or overcome them.

To enhance communication, it is necessary to reduce the various types of communication barriers:

**Psychological Barrier**
- When we are angry, it is easy to say things that we may later regret and also to misinterpret what others are saying.

**Language Barriers**
- Language and linguistic ability may act as a barrier to communication.

**Physiological Barriers**
- Receiver with hearing loss may not grasp and understand the entirety of a spoken conversation especially if there is significant background noise.

**Physical Barriers**
- Communication is generally easier over shorter distances as more communication channels are available and less technology is required. Although modern technology (e-mail, Skype, WhatsApp, Twitter) often serves to reduce the impact of physical barriers, the advantages and disadvantages of each communication channel should be understood so that an appropriate channel can be used to overcome the physical barriers.

**Examples:**
1. **Psychological barrier:** When we are angry, it is easy to say things that we may later regret and also to misinterpret what others are saying.
2. **Language barriers:** Language and linguistic ability may act as a barrier to communication.
3. **Physiological barrier:** Receiver with hearing loss may not grasp and understand the entirety of a spoken conversation especially if there is significant background noise.
4. **Physical barrier:** Communication is generally easier over shorter distances as more communication channels are available and less technology is required. Although modern technology (e-mail, Skype, WhatsApp, Twitter) often serves to reduce the impact of physical barriers, the advantages and disadvantages of each communication channel should be understood so that an appropriate channel can be used to overcome the physical barriers.

**Strategies to enhance communication in children with special needs:**
1. **Turn taking behavior:** Turn taking requires responding to the child’s behavior and communication. Allow the child to respond. Turn taking is an important strategy because the child learns best from model that is close to his level of communication. Activities may include stacking blocks, choosing snacks etc.
2. **Choice making:** Choice making offers opportunity to the child and encourages active participation. Choice making offers a sense of control.
3. **Imitation:** Imitation is modeling and demonstrating the desired response and encouraging the child to imitate.
4. **Exploring together:** Exploring enables the child to be secure about the world around him. It helps to make new discoveries and learn about the world.
5. **Manipulating:** Games enhance the child’s ability to co-ordinate his eyes and hands. Enables the child to have control over toys/ object.
6. **Socialization:** Socialization is the interaction between two or more persons. It encourages and offers opportunities for the child to observe people and imitate them. It offers opportunities to learn, practice and develop communication skills. It enables the child to experience turn taking and interacting with people.
7. **Pretend games:** Pretend games enable the child to use his imagination to make the objects into symbols. It is essential for the development of thoughts and language. It enhances the child’s experience and encourages him to be creative.
8. **Problem solving games**: It helps the child to think carefully how to carry out an activity and work things out for himself. It develops child’s thinking power, which enhances his curiosity, interest and confidence. Give the child time to try out on her own and solve her problem. Activities may include puzzles, looking for hidden toy, matching, discriminating, and grouping.

9. **Technology**: Technology has provided a whole new way for CwSN to communicate. Children who are nonverbal can type on iPads or use voice output devices. Devices such as iPads provide numerous apps to help children with special needs learn. Some apps can help children communicate by typing words or allow children to create sentences based on pictures. Other apps teach children how to engage in social settings.

10. **Social Stories**: Social Stories, are visual or written guides to describe different situations which could include skills, social interactions, or behaviors. Social stories help children, especially autistic children, manage social situations. For those children who struggle with transitions during their day, creating a schedule using pictures can help them understand what activity is next on the schedule, making transitions easier.

3.5 **Reading and Writing as Communication**

Literacy in the broadest sense is listening, speaking, reading and writing. It involves the use of language. Reading and writing allows information sharing and increases knowledge of the world around us. It allows us to acquire and share information, ideas and knowledge, stimulates mental activity and keeps us in touch with our environment. Literacy develops abstract concepts, improves communication, independence and social interaction, access to information in the environment and improves the quality of life.

*Early exposure to reading and writing*: Children with special needs constant exposure and access to concept development and language learning. Since these children receive limited and incomplete information about their environment, we need to ensure that we provide as much as exposure to language as possible. Concepts will only develop through exposure to languages provided through natural, meaningful experiences like playing, cooking, shopping and traveling. We need to help the child understand his experiences and with time help him develop abstract concepts for example, point out familiar/unfamiliar features, relate new experiences to familiar ones, and help the child anticipate what may be expected in various surroundings.

**Exposure to be given in following ways:**

1. Read familiar, interesting and relevant books repeatedly
2. Provide opportunities for interaction
3. Expose the child to braille in a similar manner
4. Have the child participate in the development of tactile books and displays using items that represent favourite activities or experiences
5. Use appropriate supra-segmental while reading
6. Give child crayon, pencil, paper and let him scribble

Special needs is a broad term used to describe any child with a behavior disorder, emotional disorder, physical disability, also learning disability. Sometimes a child may have more than one disability. CwSN might require extra assistance in school. They might need medicine or therapy that typically developing children don’t require. Many CwSN are limited in verbal communication, or they are non-verbal. Communicating with children with special needs can be challenging.
Getting children ready for more formal reading and writing:  Reading is based on language and language is based on concepts developed from interactions with people and the environment. As the child begins to make sense of the written word, his language expands and he begins to read for both information and pleasure. Language and concepts can be taught and expanded very effectively for children with multiple disabilities through unit based approach.

Example: if the theme is “transport” then all the languages and concepts taught to then child in that month will be on different transport. How they work, people who work, arithmetic problems on transport, drawing, making transport models, poem on that etc.

Teacher made stories, charts, story books, experience stories, stories made by children are the best way to teach children language concepts and reading. For children who are at the object or picture reading level, the teacher gradually fades away the objects and pictures and substitutes them with the print form as the child’s competencies increase. Children who are more academic can be introduced to regular graded series. For children with multiple disabilities care must be taken to ensure that the language in these books is interesting and not too full of idioms and abstract language that discourage the child from reading.

CwSN may face concerns in writing due to vision impairments and difficulties with eye hand co-ordination. As educators, we need to be aware of the special need of our children. Children need to be encouraged to express their ideas and thoughts in writing as much as possible. If the child is slow, we need to give him extra time to write. If he has difficulty to form full sentences, we can give him objective paper to write that require him to only check, cross or circle an answer. If a child has a vision problem, we can provide the child with wide lined paper, dark pencils or markers. White paper with black pens makes a good color contrast for children with low vision.

Should a child be taught braille or print?  Whether a child will be able to learn braille or print will depend on his cognitive ability, residual sensory ability, interest level and practical usage of reading and writing in future. Print needs to be taught to a child who is more visual than tactile. Although the size of the letters can be increased to make residual easier, the practical aspects must be considered as this will make reading more difficult if he sees only one letter at a time. Braille is a more complex system that has alphabets, contradictions and abbreviations as well as punctuation symbols. Braille requires the development of motor skills as well as the tactile skills. The differences between braille symbols are finer than print letters and recognition depends on making detailed spatial discriminations.

Specific activities for reading, writing and number readiness:  Children should come to school happily and take interest in the school activities. Keeping this in view, games, songs, stories and other creative activities should be included. Reading readiness has been defined as the point at which a person is ready to learn to read and the time during which a person transitions from being a non-reader into a reader. Other terms for reading readiness include early literacy and emergent reading. The skills involved in reading readiness involves:

1. Print Awareness: Print awareness is the understanding that the print represents words that have meaning. Examples: a] Emphasize on the fact that you’re reading from front to back and from left to right, b] Point out and read road signs, store signs, stations name as you travel.

2. Letter Knowledge: Letter knowledge enables a child to recognize the letters of the alphabet and to know the names and sounds of each. Examples: a] Sing the alphabet song b]Use
activities that help children recognize both uppercase and lowercase letters and c) Begin to encourage an association between letter names and the sounds they make.

3. Phonological Awareness: Phonological awareness is the ability to hear and identify the various sounds in spoken words. Examples: a) Read lots of nursery rhymes b) Play games that encourage children to identify words that begin with a specific letter sound.

4. Listening Comprehension: It is the ability to understand the meaning of words heard and to relate to them in some way. A child with good listening comprehension has a wide vocabulary and a growing understanding of the world around him. Examples: a) Read aloud to your children daily, b) Read books that are in line with your child’s interests c) Make read-aloud time an enjoyable shared time.

5. Motivation to Read: Motivation to read is a child’s eagerness and willingness to read. Examples: a) Ask open-ended questions, like “What do you think is going to happen next?” , b) Use everyday life experiences to build vocabulary, c) Encourage imaginative play and storytelling.

As reading readiness is an important domain in early education program, writing readiness is equally important skill to be developed. Pre-writing skills are the fundamental skills children need to develop before they are able to write. These skills contribute to the child’s ability to hold and use a pencil, and the ability to draw, write, copy, and colour. These are the pencil strokes that most letters, numbers and early drawings are comprised of. They are typically mastered in sequential order, and to an age specific level. These strokes include the following strokes: |, —, O, +, /, \.

Writing readiness includes the following skills:

a) **Hand and finger strength:** An ability to exert force against resistance using the hands and fingers that allows the necessary muscle power for controlled movement of the pencil.

b) **Crossing the mid-line:** The ability to cross the imaginary line running from a person’s nose to pelvis that divides the body into left and right sides.

c) **Grasp:** The efficiency of how the pencil is held, allowing age appropriate pencil movement generation.

d) **Eye - Hand co-ordination:** The ability to process information received from the eyes to control, guide and direct the hands in the performance of a task such as handwriting.

e) **Mutual integration:** Using two hands together with one hand leading (e.g. holding and moving the pencil with the dominant hand while the other hand helps by holding the writing paper).

f) **Upper body strength:** The strength and stability provided by the shoulder to allow controlled hand movement for good pencil control.

g) **Object manipulation:** The ability to skilfully manipulate tools (including holding and moving pencils) and controlled use of everyday tools (such as a toothbrush, hairbrush).

h) **Visual perception:** The brain’s ability to interpret and make sense of visual images seen by the eyes, such as letters and numbers.

i) **Hand dominance:** The consistent use of one (usually the same) hand for task performance, which allows refined skills to develop.

j) **Hand division:** Using just the thumb, index and middle finger for manipulation, leaving the fourth and little finger tucked into the palm stabilizing the other fingers but not participating.

**Numerical readiness** involves a variety of skills which includes: 1) Numeral identification; 2) Counting; 3) One-to-one correspondence; 4) Patterning recognition and creation; and 5) Sorting and classifying. Basic mathematics and number concepts utilized in a preschool
classroom set the foundation for learning more advanced mathematics concepts. Early exposure to mathematics and number activities will promote your student’s comfort with these skills.

3.6 Evaluating of Communication Skills

Evaluation is concerned at the macro level of the learning event, whereas assessment is the measurement of student’s learning and used at the micro-level. Examination of communication skills of the child is perhaps the most difficult part of investigation. Making opportunistic observations in a quiet room when the child is communicating with parents or family members or playing with a familiar object or favorite toy is the best way of assessment. Once a friendly relationship is built or a good rapport is built, the evaluator may be able to elicit more information. Evaluating communicative abilities in children who are impaired is a complex and challenge, even for experienced professionals. Sensory impairment limits the methods of communication which rely on these modalities (vision and hearing). For some children, motor impairments reduce the range of communicative behaviors. Because there are so many concerns in assessing these children, the task is best approached with the mindset that you are engaged in a process of discovery: discovering how to observe, elicit, and identify communication in a child whose abilities and limitations are truly unique; discovering how to acquire relevant information from teachers, parents, and others who know the child well; and discovering how to transform assessment information into an individualized educational plan.

Example: Evaluator can ask a child to repeat a spoken sentence. This will give clue to nature of speech, its rhythm and fluency. Distinction needs to be made between children who are unable to imitate and produce specific sounds (articulatory) and those despite being able to produce sounds make inconsistent errors of substitution and omission in speech (phonological). The evaluation often requires repeated visits since one may not be able to assess the child in one go.

We believe, that accurate assessment of communication will lead to realistic educational goals and appropriate learning experiences, not only for communication, but across developmental domains. As an educator, we need to also understand what parents expect from assessment. The assessment team should really try to “connect” with child i.e having a good rapport with the child. The assessment team should get input from family and from the classroom observation. The assessment should suggest how to set educational goals and should reliable on tools that are appropriate for their children. At the end, assessments should reveal child’s strengths and weakness that suggest how to build on communication.

The assessment procedure that you follow should be authentic. Authentic assessment involves obtaining information about children in their everyday environments and routine activities that is useful for planning instruction. Formal testing of children who are impaired or have multiple disabilities is not likely to give you much more information than confirmation that the child doesn’t perform well on standardized tests. The standard “testing” approach will rarely provide meaningful or reliable information. In addition, the child may not warm up to you quickly and it may be difficult to directly elicit communication. It is best to learn about the competencies and interests of children in the context of normal routines and environments, such as in the classroom, during transitions, in therapies or small-group activities, with family members, etc.

Adopting an authentic assessment approach means that we understand that children’s interests and preferences, as well as contexts, can influence their behaviors; therefore, our assessment should examine their competencies across the range of “real world” settings in which the child
participates. The major tasks that contribute to planning an authentic assessment are described below.

Probable Questions in an Assessment Instrument

<table>
<thead>
<tr>
<th>How does he/she communicate his/her needs?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does he/she respond to sound?</td>
</tr>
<tr>
<td>Will he/she point to desired object, nod and shake his/her head in order to communicate?</td>
</tr>
<tr>
<td>What all do you (as a parent) think he/she understands?</td>
</tr>
<tr>
<td>Do family members understand his/her speech?</td>
</tr>
<tr>
<td>Does he/she show an ability to understand the feeling of others?</td>
</tr>
<tr>
<td>Tell me about his/her typical play.</td>
</tr>
<tr>
<td>Is he/she interested in playing/interacting with other children/family members?</td>
</tr>
<tr>
<td>Are there sufficient items at the early developmental levels to clearly identify a child’s current skills and measure progress in small steps?</td>
</tr>
<tr>
<td>Are the items appropriate to the child’s chronological age?</td>
</tr>
<tr>
<td>Does the items describe behaviors one would only expect to see in infants?</td>
</tr>
<tr>
<td>Does the assessment require information derived from observations in natural settings? Does the instrument provide ideas about the “next step” for the child?</td>
</tr>
<tr>
<td>Are the results in a format that can be easily communicated to and understood by families?</td>
</tr>
</tbody>
</table>

It is important to assess the child’s communication and social interaction skills, since these are the foundation for all other learning. Communication includes both receptive and expressive communication. The child who is impaired or who has multiple disabilities may use different types of behavior for expressive versus receptive communication. That is, it may be necessary to provide information to a child in a mode that is different from the one that the child uses to express herself.

Example: a child might have enough sight to understand sign language for receptive communication, but not have the motor capacity to produce signs to express herself. This same child might use eye gaze to fixate on picture symbols (non-linguistic) for expressive communication.

<table>
<thead>
<tr>
<th>Expressive Communication Modes</th>
<th>Receptive Communication Modes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Oral/Motor Output</strong></td>
<td><strong>Visual Input</strong></td>
</tr>
<tr>
<td>Vocalizations, jargon and even spoken words</td>
<td>Facial expressions, Gestures, Sign language, Object symbols, Picture symbols</td>
</tr>
<tr>
<td><strong>Motor/Gestural Output</strong></td>
<td><strong>Auditory Input</strong></td>
</tr>
<tr>
<td>Body movements (head, limb, postural change, change in body tone)</td>
<td>Environmental sounds, Intonation/register of speech, Spoken words, gross and fine sounds</td>
</tr>
<tr>
<td>Facial expressions Gestures Eye gaze</td>
<td>Manual signs</td>
</tr>
<tr>
<td>Manual signs</td>
<td><strong>Tactile Input</strong></td>
</tr>
<tr>
<td><strong>Augmentative/Alternative Output</strong> (requires motor/gestural selection behavior as well as comprehension of symbolic system)</td>
<td>Handling/touch/movement</td>
</tr>
<tr>
<td>Tactile symbols, Picture symbols, Object symbols, “High-tech” communication devices using one of above symbolic systems</td>
<td>Specific touch cues, Object symbols, hand-in-hand signs and Brailled words</td>
</tr>
</tbody>
</table>
Social interaction as a part of communication ranges from merely tolerating the proximity of another person to actively communicating back and forth. The willingness of children who are sensory impaired or who have multiple disabilities to engage with other people varies widely. Some children may withdraw almost completely from interaction with other people, while others may be extremely sociable. Some interact comfortably with adults who know them well, but not with strangers or peers. Here are some sample questions you might ask about the child’s expressive and receptive communication and social interaction skills:

Expressive Communication
How does child make his/her needs and known (linguistic and non-linguistic communication) to you?
Does child’s expressive behavior appear to be intentional or un-intentional?
Does the child anticipate a response to the communication?
How frequently does this child communicate?
With whom the child most communicative?
Does this child need prompting to communicate?

Receptive Communication
What types of communicative behavior does this child understand (linguistic and non-linguistic)?
What communicative functions does this child appear to understand?
Is prompting needed for the child to respond to a communication?
Does child enjoy interacting with adults? If yes, under what circumstances?

Let us understand the communication concerns with a case study:
Sheetal is a four-year-old child who smiles a lot. She has multiple and complex needs, including a severe bilateral sensorineural hearing loss, no vision in the left eye and significant developmental delays. Sheetal walks with minimal assistance, but she requires physical guidance to interact with people, objects and the environment. It is not clear whether Sheetal understands any manual signs. Sheetal began attending preschool one month ago, and she is still getting used to her new school routine.

Major Questions of Sheetal’s Assessment Team
How can we increase Sheetal’s communication skills (both receptive and expressive)?
How can Sheetal learn to interact with peer group?
To what extent can Sheetal use her vision and hearing to learn new skills?
How can we encourage Sheetal to actively participate in routines and activities at home and at school?

3.7 Using Art Form as Means of Communication

Communication is the process of using words, signs, or behaviors to express or exchange information or to express your ideas, thoughts, feelings, etc., to someone else. To put it simply, an artist feels something, then represents it in his art. Artist just transfers his emotions to you and make you understand what was in his mind. Art is a certain kind of specific communication. Art does not equal to communication, but all art is communication. In mathematical terms we can say that, art is a member of the set of communication. What makes art different and special is that a communication that has value.

When we think of art, we think of something to look at, something to hang on your wall but art is also a way of communicating. Since people began making marks on surfaces, people have
been using art to communicate. From cave paintings to sculptures, comics to collages, people use art to say something or simply using art to tell a story. Visual art can explore concepts or ideas without requiring written statements. Words are sometimes included and can be an effective complement, but they're not the primary way ideas are conveyed in visual art. Artists have made drawings, paintings, sculptures and many other art objects to challenge assumptions, to support causes, and to explore deep personal questions. When we read history textbook, throughout history, art has been used for many purposes, including reinforcing religious principle or linking religious and political power.

Communication through art can be achieved in many ways that don't rely on words. Sometimes they're obvious, like a celebratory image of a political leader. But other times, artworks communicate through elements you might not notice at first, like the choice of colors, composition (the underlying form and how elements relate to one another), or how the forms are either put together or fractured.

Art often explores broad ideas or themes, some more obvious than others, and art often reflects on the time period in which it was created, whether as a statement of support or a reaction against something. Art in simple terms is an expression of human creative skill and imagination, typically in a visual form such as painting or sculpture, producing works to be appreciated primarily for their beauty or emotional power. What separates art from other forms of communication is that the information comes from a subjective source, and is then interpreted in a subjective way by the viewer (listener or reader). What differentiates a painting of someone from a snapshot of them is that the snapshot is only trying to convey the objective information of what it captures.

A piece of art on the other hand can include all manner of subjective information, either formally through manipulation of color, light, composition and what have you, or conceptually through juxtaposition, reference, abstraction or other forms of visual manipulation. Art is both the process and the product of some action, mostly related to expression of self. Art comes in various forms and shapes and sizes: from visual arts to performing arts (where actors are trying to tell a story using the movement of their bodies in stage drama) to literature and other media (interactive art).

Everyone can use art to communicate, to express something, and art can be used to enhance the communication of individuals who do not communicate verbally (children with speech impairment), or who struggle to express feelings, to get the words out and to be understood.

The following activities can use art making and images, as a visual communication tool which can be used with CwSN:

1) Draw the story: Imagine you are in conversation with someone and all of a sudden you are stuck. You have a feeling like you do not fully understand the story? What happened first? Who all were there in the story? How did that happen? If you do not understand the story that you are being told, get some paper and draw the story out for you, the listener, and for the storyteller to see. You do not need to have amazing art talents or you need not be an artist to do this, you can just use stick figures. This can help to clarify the story. It can be done in a sort of comic book format by laying the story out frame by frame. And as an educator while narrating a story we all use simple stick figures.

2) Put that feeling onto paper: children who are multiple disabled often faces problem of communicating a feeling. If an individual is struggling with a particular emotion, having a bad
day, they could be encouraged to ‘put that feeling onto paper.’ This activity can work well for anyone, regardless of verbal communication skills. Happy feelings can be easier to express but, when we are upset or angry, it is harder to express those feelings in an appropriate way. Child can scream, bang his head and bang his fists, but that can be quite disruptive. Try encouraging that these feelings be expressed on paper. Provide larger paper if possible, and markers, crayons or pastels. Encourage the person to ‘get those feelings out’ and onto the paper. They can scribble, draw what happened, or represent the feeling in shapes or colours. Another great way to open up communication about feelings is to use a feeling chart.

3/ Pictures for choice: Using images can also be helpful for augmenting communication around specific topics, as they say, a picture is worth a thousand words. In today’s world we can access pictures of everything through the internet.

4/ Drama: Drama develops transferrable skills with an emphasis on: teamwork, creativity, leadership, analysis of texts and risk-taking. These skills are important in all subjects and areas of life, no matter what you aspire to be. Drama can also develop confidence in yourself and your opinion and provide opportunities that will stay with you for a life time. It is also about you developing social and communication skills.

5/ Dance: Dance makes a unique contribution to the education of all its students through its use of non-verbal communication. Students have the opportunity to think about how to use movement to explore and communicate ideas and issues as well as their own feelings and thoughts. Examples: Contemporary, Jazz, Rock and Roll, Street Dance, Salsa, Bollywood, traditional Asian and African dance, students learn about and explore performance, composition, appreciation of dance, and health and fitness.

Art therapists have observed that art-making is beneficial to children with communication disorders due to their sensory needs, difficulties with communication and their need for more visual, concrete, hands-on therapies. Some areas where art therapy can be particularly useful to CwSN include:

a) Communication through art expression
b) Imagination and abstract thinking
c) Building of relationships
d) Sensory integration
e) Developmental maturation
f) Recreation and leisure skills
g) Visual/spatial abilities

CwSN tend to be more receptive to information that is experienced visually, art therapy may increase their willingness to engage because it does not rely primarily on words to communicate feelings and thoughts. This enables children to be heard on a new level of communication. Having fun and engaging in this experience can ultimately help regulate the senses, emotions and behaviors.

3.8 Summary
• Communication is our basic need because man is a social animal. Communication is a means by which we get connected with environment around us. In simple terms communication is connection. Without ability to communicate, to send and receive the messages, we would remain isolated and would be unable to control or participate in the environment around us.

• There are four common types of communication used a] interpersonal communication b] nonverbal communication c] written communication, and d] verbal or oral communication.

• Literacy begins early in life right from birth and continuous throughout life. It begins with the baby observing family members using literacy skills in day to day life. Depending on the severity of impairments, literacy for these children may be in different forms and ways.

• In formal assessments, the performance of a child with significant disabilities is often described in terms of the degree of delay or deviation from the “norm.” Sometimes this kind of documentation is necessary to qualify a child for special education services.

• Information which focuses on the child’s weaknesses alone, or what he can’t do, is neither useful for program planning nor for understanding the child’s true abilities. We need to discover what the child can do and build on those skills through intervention.

• As you assess the child, the team members should highlight and qualitatively describe the child’s strengths.

• Strengths are useful skills that the child consistently exhibits. Every child has strengths, such as: tolerance for new activities, ability to discriminate between people’s voices, musical talent, interest in tactile exploration, social responses when others approach, or imaginative play.

• Art can be a form of communication because it gives the chance to the person drawing the art to express their feelings and thoughts in another form instead of using words because sometimes art explains a person better than words.

• Art making, art activities, and visual representations can enhance communication for individuals who lack strong verbal communication skills, as well as for people who need some help and encouragement to express themselves.

3.9 Experiential learning

1. Discuss two case studies and design communication system for them.
2. Using artwork, how you can enhance communication for children with intellectual disabilities?
3. Interview a parent and understand the communication level between parent and child.
4. How to use craft activities to improve CwSN communication skills?
5. Observe an inclusive set up wherein CwSN are studying and make a report on “barriers in communication”.

3.10 Check your progress

1. Write a brief note on communication.
2. How will you enhance interpersonal communication amongst the children in inclusive classroom?
3. “Reading facilitates communication in children with deafness” explain this with suitable examples.
4. Differentiate between animal and human communication?
5. Explain the basic channels of non-verbal communication?
6. Discuss “Art form as a means of Communication” with suitable examples.
7. Differentiate between linguistic and non-linguistic communication
8. How will you evaluate communication (receptive and expressive) among the children?
9. Enumerate five activities on writing readiness and numerical readiness skills?
10. Explain alternative and augmentative communication with suitable examples?

3.11 Unit End Assignments

Write notes on:
1. Manual communication
2. Five activities on writing readiness
3. Interpersonal communication

3.12 Assignment for Self Evaluation

1. Explain Communication and Social Interaction Skills with suitable examples.

3.13 References


Website


Unit 4: Communication Strategies and Augmentative & Alternative Communication (AAC)

4.1 Objectives

After going through this Unit, you will have understanding of:

- Importance of AAC in the development of communication for children with communication difficulties.
- The different types of AACs & their use
- How Visual Strategies enable children with difficulty in communication & social functioning to transition from one activity to another.
- Social Stories help students who have difficulty in understanding social situation and appropriate behaviors in the context, to function.
- AAC enable communication and participation for students with communication difficulties

4.2 Introduction

Augmentative and alternative communication (AAC) is an umbrella term that encompasses all forms of communication (other than oral speech) that is used to express thoughts, needs, wants, and ideas. People with speech or language problems rely on AAC to supplement existing speech or replace speech that is not functional. In case of Autism many individuals with autism do not produce natural speech that is adequate to meet their daily needs (Weitz, Dexter, & Moore, 1997) so AAC can be used as a means of communication for persons with autism without speech or with very limited speech.

Special augmentative aids, such as picture and symbol communication boards and electronic devices, are available to help people express themselves. This helps in increasing social interaction, school performance, and feelings of self-worth. It also reduces and prevents difficult and challenging behaviors.

Any child using AAC should not be stopped from using speech if they are able to do so. AAC can be used to support and enhance speech. At the same time if the child has speech and wishes to use an AAC at times he or she needs to have access to the AAC device.
When training a child for using AAC it needs to be multimodal. That is apart from using the AAC the child can use the whole range of communication the child has. Communications like gestures, facial expressions and if the child has limited speech that too.

Children with communication difficulties like Autism Spectrum Disorder (ASD) and other conditions are greatly helped by the use of visual strategies. This reduces anxiety and allows children to stay calm and function. Visual strategies include the use of visual schedule that makes time and sequence of activities visible. All of us are visual learners but for children with hearing impairment and autism it is the strongest channel for receiving information.

4.3 Meaning and Functions of AAC

The American Speech Language-Hearing Association (ASHA) defines AAC as ‘attempts to study and when necessary compensate for temporary or permanent impairments, activity limitations, and participation restrictions of persons with severe disorders of speech-language production and/or comprehension, including spoken and written modes of communication (ASHA, 2005). AAC should be thought of as a system with four primary components: symbols, aids, strategies and techniques (ASHA, 2005).

Studies have shown that persons with autism fail to compensate speech impairments with gestures or facial expressions (Heflin & Alaimo, 2007). This population generally presents deficits in communicating for social purposes, orienting or attending to social partners or sharing affective or emotional states with others (Wetherby, Prizant & Schuler, 2000).

A wide range of augmentative and alternative communication (AAC) devices are used to meet the diverse needs of individuals with autism spectrum disorders (ASD) who have difficulty using natural speech to meet their daily communication needs (Schlosser, Sigafoos, & Koul, 2009).

Augment means to add to or to enhance. For example, we can augment speech by using gestures, eye pointing and body language. Alternative means a choice or a substitute. We can use alternative communication to speech by pointing to symbols, signing or by spelling.

Communication means to send and receive messages with at least one other person. Giving the child with communication impairment access to AAC will help to develop language & social skills. It helps the child to be included into a class by allowing participation. Behavior problems that are seen with some children who have communication disorder are often due to frustration caused by not being understood; therefore, access to AAC will reduce behavioral issues.

Recently, support for these communication deficits has often been sought from augmentative and alternative communication (AAC) systems, especially those which provide an auditory component, or speech-generating devices (SGDs) (Schlosser, et al., 2007). All types of AACs should be valued and should not be linked to the child’s age. That is a child should not be prevented from using an AAC because he considered too old or too young. What is more important is the child’s communication need. The AAC devise needs to be accessible to the child at all times and in different environment and with different people.

There are several effective AAC approaches available. Some methods do not need supplementary supports and these are known as natural communication methods. These include non-verbal communication such as pointing, gesturing, mime, body language and facial
expressions. Auslan Sign Language or Key Word Sign (Goldstein, 2002) is an example of a formalised natural communication system that can support communication. Other forms of AAC use visual symbolic systems that require a hand or pointer device to be used with a communication board, book, photo or symbol chart (Bondy & Frost, 1994).

The use of multiple communication methods is vastly more effective than the use of a single method and ensures the child communicates successfully with all people in all environments.

A child may have an electronic communication device, but will also have a communication book for when the device breaks down or when in situations that make it difficult to access her device (for example lying in bed). Furthermore, a child who can successfully use her eye gaze to indicate she wants a drink should not then be forced to use her aided AAC system to request drinks. AAC allows people to bypass the motor and cognitive demands of speech production and focus on language development instead. Use of AAC establishes communication success leading to cognitive development & learning that increases the likelihood of further speech development.

There are three basic ways to represent language in an AAC system: single-meaning pictures, alphabet-based systems, and semantic compaction.

- **Single-meaning pictures**–do not require reading; the symbols are only one picture, but the group or symbol set is huge for a significant vocabulary (e.g., a 3-year-old would need a set of 1,100 pictures to represent his known vocabulary); some meaning to pictures must be taught since it is difficult to represent some words with pictures. This system is used the least compared with the others.

- **Alphabet-based systems**–do require reading; symbol sequences are long (systems that can predict words after the first several letters can reduce the number of letter selections).

- **Semantic compaction**–does not require reading; symbol sequences are short, typically between one and two symbols per word; symbol set is small (fitting on a single overlay to the AAC device). This system is used the most often.

AAC are designed to be individual and evolves over time keeping in mind the child’s communication needs. The different types of AACs will depend on the child’s diagnosis. For example, children with cerebral Palsy and other motor impairment may do well with a communication board. Children with Autism will require a different type of AAC such as communication exchange (PECS). Some children take to using pictures and symbols easily whereas some may need objects.

AAC at its simplest level allows individuals with limited oral speech to make choices and make their own needs known. Being able to choose is a key part of personal development, self-determination, self-esteem, and judgment. Students who have communication and/or physical impairments do not easily have access to opportunities in making choice known. Therefore, choice making opportunities need to be structured and intentionally presented in the same contexts as they would be with typically developing children. These choices may be included in classroom set up—what to eat for snack, request or refuse such things as water, toilet etc. If typical children get a choice in activities or material so can the children with communication difficulties.

AACs can be low tech (using pictures & symbols) or high tech using (VOCA tabs & I pads). Many children who have started on low tech AACs go on to using tabs, I pads and smart
phone. It is important the child initially becomes proficient at using low tech AACs like communication boards or picture exchange or object exchange.

Some children may who have apparently good verbal skills may require some AAC. Children who have mild Autism or some other related condition, have difficulty with communication in some areas, despite having good speech. They have difficulty in communication emotions, illness, needing help, suddenly needing to go to the toilet and being bullied. There may be difficulty in reporting, that is telling parents of any information related to school. Children also have problem telling the teacher reasons why they were absent. Therefore giving access to some form of AACs will reduce anxiety and allow the child to function better.

**AACs for verbal children with social communication difficulties.**

![Examples of AAC communication boards](image)

**4.4 Categories of AAC**

AAC systems of communication do not rely on speech. For some children, an AAC may be the primary means of communication; others may use an AAC to clarify and expand their speech (McNairn & Shioleno 2000). The use of visual supports and symbols as receptive and expressive components of an AAC system has been established as an evidence-based practice for individuals with ASD (Mirenda & Iacono, 2009).

An AAC aid is any device, either electronic or non-electronic, that is used to transmit or receive messages.

**Low-tech:** Low-tech communication aids are defined as those that do not need batteries, electricity or electronics to meet the user's communication needs. These are often very simple aids created by placing letters, words, phrases, pictures and/or symbols on a board or in a book, which may be accessed. Depending on physical abilities and limitations, users might indicate the appropriate message with a body part, a head or mouth stick or light pointer. Alternatively, they might indicate yes or no as a listener scans through the possible options.
High-tech:  High-tech AAC aids are electronic devices that permit the storage and retrieval of messages, many of which allow the use of speech output. Such devices can also be referred to as Speech Generating Devices (SGDs) or Voice Output Communication Aids (VOCAs). High-tech systems can be divided into dedicated devices developed solely for the purpose of communication and AAC, and non-dedicated devices, such as computers, which have been adapted for use as communication tool, but which can also be used for other functions. On static display devices, all the symbols are constantly displayed on the device. On dynamic AAC devices, multiple pages of symbols are possible, and thus only a portion of the symbols available are visible at any one time, with the communicator navigating the various pages.

High-tech devices vary in size and weight, as well as the amount of information they can store and the way it is stored. They vary in how the user can access messages, including the use of direct selection of a screen or keyboard with a body part or pointer, adapted mice or joysticks, or indirect selection using switches and scanning. The specific access method will depend on the skills and abilities of the communicator. (www.ussaac.org)

**There are basically two types of AACs:-**

*Unaided communication systems* – rely on the user's body to convey messages. Examples include gestures, body language, and/or sign language. Many children with AACs may use gestures and sign as well as their AAC devices.

*Aided communication systems* – require the use of tools or equipment in addition to the user's body. Aided communication methods can range from use of objects, photographs, communication flies or boards. It can also include voice output (speech generating devices) electronic communication aids allow the user to use picture symbols, letters, and/or words and phrases to create messages. Some devices can be programmed to produce different spoken languages.

The non electronic Augmentative and Alternative Communications systems include items like communication boards, which contain symbols, pictures, or phrases that a child can pick from in order to communicate. Users can indicate particular items using their eye gaze, point, or a mouth/head stick. Communication grids work similarly, providing the child with a preset selection of items from which they can choose to build thoughts or sentences. For some children with Autism communication boards as mentioned above may be difficult where pointing is required. This is because due to the nature of Autism for many children with Autism, in the early years, proto declarative & proto imperative communication has not developed or poorly developed. Also the impairment in social functioning may mean the child does not understand the need for a communication partner.

PECS or Picture Exchange Communication System teaches that, communication is an exchange between two persons. The act of exchange of the object or picture puts the communication in a social setting and therefore puts the child on the first step towards developing social communication. The Picture Exchange Communication System (PECS) also has a strong research base with regard to enhancing functional communication skills (Bondy & Frost, 2009). PECS (Picture Exchange Communication System) is an effective AAC for individuals with Autism.
Aided AACs

*Objects / Object Symbols* Objects are usually used to support a child’s understanding and in choice-making. For example, the teacher says — Now it is story time whilst holding up a book. Another example the teacher or caregiver may hold up a bottle and a tiffin box and say it’s time for snack.

The child can then indicate by pointing, looking or in the case of a child with Autism the object will be exchanged to indicate what they want. This allows children with even the greatest communication difficulties to make choices and have some control in their lives. Object Symbols are items that can be used to represent larger objects, events or activities. For example, keys can be used to indicate that it is time to go in the car or a small piece of towel may represent for going swimming. They are predominantly used with children with sensory impairments, motor impairment and children with severe Autism.

*Using Photographs in AACs:* Photos may be used in AACs to represent objects or activities. Photos are usually used in a similar way as objects/object symbols. They are not as abstract as picture symbols and a good beginning to communication boards and picture exchange.

*Picture symbol boards and books:* A communication board is a single sheet that contains the picture symbols of the everyday language the child needs. Communication board can be created specific to certain activities. Such as Break time, games, Art and so the language is specific to the activity.

A communication book contains more vocabulary. The communication book has an index page with tabs on the edge of the page. This allows the user of the AAC to quickly move to different pages where there is vocabulary more specific to his/her needs.

*Communication Exchange (PECS)* starts initially with exchange of single object or photographs or picture symbol. As the child acquires more vocabulary, verbs are introduced and communication file are used. The file contains photographs /picture symbols /words on different pages of the file and is kept according to categories. Therefore food items are kept on one page, toys are kept on different page etc. Later the child learns to form sentence using pictures from the communication file. The sentences are made of pictures, picture symbols and at times words to indicate what the child wishes to convey. Some children with Autism can go on to use communication boards as they develop joint attention & pointing.

*Communication Devices:* Communication devices (voice output communication aids [VOCAs] or speech-generating devices) are items of equipment that generate spoken words using synthesized speech (artificial voice) or digitized speech (recorded human voice)

*Using Tabs, Ipads and smart phones.* As with communication boards & communication exchange such picture symbols can be on such devices and it just requires the AAC user to touch the picture symbol and there is a voice output from the device. Many apps have been developed for such devices and are still being developed.
4.5 Language Development and AAC (Communication Boards, PECS, Voice Output Communication Aids (VOCA) etc.)

AAC encompasses various modalities that can replace or augment a person’s speech and other existing communication skills. These modalities are either unaided, usually in the form of manual signs, or aided, with systems including graphic symbols displayed on communication boards and in books, or devices relying on technology, such as speech generating devices (SGD), including mobile technologies. Voice Output Communication Aid (VOCA) is any device whose main function is to use output speech as a means of communication. Voice Output Communication Aids (VOCA) can range from simple single-message devices which use recorded speech, to complex computer-based systems which store many messages and use a computer-generated voice.

Voice output on a device is either digitized or synthesized. A digitized voice utilizes recorded human speech. Synthesized speech devices use computer-generated speech. There are pros and cons to both types of devices. Voice Output Communication Aids (VOCA)/Speech Generating Devices (SGD) are electronic devices that are able to generate printed and/or spoken text. There are many different products available. Some products are dedicated for communication purposes only while others are software programs in lap-top computer systems. Some have additional features built in such as appointment schedules and reminders, simple environmental control units, alternative access methods, dual displays, and abbreviation expansion programs.

AACs do not hinder the development of speech, in fact AACs aids the development of speech. Studies show that the use of AAC actually improves speech development where possible (Silverman 1995). AAC systems provide an active means of communication, which tends to improve verbal speech. The process of learning the meaning of one word, then increasing their single word vocabulary, and then combining words together to make phrases and sentences helps children with autism reach the goal of independent, spontaneous communication. The auditory output of AAC devices provide sensory feedback to help the child develop his receptive and expressive language skills.

Gains in speech production following introduction of AAC vary from individual- to-individual. AAC can be one part of an individual’s overall communication system that may also include natural speech. AAC enhances an individual’s ability to communicate effectively and independently with various listeners.

AAC provides many opportunities for communication by the user with many different people in their lives (e.g., parents, siblings, peers, teachers, etc.) AAC allows development of language in different areas. Firstly it allows the development of functional language (expression of needs and wants). Therefore reduces anxiety and frustration as the children with no verbal or limited verbal speech are able to access items and activities in their environment.

It also allows development of social language and allows social participation. AAC promotes social closeness and information exchange. As the child acquires more language through AAC for some children it leads to the development of more complex language and abstract language. AAC also enhances understanding of language as the Communication Partner will supplement speech in response to symbols. It also facilitates the development of literacy as the child moves from picture symbol to text. For children with motor difficulties or unable to speak AACs are a communication prosthetic.
PECS (Picture Exchange Communication System)

In order to participate in the Picture Exchange Communication System (PECS), the adult who is working with the child must be trained in how to use PECS. The program involves very specific steps that must be taught in the correct order and in the correct manner. PECS has six phases that follows the natural development of language.

How does picture exchange work?
- Pick up a picture
- Reach toward trainer
- Release picture into trainer’s

What Are the PECS Phases?
1. **How to Communicate**: In the first phase of PECS, the child will learn that if they hand an adult a picture, they will get what they want in return.
2. **Distance and Persistence**: The child learns that he needs to be persistent to communicate and can communicate even if the communicative partner is some distance away.
3. **Picture Discrimination**: At this point in the program, the child will be given two pictures to choose from. So he learns to discriminate.
4. **Sentence Structure**: At this point, the program teaches the child how to form a simple sentence. There is also training on how to help a child use adjectives and other words to expand his sentences.
5. **Answering Questions**: This phase teaches the child how to answer the question “what do you want” using the PECS notebook and pictures.
6. **Commenting** This phase teaches the child to comment in response to a question. For example, you may ask "what do you see?" and the child replies with “I see ___

**Communication Boards:** Students use communication boards as static displays from which to select vocabulary to establish topics and construct messages. Multiple boards can be organized into communication books with indexed categories of vocabulary and tabs for easy access to the particular topic board that is needed. Boards can be designed in a variety of ways and used for a variety of purposes, including the following:

- Core and/or fringe vocabulary
- Visual scene displays, categories, parts of speech, carrier phrases plus single words, phrases/sentences
- Basic layout or which are coded with colors, numbers, etc., for alternative access
- For direct communication or topic setting
- Replicate a speech generating device or use a unique architecture

**Communication Board**

![Communication Board Image]

**VOCA & SGD:** Voice Output Communication Aids (VOCA)/ Speech Generating Devices (SGD) are electronic devices that are able to generate printed and/or spoken text. VOCA are devices that aid individuals who are unable to use natural speech to meet all of their communication needs. There are many different products available. Speech-generating devices are portable electronic devices that provide speech output, either synthetic (i.e., computer-generated speech) or digitized (i.e., recorded human speech).

Voice output devices offer tremendous promise in helping nonverbal individuals overcome their unique communication barriers. The auditory output provides one more sensory feedback to help the child develop his receptive and expressive language skills. Other advantages of voice-output communication devices are explained below. The devices use a variety of graphic symbols, text, and/or pictures to represent personalized messages for individuals who use their hands, fingers, or some other means (e.g., switch, eye gaze) to activate the device.
Clarity of Communication: The key advantage to voice output devices is that the device allows the individual to "talk" which lets the communication partner understand exactly what is being expressed. Expressive language can lead to improved receptive language. Babies start attaching meaning to the sounds that they make through our responses to their babbling.

Increased verbal speech: Studies and anecdotal reports indicate that the use of AAC not only enhances communication effectiveness but also speech production and intelligibility, particularly if the AAC method has voice output.

Development of Literacy: Before literacy can develop, the individual must have a strong language foundation. Language foundations for non-verbal individuals are enhanced with the use of voice output communication devices.

4.6 Selection of an AAC System

The selection of a particular AAC system for a specific child is best made through a collaborative team decision-making process. The team actively involves family members and typically includes teachers, child care providers, administrators, AAC technicians, physicians, and speech and language, occupational, and physical therapists. Answering the questions below can help the team make decisions about the most appropriate type of AAC system for an individual child (Blackstone & Hunt Berg 2003).

What are the child’s communication needs? Consider why and how the child communicates now. Does he need to learn to communicate to get basic needs met (such as hunger)? Does he need to learn to communicate more with peers in play?

What AAC system is most likely to build on the child’s abilities? For example, a child who has developed her own gestural system to communicate may do well with sign language.

How will the child communicate using an AAC system? Consider the child’s motor abilities. Can she point? Reach and touch? Form signs with her fingers? Does she rely on eye gaze? Will she need a head pointer?

What are the child's cognitive and visual abilities? A child who is not yet able to understand letters may benefit from a system using pictures, drawings, or photographs, and a child who is not yet able to understand drawings or images may need objects. A child with a visual disability will need symbols large enough and with sufficient contrast to be visible.
How will the symbol system be displayed?
Consider how best to make the AAC available to the child. A child who uses a wheelchair may need a communication board attached to his chair. A physically active child may prefer a small set of picture cards attached to her belt.

With whom will the child be interacting and in what settings?
Answering this question will help determine how portable the system must be and what types of communicative messages should be included. A child who frequently plays Chutes and Ladders with his sister must have symbols to communicate about that activity. A child whose family enjoys hiking may need a very light and portable system. The details of the system are usually worked out in close consultation by a speech and language therapist, a special educator, and/or an AAC technician. Choosing a vocabulary is the first step (Hanline 2007)

For children with Autism who are non verbal or are minimally verbal research suggest importance of AAC in the development of language.

Regardless of the form of AAC used, interventions are multi-component, with effective implementation requiring considerations beyond the actual modality or system used. Hence, although there have been many attempts to compare across types of AAC, the system used is part of an intervention only. Pictures used in PECS, for example, comprise one component of a comprehensive instructional package that draws on applied behavior analysis (ABA), which has a strong research base, implemented in a natural context. (Randolph 2009)

It has been argued that intervention needs to address both learning how to use these AAC systems, including the newer technologies of iPods and iPads, as well as how to communicate effectively and efficiently with them. (Lorah et al 2014)

**Selection Method** refers to how the person using AAC will access their AAC device or systems. There are two types of selection methods, Direct Selection and Indirect selection.

**Direct selection** is when the person using AAC directly points to a symbol, picture, or object with a body part (e.g. finger, hand, and eye gaze). It could also be a tool like laser pointer, computer mouse. Direct selection is typically the faster as an access method and is not as cognitively difficult or complex.

**Indirect selection** is when the person using AAC selects a target from a set of choices as an indicator scans each choice in the set. Indirect selection may be used when physical impairments are present that hinder the ability to use direct selection. There are several types of indirect selection or scanning methods that may be used.

There are different types of **scanning methods**.

**Visual scanning:** In scanning, symbol choices are presented to the user one at a time. The user chooses the symbol, or group of symbols, wanted by signaling at the appropriate time.

This type of scanning can also involve the use of a visual display on a high tech device that highlights each option on a screen and the person using AAC selects the target using eye gaze technology or a switch.
**Auditory scanning:** This type of scanning uses voice output on a high tech device to scan through choices by providing auditory signals. When the device names the desired choice, the person using AAC will select that choice using a switch.

**Partner assisted scanning:** This type of scanning involves the use of a partner for the person using AAC. Partner assisted scanning is typically used with no tech or low tech communication systems and can include either auditory scanning or visual scanning or both. The role of the partner is to “provide scanning by showing/pointing and/or speaking the names of items”

A dual method may also be used that includes visual and auditory methods in which “the partner both shows/points to and reads out loud the labels for each symbol. The child may rely on their understanding of the spoken labels or visually recognize the symbols”

Selection of AAC needs to be considered with child’s strengths and weakness in mind, such as motor movements needed for unaided approaches. Being able to turn electronic device on and off and charging it; and operating electronic equipment and/or navigating pages in a low-tech system. Being socially motivated to use AAC. Having a positive attitude towards AAC is essential too.

Regardless of what ever methods are chosen one has to keep in mind that ideally, the user can access the language independently. The movement should be consistent & precise. Fatigue and endurance should be considered. The goal for AAC users may be summed up as SNUG: (S - Spontaneous, N - Novel, U – Utterance, G – Generation) . (Ref: from a paper by Katya Hill, M.A., CCC-SLP)

### 4.7 Visual Aids-Stories and Schedules, Arrangement of Visual Representation

Much of the visuals strategies used for children with special needs have developed as an intervention philosophy by the University of North Carolina, Division TEACCH (Treatment and Education of Autistic and related Communication Handicapped Children). Visual strategies or often referred to as Structured teaching is based upon an understanding of the unique features and characteristics associated with the nature of autism and communication handicapped children.

These characteristics are:-
- Expressive Language comprehension difficulties
- Sensory processing difficulties
- Resistance to change
- Organizational difficulties
- Distractibility

The use of visual schedules may help to support children in understanding and anticipating daily activities and routines and therefore reduce challenging behaviors. The challenging behaviors are due to anxiety caused by the child’s in ability to understand communication in his/her environment and difficulty in anticipating what is to happen in the future. Visual schedules provide predictability, teaches the child to accept change and organizational skills.

Visual schedules typically use photographs, line drawings, symbols, or text, displayed in a vertical or horizontal line. The sequence of events on a schedule are laid out either in a top to
bottom fashion in the case of a vertical schedule or in a left to right manner in the case of a horizontal schedule.

Visual Schedules depict the sequence of events or activities in a day (or a longer time period) or depict the sequence of steps within a single activity which are called sub schedules or to do list. For example a sub schedule can be put in the toilet to help the child follow the sequence of activities from entering the toilet to washing his/her hand.

Visual schedules are typically used to assist children, especially those with ASD, and other children who have difficulty following sequential activities, become anxious with too much instruction or have difficulty anticipating future events. The uses of visual schedules need to be taught to the child in a step by step fashion.

Simple two step Schedule

![Visual Schedules: for some children photographs will be more effective than drawings](image)

*Visual Schedules: for some children photographs will be more effective than drawings*
Written Schedule

![Gym with Teacher]

Another type of Written Schedule

<table>
<thead>
<tr>
<th>Monday</th>
<th>Class</th>
<th>Take out</th>
</tr>
</thead>
<tbody>
<tr>
<td>2nd</td>
<td>Art</td>
<td>Drawing Book, Crayon, Pencil Box</td>
</tr>
<tr>
<td>3rd</td>
<td>Math New Teacher</td>
<td>Home work give to Teacher, Math exercise book, Pencil box, Math Text Book</td>
</tr>
<tr>
<td>Recess</td>
<td>Tiffin</td>
<td>Tiffin box, Water bottle, napkin, Go out</td>
</tr>
<tr>
<td>4th</td>
<td>Games – If no rain if rain-Sit and draw</td>
<td>Table clear, Go out</td>
</tr>
<tr>
<td>5th</td>
<td>Science Project</td>
<td>Scrap book, Pencil Box, crayon, glue stick</td>
</tr>
<tr>
<td>6th</td>
<td>Computer</td>
<td>Computer work book, pencil box GO to computer lab</td>
</tr>
<tr>
<td>Chuli</td>
<td>Check list and pack up</td>
<td></td>
</tr>
</tbody>
</table>

**Social Stories:** Social Stories are an effective tool in helping the individual with Autism to understand the social situation, and which behavior may be more appropriate.

**What Social Stories DO NOT DO:** It is not to be used to admonish the child therefore sentence like "you should do this" or “should not do this" are NOT to be used. A social story does not tell the person what not to do. It does not threaten the child. It provides the child with information about what is the situation and what are possible ways he or she can cope.

**What Social Stories DO:** It also acknowledges the difficulty the child may be having. A social story is to be done one at a time. That is targeting one behavior at a time. Social Stories can be used to help change an inappropriate social behavior, to overcome a rigidity, to teach a new routine, to change an existing routine, to introduce a change in the environment, to increase awareness of self and to deal with difficult social situation.

A social story is from the perspective of the person with autism or other disblity. It creates a word picture – what he or she would see and experience. Combination of different types of sentences is used -Descriptive, Perspective, Directive. Descriptive sentences provide
information about specific social settings or situations, i.e. give clues to what the person sees, who is involved, and what happens. **Perspective sentences** describe the internal states of other people. These type sentences provide information about thoughts, feelings, and/or mood of other people. **Directive sentences** provide information about what the student should do to be successful in the target situation.

**Example of a social story for student who would sing loudly after he finished his class work**

**Title of the social story: After I finish my class work**

“When I finish my class work I remember Hindi songs. I sometime sing the songs I am thinking about. When I sing other students complain to the teacher and the teacher tells me to stop. They feel disturbed by my singing. The other boys have difficulty finishing their work because of my singing. When I finish my class work I can look at my scrap book or draw in my drawing book. If I remember any songs I can write down the name of the song and sing at break time or at home. When I sing at break time the other students enjoy it.”

**An example of a social story for a child who suddenly walks out of the class.**

**Title of the social story: Sometimes I need a break**

When class is going on we all sit and work. After sitting for a long time my body hurts. I need a break. I want to get up and go out of the class. If I walk out the teacher does not know where I am going. She asks me to sit. It is OK to want a break. I can take a break and walk when the teacher goes out of class. If I feel I need a break when class is going on I can put my hand up. Ask the teacher permission to go to the toilet. Then come back to class. The social stories can be read to the child individually by the teacher, special educator or parents. It can be read number of times, but in a relaxed situation. It can be read to children who can’t read. It is best done in the language the child uses most of the time and supplemented with pictures.

**Visual Representation:** All students can benefit from using visual representations, although struggling students may require extra support and practice. Visual representations are photographs, pictures, diagrams and videos that explain visually what is being taught or discussed in the classroom. Visual representations are a powerful way for students to access abstract ideas. Visual representation can be provided by the teacher to help understanding of any topic which some children may find abstract and unable to visualize. Visual representation can be used for making classroom behavior more explicit. Such behaviors are standing in a line, putting ones hand up to ask questions, keeping quiet when teacher is talking etc.

### 4.8 Summary

- Access to AAC is the right of children who have limited or no verbal language.
- There are different types of AACs that needs to be matched to the user.
- AACs can evolve and as per the need of the user.
- AACs enable communication and social participation.
- Schedules and visuals are simple and useful tools to use and enable students with social communication difficulties to function properly.
- Both AACs & Schedules & visuals reduce and anxiety and therefore encourages the development of functional behavior.
- Social stories can enable students with difficulty in social functioning to understand the social situation.
- Social stories offer useful strategies and alternatives for the student to use in difficult social situations.
• Visual aids and support enable all students to function in the classroom.
• Visual aids and representation and make academics more understandable and can help all children.

4.9 **Experiential Learning:**

Choose students from your class and do the assignment below.

I. Prepare a visual schedule for a child who has autism.
II. Make a step by step plan to introduce a child to an i-pad / tab and then teaching the child with limited expressive language to use the i pad for communication.
III. Plan and implement an interactive session with noro-typical children and children with disability using AACs. The aim of the session is social interaction and fun.
IV. Plan and prepare a lesson using visual representations for teaching any academic subject.
V. Plan with a child using AAC and develop a communication board or PECS file that he/she may use during a school event, play ground or any social event the child is going to participate in.

4.10 **Check your progress**

1. What does AAC stand for?
2. When would an AAC be recommended for use with a student?
3. What are the three basic ways to represent language in AACs ?
4. What are the two types of AACs?
5. What is a communication book?
6. What is PECs?
7. What is a visual schedule?
8. What are the three main types of sentence for social stories?
9. What is objective of providing a social story for a student?
10. How visual representation helps students?

4.11 **Unit End Assignment**

1. Prepare a Communication board for Aditi, a child in standard II who has cerebral palsy. She enjoys meeting people and learning about them. She likes to “talk” about herself and her interest.
2. Prepare a PECS file for 4 year old Ron who asks for many things like edibles, water, to go the toilet, specific toys and his favorite people like mother father, grandmother. He also asks for action like open, close.
3. Write a social story for standard III child who is having a lot of difficulty in his math class as his favorite teacher has been absent for some time due to illness.

4.12 **Assignment for Self evaluation**

What kind of AAC would you provide for child whose speech is limited and unclear? The child likes to communicate and has good motor skills. This child has difficulty in attending when the teacher is explaining some concepts in class.
4.13 References


Blackstone, S., & M. Hunt Berg. 2003. Social networks: A communication inventory for individuals with complex communication needs and their communication partners. Monterey,


Gray, C. - The New Social Story Book, Future Horizon. 2015


Useful Links:-

Use Visual Strategies (http://www.usevisualstrategies.com/)

Do2Learn (http://www.dotolearn.com/)

Linda Hodgdon.com (http://www.lindahodgdon.com/)

Boardmaker 5 WebQuest (http://edtech.waynesburg.edu/dou9108/brdmkr01.html)

PECS WWW.pecs.com

IICP (Roshni) http://www.iicpindia.org/roshni.php

ISAAC : https://www.isaac-online.org

PrAACtical AAC http://praacticalaac.org/

The Voice of AAC - www.ussaac.org

Suggested book

Children in Difficulty: A guide to understanding and helping by Julian Elliott (published by Routledge

More Than Words: A Parents Guide to Building Interaction and Language Skills for Children with Autism Spectrum Disorder or Social Communication Difficulties by by Fern Sussman and Robin Baird Lewis (Hanen Publication)

Teach Me With Pictures: 40 Fun Picture Scripts to Develop Play and Communication Skills in Children on the Autism Spectrum by Simone Griffin, Ruth Harris, Linda Hodgdon and (Jesica Kingley Publishers)

Pictures Worth: PECS & Other Visual Communication Strategies in Autism (Topics in Autism) by by Andy Bondy and Lori Frost (Pyramid Publication)


Tactile Strategies for Children Who Have Visual Impairments and Multiple Disabilities: Promoting Communication and Learning Skills by Deborah Chen and June E Downing (AFB PRESS)

Visual Supports for People with Autism: A Guide for Parents & Professionals by Marlene Cohen, Peter F. Gerhardt

Activity Schedules for Children with Autism: Teaching Independent Behavior by Lynn E. McClannahan and Patricia J. Krantz

The New Social Story Book by Carol Gray (Future Horizon)
Unit 5: Information & Communication Technology (ICT)

5.1 Objectives

After reading this unit, you will be able to:
- Understand the concept of Information and Communication Technology (ICT) in education
- Appreciate the benefits of ICT for communication of individuals with special needs
- Describe the methods of using technology for education and training of CwSN
- Understand and demonstrate the teacher competencies in using ICT
- Identify available resources and technologies for communication for different disabilities

5.2 Introduction

The educational needs of individuals with disabilities are diverse. As for everyone else, individuals with disabilities must also acquire the knowledge and skills required for the community in which they live. However, they face additional demands and special educational needs; caused by functional limitations that impact in different ways upon their ability as learners to access standard educational methods of instruction. These limitations often prevent educational progress and achievement.

In this context, the application of ICT is very important as it plays an essential role in supporting high quality education for learners with disabilities. The advantages of ICT usage in the teaching and learning process are based on the possibilities it offers for alternative means of communication, providing access to educational resources in a more convenient way and to enhancing learning motivation. By overcoming obstacles of time and space, supplementing vital human functioning and supporting the development of crucial skills, these technologies contribute to the increased effectiveness of educational processes by enabling people with disabilities to actively participate in meaningful learning experiences.

Additionally, for individuals with disabilities; ICT have the potential for making significant improvements in their lives by allowing them to enhance their social, cultural, political and economic integration in communities by enlarging the scope of activities available to them. The following unit discusses the various methods of incorporating ICT specific to communication skills in education and training of individuals with special needs; also, it elaborates the competencies required by teachers for its effective integration in classroom. The
unit also specifies some of the existing resources and technologies for individuals with special needs.

5.3 Technology for facilitating communication skills

Technology can refer to any device that helps a person with hearing loss or a voice, speech or language disorder to communicate. These terms often refer to devices that help a person to hear and understand what is being said more clearly or to express thoughts more easily. Reading, writing and listening are the three most vital components of communication skills for students; and with the development of digital and wireless technologies, more and more devices are becoming available to help people with hearing, voice, speech and language disorders to communicate more meaningfully and participate more fully in their daily lives.

These technological devices can be classified into following categories:

(a) Assistive Listening Devices (ALDs): They help amplify the sound you want to hear, especially where there’s a lot of background noise. These devices can be used with a hearing aid or cochlear implant to help a wearer hear certain sounds better. For example: Hearing/Induction loop system, Frequency-Modulated (FM) systems, Infrared systems and Personal amplifiers.

(b) Augmentative and Alternative Communication (AAC) devices: They help people with communication disorders to express themselves. These devices can range from a simple picture board, keyboard, touchscreens to speech synthesizing and speech generating computer program that synthesizes speech from text.

(c) Alerting Devices: They connect to doorbell, telephone, clock or alarm that emits a loud sound, vibration, light or a combination of these; to let someone with hearing loss know that an event is taking place. Visual or vibration alert signalers can help monitor a variety of household devices and carry out other significant activities.

Technology plays a very supportive role in enhancing student’s communication skills, both written and oral. Following are the various possibilities that one may explore to suit the specific needs of students with special needs:

1. Oral Communication and Technology:

   - Audio Tape/Podcast: For receptive skills development, the tape player or podcasts are the easiest way for students to listen to a variety of speakers on a variety of topics in a variety of genres – dialogues, interviews, lectures, stories, songs, and poems.
   - Videotape/Digital Movies/Digital Storytelling: Videotape is a step up from audiotape. Playing prerecorded tapes provides the audiovisual information that helps students observe, understand, and imitate oral communication, from language expressions and sentence structure to lip shape, facial expressions, gestures and distance between speakers, not to mention other cultural, behavioral, and sociological aspects of language.
   - Language Lab: Another technology that is invaluable for the promotion of listening and speaking skills is the interactive language lab. Because the language lab does many things that benefit oral skills development better than the regular non-tech
classroom. For example, in repetition drills, students can concentrate on the model (teacher or tape) with far less interference from the voices of classmates, they can concentrate on the sound of their own voice, and they can record both the model and their own voice for later comparison and practice.

- **Voicemail:** It helps to get students to do oral assignments that you can hear and assess.
- **Apps:** There are numerous apps to build oral communication skills such as: Paper Telephone, Voice Thread, Voxer, Shake-a-phrase etc

Debate, discussions and presentations are other ways by which teachers can help students enhance their oral communication skills.

2. **Written Communication and Technology:**

Technology has significantly impacted the written communication process in terms of both quality and quantity. The writing process involves organizational structure, pre-writing, drafting, editing, revising and use of resources; and is evaluated on the conventions of grammar, mechanics, spelling and legibility.

Technology can facilitate students to accomplish educationally relevant tasks and support increased efficiency, productivity and independence. They can help an individual learn more and keep themselves engaged through sharing their work to a larger audience or beyond their classroom. These devices can be categorized into following types:

- Positioning Aids (slant boards, page-holders, book stands, clipboards etc)
- Contrast Aids (highlighter pen/tape, reading helper, colored overlays etc)
- Adapted Writing utensils (pencils, pens, grips, adapted keyboards etc)
- Adapted Paper/Writing Guides (bold/raised lined, colored, dry erase board etc)
- Personal Vocabulary/Spelling Dictionaries (notebook, quick word handbooks, bookmarks etc)
- Handheld Word Identification Aids (talking dictionary, spell collector, speaking dictionary, thesaurus etc)
- Recorders (digital, pulse smartpen, cassette etc)
- Handheld Scanners (notetakers, iris pen etc)
- Printed Graphic Organizers (teacher-made, Microsoft word, online printable etc)
- Portable Word Processor (alphasmart, neo, personal digital assistants etc)
- Graphic Word Processing software (writing with symbols, pixwriter etc)
- Talking Word Processing software
- Word Prediction software
- Text Correction software
- Electronic worksheets
- Video recognition software etc.

The area of application of ICT in education for people with disabilities that has received possibly the most focus is that of assistive technology (AT). How such tools can be used for alternative and/or augmentative communication (ACC) to overcome personal communication barriers, or as a means for overcoming social and/or geographical isolation has been the focus of global research work. However, there continues to be the need for more specialized and
increasingly sophisticated applications to be developed, within specific contexts and to meet the specific needs of users in their local environments.

5.3.1 Benefits of using technology for communication

When appropriate to the user and the user’s environment, assistive technology is a powerful tool to increase independence and improve participation. It supports children to access and enjoy their rights; do the things they value; and bridges disparities between children with and without disabilities. It provides the means to access and to participate in educational, social and recreational opportunities; empowers greater physical and mental function and improve self-esteem; and may even reduce the cost of educational services and individual supports. Benefits in areas such as health, mobility and education by facilitating participation and inclusion in all aspects of life is also linked to use of assistive technology.

Technology that facilitates communication for individuals with special needs lead to completely different lives that they might otherwise have managed. Some of the benefits of using technology for communication are:

a. **It gives them self-confidence**: Disability can often result in lack of self-confidence, due to the daily struggle and feeling of failure. However, being able to keep-up with everything other people are doing, allows them to break this vicious cycle and feel more positive.

b. **Students can better reach their potential**: It is commonly assumed that children with disabilities are not as intelligent as their peers. However, it is commonly observed that they are not able to demonstrate their potential due to barriers and obstacles faced because of their disability. But with technology, we can use portable voice synthesizers or other devices to answer teacher’s question; allowing them to join in right away and ensure they’re being taught at a level that suits them.

c. **It helps them be more independent**: With help of technology students become less dependent on others, and can work alone and build a sense of achievement and independence.

d. **It makes the curriculum available to all**: Technology allows possibilities to convert material and make it accessible for everyone; thereby ensuring its availability of curriculum and its resources to all.

e. **It can boost engagement among users**: Technology can help impart knowledge through different presentation multisensory modes with varieties like games, puzzles, challenges etc making the students enthusiastically engage and participate in the learning process.

5.4 Teacher Competencies in using ICT

Modern societies are increasingly based on information and knowledge. So, they need to build workforces which have ICT skills to handle information and are reflective, creative and adept at problem-solving in order to generate knowledge. This goal must be the focus of the country’s education system. Teachers need to be equipped to achieve these goals, and UNESCO in partnership with industry leaders and global subject experts, has created an international
benchmark which sets out the competencies required to teach effectively with ICT: “UNESCO’s ICT Competency Framework for Teachers”.

UNESCO’s Framework emphasizes that it is not enough for teachers to have ICT competencies and be able to teach them to their students. Teachers need to be able to help the students become collaborative, problem-solving, creative learners through using ICT so they will be effective citizens and members of the workforce.

**Table 1: The UNESCO ICT Competency Framework for Teachers**

<table>
<thead>
<tr>
<th>Domain/Aspects</th>
<th>Technology Literacy</th>
<th>Knowledge Deepening</th>
<th>Knowledge Creation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Understanding ICT in Education</td>
<td>Policy Awareness</td>
<td>Policy Understanding</td>
<td>Policy Innovation</td>
</tr>
<tr>
<td>Curriculum and Assessment</td>
<td>Basic Knowledge</td>
<td>Knowledge Application</td>
<td>Knowledge Society Skills</td>
</tr>
<tr>
<td>Pedagogy</td>
<td>Integrate Technology</td>
<td>Complex Problem Solving</td>
<td>Self-Management</td>
</tr>
<tr>
<td>ICT</td>
<td>Basic Tools</td>
<td>Complex Tools</td>
<td>Pervasive Tools</td>
</tr>
<tr>
<td>Organization and Administration</td>
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There is an emerging broad consensus worldwide about the benefits that can be brought to school education through the appropriate use of evolving ICT. The range of possible benefits covers practically all areas of activity in which knowledge and communication play a critical role, for example:

- Improved teaching and learning processes
- Better student outcomes
- Increased student engagement
- Seamless communication with parents
- School networking and twinning
- More efficient management and monitoring within the school etc.

Countries around the world face urgent challenges in respect to significance of ICT in education and its potential; due to the rapid development of technologies, the required financial investments and the need to have a clear vision of the role that teachers have to play in harnessing the power of ICT in the classroom and beyond. One key lesson is to acknowledge the many facets that ICT in Education policies have address issues such as teacher competencies, learning materials, ICT equipment, student and teacher motivation, as well as the linkages to other areas of national policy and socio-economic development. Adopting a cross-sectoral approach through an ‘ICT in Education Master-Plan’ can help countries to successfully address all relevant dimensions.
5.4.1 Teacher’s Role in using technology in classroom

With the growing focus to address the needs of all students, including those with special needs, teachers have a need to be trained and prepared for the inclusion model. Teachers must be prepared in the instructional setting to adapt instruction for an individual by changing one or more aspects of the material being taught, such as:

- The method by which the instruction is delivered to the student
- The amount of content material to be covered
- The evaluation method or criteria
- The level of assistance provided in learning situation
- The learning environment; and/or
- The instructional materials that are used by the student.

Teachers can use virtual reality to take their students to far-off places and try new things without having to leave the classroom. Teacher’s role could be as simple as offering a voice recorder to a student who needs to listen to a lecture more than once in order to process it; to a larger goal of evaluation of a material for universal accessibility. However, training and knowledge must be acquired by teachers in the following areas to ensure execution of their roles more effectively:

- Basics of assistive technology (need, purpose, uses, maintenance etc)
- Legal and Ethical issues associated with assistive technology
- Assistive technology and IEP
- Levels of assistive technology
- Technology adaptations
- Available built-in Accessibility tools in existing educational resources (like Microsoft Windows or Macintosh)
- Universal designs and internet etc

Also, it is important that the teacher plays an active role in assistive-technology assessment for the child. The IEP must request an Assistive-technology assessment, if it finds it necessary for the child. The assessment is done by a professional trained in the area in which the child needs support, for example, a speech therapist may assess if the child needs a tool to help with communication. As a teacher, you may ask:

- Which tool will be effective in addressing the child’s specific needs?
- What strengths does the student have that can help her/him use this tool?
- Can this tool be used in different settings, like home, school, social settings etc?
- How easy is this tool to learn and to use?
- How reliable it is?
- What kind of technical support or maintenance is required?

Assistive technology specialist evaluates student’s technology needs in collaboration with teachers, parents and students. The key factor in the technology introduction and implementation; is collaboration of teacher and her/his shared responsibility for participation, decision making, sharing resources and sharing accountability for student outcomes. The teacher must receive appropriate training for its effective integration into daily classroom routines.
5.4.2 Tips for Teachers for integrating technology in classroom

Following are some suggestions for things you can do to facilitate technology integration for communication needs of students into your classrooms:

A) Gain Perspective: Understand the reasons for why, what and how the technology can help address and facilitate the communication needs of the students.

B) Take a Course: Learn about the ICT being used by students with special needs. Take a course about teaching and learning with technology. Attend workshops on software or hardware that the students may be using.

C) Network with Peers: Join a networking group for teachers, subscribing to a mailing list or newsletter, or contributing to discussion or message boards; related to use of ICT for facilitating communication skills.

D) Explore the Literature: Subscribe to online or print publications to learn more about integrating technology into your teaching and student learning.

E) Create a Classroom Climate: Establish and organize your classroom, locate learning center, writing center and computer center. Also display a list of rules.

F) Prepare something new: Locate tools that will make learning more exciting, interesting and relevant for students. Plan lessons to teach students to use those tools to enhance their own curriculum projects.

A commitment to technology is also needed to ensure that all teachers are able to use educational technologies to help all students learn, while understanding the language acquisition, cultural influences on learning, diversity of student population and families; and inclusion and equity in classroom and schools. To meet these standards teachers must plan and design effective learning environments and experiences supported by technology to enable and empower learners with special needs.

5.5 Adaptation of Technology for different disabilities

The following sections describe some of the disabilities or special needs and the examples of adaptations to technology that may be considered to support them. This is not a detailed explanation but is intended to provide an introduction to assistive technology possibilities so that you can better prepare to match the needs of your students.

5.5.1 Developmental, Learning and Behavioral Disorders

Hardware that can support students include portable writing devices like personal digital assistant or handheld computers, to word-processing devices like adapted keyboards. Students with learning and behavioral disorders can get supported by software tools like calendars, task-lists, email, web-browsers and other common productivity applications to help them organize work and complete their academic tasks. Technologies that may benefit these students include:

- Word processing
  - Keyboard shortcuts
  - Auto-correct features
  - Autotext
5.5.2 Speech or Language Disorders

Students with a language disorder have difficulties in understanding or using words in context, both verbally and nonverbally. Students in this case may use incorrect words or meanings, have limited vocabulary and poor or incorrect grammar. They can use augmentative or alternative communication (AAC) devices that aid, supplement or replace conventional communication methods. The methods that students use to control their AAC devices depend on their mobility, dexterity and cognitive level. Following is a list of assistive technologies that may benefit students with speech or language disorders:

- Synthesized speech
- Keyboards and alternative keyboards
- Touch-sensitive pads
- Alternative input devices
  - Trackball
  - Mouse stick
  - Eye-tracking technology
  - Switches
- Abbreviation expansion etc

5.5.3 Hearing Impairment

Students with hearing impairment may use an assistive listening device to enhance her/his residual hearing or may rely on technologies that represent text visually. Alternately cochlear implants are used to help improve sensitivity and speech perception abilities. Some students may also use telecommunication devices for the deaf (TDDs) that allow them to use a small keyboard to type a message that is transmitted through a telephone. Following are the different assistive technology that may benefit students with hearing impairment:
• Assistive listening devices (ALDs)
  o Hearing aids
  o Frequency modulated (FM) amplification systems
  o Audio loops
  o Cochlear implants
• Telecommunication Devices for the Device (TDD)
• Text-messaging
• Captioning
  o Closed captioned television and video
  o Live speech captioning
  o Sign Language software

5.5.4 Visual Impairment

While all learning and physical disabilities can impede participation in a classroom, and subsequently negatively impact student achievement, consider the extent to which visual information dominates the traditional classroom and its instructional materials, such as print-based textbooks, instructional videos, lecture notes, whiteboard etc. While some form of visual impairment may simply require the use of glasses or contact lenses, others can benefit from use of assistive technology like:
• Large-print materials
  o Large-print word processors
  o Computer magnification software
  o Web browser and software applications with adjustable views
• Closed-circuit television magnification
• Synthetic and digital speech synthesizers
  o Text-to-speech
  o Screen readers
• Optical character recognition (OCR) software
• Braille devices
  o Braille notetakers
  o Braille embossers
  o Refreshable Braille displays
• Descriptive video services

5.5.5 Orthopedic Impairment

These students face diverse barriers in terms of mobility, communication, and access to learning. One must carefully consider the layout of classroom, including the placement of and access to computers and their peripherals as well as other technologies. Careful planning to provide a classroom that is free from extension cords that can trip students or block wheelchairs, furniture that is ergonomically appropriate for technology use, and equal access to technology and other resources for all students is essential to benefit students with orthopedic impairment. Following are some technologies that may support their needs:
• Alternative keyboards
  o Expanded or contracted
  o Chording
  o Programmable
  o Virtual
  o Keyguards and moisture guards
  o Label overlays
• Alternate input devices
  o Trackball
  o Joystick
  o Mouse stick
  o Foot mouse
  o Hands-free mouse
  o Eye-tracking technology
  o Mouth sticks and head wands
• Switches
  o Paddle
  o Lever
  o Light beam
  o Pillow
  o Sip and puff
• Voice recognition technology (VRT)

5.6 Digital Learning Resources

Technology has been, and continues to be, a boon to individuals with special needs. Technological devices, enable children with special needs to get educated, acquire life skills, get employed, engage in recreation and leisure activities, and most importantly facilitate communication. Numerous comprehensive digital learning resources and information are available online with ideas, information and activities related to learning, speech, language, and literacy skills for children with special needs.

These resources are constantly updated with advent of new research or technology; thus, one must be careful to ensure authenticity of the resource before using the available material; be it tools, programs, activities, strategies, videos or any research regarding communication. While searching the resources, following are the different categories of information/data that may be available digitally:

a) Information regarding Speech and Communication: Here on may be able to either view, or download a comprehensive range of resources and information. Available resources may cater to the need of information as desired under following heads:
  • Children speech and language development
  • Speech and language milestones
  • Speech and Communication disorders and difficulties
  • Developing language and communication skills
  • Augmentative and Alternative Communication
• Assistive technology
• Communication interventions for Education and Employment
• Parent awareness and training material
• Assessment and Evaluation resources
• Accessible digital resources
• Feedback and Guidance based resources

b) Video Resources: Videos containing tips and ideas to facilitate communication development and communication disorders; variety of speech and language therapy activities and information related to speech, language and communication disorders and delays are available in the digital libraries.

c) Book Stores: A wide variety of online libraries, books and links to booksellers around the world, can help getting information written by professionals, and help us learn more about the recent research findings and future possibilities in the area of ICT for communication of individuals with special needs.

d) Therapy Products: A number of programs, products and resources that one can use to enhance speech, language and communication is available online.

e) Applications and Software: These are now very commonly used for communication and education; and a plethora of digital resources that facilitate communication of individuals with special needs exists and continues to expand at a high speed.

f) Resources for students learning: Numerous materials and database of information are available online in terms of:
   • Grade-Level tutorials
   • Subject tutorials
   • NCERT and NIOS resources
   • Simulation resources
   • Special need Specific digital learning resources etc

5.6.1 Benefits and Challenges of Using Digital Learning Resources

Following are some of the benefits that digital learning resources offer:

• Apps, digital and online resources can make learning fun.
• With millions of contributions from teachers and students across the world; everyone can take advantage of the content that suits their need.
• Digital learning resources can supplement existing and basic skills/knowledge.
• Convenience is another benefit of utilizing digital resources; they can be used as per convenience of time and place.
• They also offer cost-effectiveness, even those who don’t own a computer, can take advantage of resources.
• Customization and Personalization of resources is possible with many digital resources; as per individual learning needs.
• They help expand learning opportunities, by giving access to full and part-time learning opportunities.
• Competency-Based learning is also offered through digital resources; based on the student’s progress and demonstrated mastery.
• Students and Teachers both get access to relevant and regularly updated content.
• The shift to digital can boost student motivation, and can offer high-engagement learning that not only offers better engagement, invisible assessment but deep learning.

The shift from print to digital is a profound transition on how human beings learn, and is transforming formal education and spreading informal education. Both, digital learning and digital learning resources is powering benefits that are changing the learning opportunities for teachers as well as learners.

Even though digital resources are used to address and overcome the limitations of traditional classroom practices; however, many challenges are encountered in the process of establishing and using the digital resources both by teachers and students. These challenges can be broadly classified into following factors:
• Policies related to school management
• Infrastructure related challenges
• Quality assurance
• Attitude of users
• Connectivity and reliability of networks
• Training related issues
• Accessibility and Adaptability related issues
• Economic/Financial viability of the resources
• Content Reliability, Longevity and Updatability of resources etc

Even though digital resources pose many challenges at every level of their selection, acquisition, preservation, maintenance and management; at the same time, they also come with numerous advantages giving solution to many barriers to an inclusive classroom.

5.6.2 How to Use Digital Learning Resources

Teachers must be comfortable in using technology devices and digital resources in a learning environment; and by harnessing the engaging power of such resources, we can boost learning and help create personalized learning environments. The goal is to ensure a learner-centered, personalized environment powered by digital learning – one that is accessible anytime, anywhere and by anyone.

Using digital resources in a classroom can be as simple as showing a video, or as complicated as designing your own course from scratch by curating materials and writing lesson plans and study guides around them. When properly vetted, and implemented; digital resources can be a huge boon for teachers.

Following is a guide for best practices for implementing digital resources in the classroom:
• Ensure that the digital resource is aligned with the school policy.
• Look for resources that have been vetted by teachers to ensure they are academically accurate.
• Use a variety of resources, including print resources, videos, simulations, collaborative project ideas, audio-books, e-books etc.
• Ensure that there is an option of storing and organizing data, so that it can be accessed, modified and shared among teachers and students.
• Apply quality principles to assess the resources, by asking yourself following question:
  o Does it match the curriculum and instructional objective?
  o Is it inclusive and accessible?
  o Does it engage learners and promote effective learning?
  o Is it easy to use?
  o Does it offer effective formative assessment?
  o Does it offer robust summative assessment?
  o Does it encourage innovation, creativity and flexibility in use?
  o Are the images, sound files and videos fit for purpose?
  o Can it work with different operating systems (desktop/laptop/tablet etc)
• Define what role students will play and what role teachers will play; and how digital resources/devices will be used.
• Ensure safety, security and comfort of the student.

Teachers tend to teach the way they were taught, and intensive training and proactive approach is required to ensure technology is embraced by teachers to reinforce lessons and concepts and reach students through communication methods that help students use emerging tools and resources that transcend classroom walls.

Also, we must strengthen technology infrastructure to adequately support the devices and family and/or community access to digital resources. We must vigorously move toward ensuring that all students have access to the tools and resources; to create personalized experiences for students.

5.7 Available Software

About a decade ago if a child was non-verbal, the resources were very limited. Advanced communication was limited to low technology such as picture communication system and sign language. However, technology has revolutionized the assistive communication world. At an affordable price or even free of cost, easy to use applications and software are available for individuals with special needs for assistive communication. Here is a list of few of these applications/softwares that one may find useful for use by a child with special needs either within school or in day-to-day life for independent functioning:

<table>
<thead>
<tr>
<th>Software</th>
<th>Description</th>
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<tr>
<td>Avaz</td>
<td>This app enables children with autism and other disorders to “speak” using pictures - in a variety of situations. The app can be used in a person’s daily routine to develop language, and to stimulate and improve the intent to communicate. The app uses picture symbols and high-quality voice synthesis to help non-verbal users create messages and improve language skills. It also offers a powerful keyboard that helps users transitioning to text - growing with the child as he or she develops.</td>
</tr>
<tr>
<td>Talkitt</td>
<td>The Talkitt app translates unintelligible pronunciation into understandable speech, allowing people to communicate using their own voice. The technology behind the app is brilliant - by recognizing each individual user's vocal patterns, it “speaks” their words in a coherent manner - thus allowing them to communicate clearly and easily. The program works in every language.</td>
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<tr>
<td><strong>RogerVoice</strong></td>
<td>RogerVoice uses voice recognition to convert voice to text, so people with hearing impairment can “hear” phone calls by reading.</td>
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<tr>
<td><strong>LookAtMe</strong></td>
<td>Designed to improve socialization skills, the Application gamifies interactions, helping users learn to read moods, remember faces, and express themselves with facial expressions and poses; that facilitates interpersonal communication.</td>
</tr>
<tr>
<td><strong>Proloquo2go</strong></td>
<td>This assistive communication application offers natural sounding text-to-speech voices, high resolution up-to-date symbols, powerful automatic conjugations, a default vocabulary of 7,000 items that is expandable.</td>
</tr>
<tr>
<td><strong>HearYouNow</strong></td>
<td>Intended for use in public settings such as restaurants, meetings and parties as well as watching TV or listening to radio, the HearYouNow app customizes sound performance depending on the user’s specific needs. By attaching headphones to a digital device, sound is controlled and amplified per ear, with three frequency bands tuned towards speech understanding and the option to optimize foreground or background sounds.</td>
</tr>
<tr>
<td><strong>AACSpeechBuddy</strong></td>
<td>With AAC Speech Buddy you can create custom PECS Speech Sets at AACSpeech.com and download them to your favorite Android device.</td>
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<tr>
<td><strong>TalkTablet</strong></td>
<td>It is a fully-featured AAC speech solution for people who are unable to communicate clearly as a result of Autism, Aphasia, Down Syndrome, Stroke, Laryngectomy or other condition that adversely affects a person's ability to speak.</td>
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<tr>
<td><strong>Verbally</strong></td>
<td>A text-to-speech app intended especially for people with AAC needs. Users type the phrase that they wish to convey, and Verbally speaks it. The app allows users to choose from several male and female voices and three different keyboard layouts. For ease of use, the app has a word predictor and two core grids – one for words and one for phrases. There is no need for an internet connection to use it.</td>
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</table>
There are several other helpful resources on available applications/software. Be sure to follow best practice with a complete assessment to determine the needs of the individual first. It is important to match the software to the individual, not the other way around. Also before selection of the software, it is essential to understand the economic aspects and technical support that may be required for use of the software. Strategies for selection of appropriate software need to consider the principles of – availability, accessibility, affordability, adaptability, acceptability and quality. However, once the software is selected, it is equally vital to impart the training process and follow-up to ensure its effective use and continued support to student.

Digital learning resources come in many forms: a resource might be as simple as a digital photograph, or as rich as an animated demonstration of a chemical process. In education, a digital resource is anything which can be stored in digital format and adopted or adapted for use in learning. It may or may not have been designed for use in the classroom, but if you can access and use them effectively, it can reduce lesson preparation time, make learning more engaging and stimulating. Depending on the type and size of resource you have selected, you may need to ask yourself some technical questions:

- How much time and effort will the resource/software take to install and maintain?
- What demands will it put on the school’s internet connection?
- Is the school/studen equipment suitable for using the resource/software?

Digital learning resources can engage, inspire and excite learners of all ages, abilities and needs. They can be used to stimulate and channel creativity as you adapt them to suit the needs of learners and to develop more stimulating materials for personalized learning. The creative use of digital resources offers a great example of how good practice in ICT can support learning outcomes.

5.8 Summary

- Application of ICT is very important as it plays an essential role in supporting high quality education for learners with special needs.
- Technology can refer to any device that helps a person with hearing loss or a voice, speech or language disorder to communicate.
- Reading, writing and listening are the three most vital components of communication skills for students; and with the development of digital and wireless technologies, more and more devices are becoming available to help people with hearing, voice, speech and language disorders to communicate more meaningfully and participate more fully in their daily lives.
- These devices can be classified into – assistive listening devices; augmentative and alternative communication devices; and alerting devices.
• Technology plays a very supportive role in enhancing student’s communication skills, both written and oral.
• When appropriate to the user and the user’s environment, assistive technology is a powerful tool to increase independence and improve participation.
• Modern societies are increasingly based on information and knowledge. So they need to build workforces which have ICT skills to handle information and are reflective, creative and adept at problem-solving in order to generate knowledge.
• With the growing focus to address the needs of all students, including those with special needs, teacher have a need to be trained and prepared for the inclusion model.
• Different disabilities or special may need specific adaptations to technology for its effective and efficient use by student.
• Numerous comprehensive digital learning resources and information are available online with ideas, information and activities related to learning, speech, language, and literacy skills for children with special need.
• Technology has revolutionized the assistive communication world and now at an affordable price or even free of cost, easy to use applications and software are available for individuals with special needs for assistive communication.
• Strategies for selection of appropriate software need to consider the principles of – availability, accessibility, affordability, adaptability, acceptability and quality. On selection of software, it is equally vital to impart the training process and follow-up to ensure its effective use and continued support to student.

5.9 Experiential Learning

1. Chart out the UNESCO’s ICT Competency Framework for Teachers.
2. Detail the categories of technology for written communication.
3. Enlist the few available software/applications for facilitation communication of students with special needs.
4. What are alerting devices?
5. Discuss the benefits of using technology for communication.

5.10 Check your progress

1. _____, _____ and _____ are the three most vital components of communication skills

2. _____ refer to any device that helps a person with hearing loss or a voice, speech or language disorder to communicate

3. _____ help amplify the sound you want to hear, especially where there’s a lot of background noise.

4. Examples of technology for oral communication include: ___________

5. TDDs stands for ___________

6. ALDs stands for ___________

7. Digital learning resources can be categories into _______________
8. Video resources refer to the ____________

9. Strategies for selection of appropriate software need to consider the principles of ________________

10. An example of portable writing devices is ______

5.11 Assignments for self-evaluation

1. Enlist some activities using ICT, which you would like to plan for remedial education of your students in different subjects.
2. Discuss the uses of ICT in classroom teaching.
3. Apart from the use of ICT in facilitating communication skills; which all aspects can you use ICTs for improving teaching and learning.

5.12 Tutor marked assignments

1. How can ICT be helpful in qualitative improvement of elementary education of children with special needs?
2. Differentiate between computer assisted learning and use of assistive technology in learning.

5.13 References

How to Enhance Students' Communication Skills: Does Technology Help. EdTechReview
ICT’s in education for people with disabilities-Review of innovative practice; UNESCO 2011
ICT and Special Education Needs: A tool for inclusion, Florian, John Hegarty 2004
# PROGRAMME:
Advanced Certificate in Inclusive Education (Cross Disability)

## Course Structure

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