Disabled Education: A Critical Analysis

Edited by: **Dr. John Bendixen**

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PREFACE

Education is important for all children, but even more so for children with disabilities, whose social and economic opportunities may be limited. According to the World Health Organization's World Report on Disability, an estimated 95 million children (5.1%) aged 0–14 years have some form of disability. Common issues include Autism Spectrum Conditions, Developmental Delay, Behavioral Disorders and Learning Difficulties. In many countries, these children have rights to be included in mainstream school. For professionals who work with children this shift towards social and educational inclusion has meant that practices have had to evolve in tandem. Rehabilitation professionals now deliver a wide range of approaches to support early intervention and prevention for children with diverse needs. This includes school-based approaches alongside teachers and families to enable children's full and active participation in school

Students of all abilities and backgrounds want classrooms that are inclusive and convey respect. For those students with disabilities, the classroom setting may present certain challenges that need accommodation and consideration. The basic premise is that the school should meet the educational needs of all children irrespective of their disabilities or limitations. This book examines the possibilities of using technology and strategies in the education of the disabled. The special education system has given children with disabilities much greater access to public education, established an infrastructure for educating them, helped with the earlier identification of disabilities, and promoted greater inclusion of these children alongside their nondisabled peers. Despite these advances, many problems remain, including the over- and underidentification of certain subgroups of students, delays in identifying and serving students, and bureaucratic, regulatory, and financial barriers that complicate the program for everyone involved. The present book attempts to evaluate the effective teaching practice for children with special learning needs. This book dealt with the effective practices in inclusive and special needs education. Inclusive Education means that all students in a school, regardless of their strengths or weaknesses in any area, become part of the school community. To achieve a quality in Inclusive Education school plays vital role. All individuals are unique and 'special' with their strengths and weaknesses. As education binds us together, it has its root in the past and is meant to equip us for the future. It transfers knowledge, culture and values from one generation to the next. It promotes social mobility and ensures the creation of values and welfare for all. For the individual, education is to contribute to cultural and moral growth, mastering social skills and learning self-sufficiency. It passes on values and imparts knowledge and tools that allow everyone to make full use of their abilities and realise their talents. The book presents an analysis of key developments in educational policies and strategies in relation to the education of children with disabilities.

CHAPTER 1

NATURE AND NEEDS OF VARIOUS DISABILITIES -AN INTRODUCTION

INTRODUCTION

A disability is a societal imposition on people who have impairments, making it more difficult for people to do certain activities or interact with the world around them. Due to cognitive, developmental, intellectual, mental, physical, and/or sensory differences, disabled people are “unnecessarily isolated and excluded from full participation in society.

1.1 DISABILITY

A disability is any condition of the body or mind (impairment) that makes it more difficult for the person with the condition to do certain activities (activity limitation) and interact with the world around them (participation restrictions).

1.1.1 Definition of Disability

The concept of disability differs from person to person and from survey to survey depending on the base on which it is collected. In the simplest words, disability refers to any limitation experienced by the disabled in comparison to the able persons of similar age, sex and culture.

The Persons with Disabilities Act, 1995 defines "disability" in terms of blindness, low vision, leprosy-cured, hearing impairment, locomotor disability, mental retardation and mental illness. According to the Act, "person with disability" means a person suffering from not less than forty percent of any disability as certified by a medical authority.

According to Merriam-Webster disability is a physical, mental, cognitive, or developmental condition that impairs, interferes with, or limits a person's ability to engage in certain tasks or actions or participate in typical daily activities and interactions.

Oxford English Dictionary defines disability as a physical or mental condition that limits a person's movements, senses, or activities.

The International Classification of Functioning (ICF), Disability and Health, produced by the World Health Organization (WHO), distinguishes between body functions (physiological or psychological, for example, vision) and body structures (anatomical parts, for example, the eye and related structures). Impairment in bodily structure or function is defined as involving an anomaly, defect, loss or other significant deviation from certain generally accepted population standards, which may fluctuate over time. Activity is defined as the execution of a task or fact or action by the bodily structure or function.

1.1.2 Medical Definition of Disability

Medically, disability is perceived as a medical clinical problem, thereby identifying people with disabilities as ill, different from their non-disabled peers and unable to take charge of their own lives. Medical definition does not take note of the imperfections and deficiencies in the basic social structures and processes that fail to accommodate the differences on account of disabilities. World Health Organization (WHO) defines the relationship between impairment, disability and handicap. The term impairment refers to damage or loss related to organ level functions or structures;

disability refers to person-level limitation in physical and psycho-cognitive activities; and handicap refers to social abilities or relation between the individual and society. The ICF further states that the medical model views disability as a problem of the person, directly caused by disease, trauma or other health condition, which requires medical care provided in the form of individual treatment by professionals.

Social Definition of Disability

The Disability Manual, focusses on the shift from individual pathology to a social construct in accordance with the UN Standard Rules on the Equalization of Opportunities for Persons with Disabilities, 1993. The Standard Rules have defined disability from a perspective that emphasizes social conditions which disable a group of individuals by ignoring their needs of accessing opportunities in a manner conducive to their circumstances.

Human Rights Definition of Disability

The definition of disability should have human rights perspective. UN convention on the Rights of Persons with Disabilities in 2009 promoted the human rights perspective for persons with disabilities. Definition of disability takes into account the social conditions which disable a group of individuals by ignoring their needs of accessing opportunities in a manner different from others. Disability can be defined as the disadvantage or restriction of activity caused by a society which takes little or no account of people who have impairments and thus excludes them from mainstream activities.

1.1.3 Types of Disability

There are many types of disabilities, such as those that affect a person's:

- Vision

- Movement
- Thinking
- Remembering
- Learning
- Communicating
- Hearing
- Mental health
- Social relationships

1.1.4 Distinction between Disability, Impairment and Handicap

The World Health Organization (WHO) has made distinctions between the definitions of impairment, disability and handicap. The definitions given are as follows:

An impairment is any loss or abnormality of psychological, physiological or anatomical structure or function.

A disability is any restriction or lack (resulting from an impairment) of ability to perform an activity in the manner or within the range considered normal for a human being.

A handicap is a disadvantage for a given individual, resulting from impairment or disability that limits or prevents the fulfillment of a role that is normal (depending on age, sex, social and cultural factors) for that individual.

For example, suppose a person at the age of 15 years meets with an accident and loses his right arm. This results in an impairment. Now, this person is not able to write and use his right arm for functioning as he would use it earlier. This results in a disability. This person when not able to perform his role as a student, for instance, take notes in the class or write an examination, experiences a handicap.

1.1.5 Causes of Disability

Disability could be a result of heredity, environmental factors and the interplay between these two groups.

Heredity

Genetic components or heredity of an individual is one of the important causes of disability. For instance, mental retardation is said to run in families and is associated with hereditary endowments. Chromosomal anomalies, defective genes, inheritance of fragile genetic components etc. lead to various disabilities among humans. For example, 21st Trisomy. You have read about it in detail in Course MCFT-001.

Environment

Environmental components play an important role in deformities which occur in children. It starts from the moment of conception in the womb. Factors like poor health status and nutritional intake of the mother as well as smoking, alcohol consumption and exposure to radiation harm the foetus during pregnancy. Even at the time of birth, the birth process may also lead to deformity in the infant. Later jaundice, chronic health diseases, poor diet or nutrition intake (e.g. protein energy malnutrition), accidents, etc. lead to disability among children.

Heredity and Environment Interplay

Both heredity and environment interact to cause disability. Heredity paves the path and environment reinforces disability among the children.

Disability is caused by various factors which could be hereditary or non-hereditary. World Health Organization (WHO) prepared a list of reasons of disability which covers the following areas:

- Non-contagious somatic illnesses,

- Injuries/wounds,
- Malnutrition,
- Functional psychiatric disorders,
- Chronic alcoholism and drug abuse,
- Congenital diseases, and
- Contagious diseases.

In broad terms the causes of disability can be described as follows:

- Violation of human rights, torture, ill treatment or amputation,
- Natural disasters or earthquakes,
- Irreversible diseases,
- Old age,
- Environmental pollution,
- Cardiovascular disease,
- Neuromuscular diseases,
- Traffic accidents,
- Industrial accidents,
- Diseases like poliomyelitis,
- Wars,
- Mal-nutrition: Nutritional deficiency like lack of iodine leads to slow growth, learning difficulties, intellectual disabilities, mental defects, deafness and dumbness.
    - Vitamin A deficiency leads to blindness.
    - Vitamin B Complex deficiency leads to beriberi (inflammation or degeneration of the nerves, digestive system and heart), pellagra (central nervous system, gestro-intestinal disorders, skin inflammation) and anaemia.
    - Vitamin D deficiency leads to rickets (soft and deformed bones).
    - Iron deficiency leads to anaemia (impedes learning and activity).

  - Calcium deficiency leads to osteoporosis (fragile bones).
- Chagas' disease – Trypanosoma cruzi parasite is carried in the blood and is spread by blood transfusions. This disease prevents the person from leading a normal life and is also a cause of death,
- Down's syndrome (Mongolism),
- Dwarfism (Achondroplasia),
- Insufficient care and cruelty towards children and women,
- Under development caused by lack of public hygiene, degradation of the environment, poor food and housing, indigence, inadequate education and health information, illiteracy,
- Hunger,
- Lack of adequate health system,
- Use of certain pesticides, hormones, antibiotics or other additives,
- Dumping of toxic and dangerous products and wastes,
- Extreme poverty,
- Apartheid,
- Deliberately inflicted forms of punishment like mutilations, and
- Crime, for example, for begging children are amputated.

1.2 PERSONS WITH SENSORY IMPAIRMENTS

This section will provide you a broad overview of the concept and definition of sensory impairment and its rehabilitation and mainstreaming needs. The concept, identification and assessment, support services and various other related aspects of sensory disability have been explained in very objective terms. Besides above, this section deals with the identification based on common characteristics, and aids and appliances meant for the persons with sensory impairment. Here the types of sensory impairments such as hearing impairment, visual impairment including blindness and low vision and multisensory impairment as deaf blindness have been discussed in detail. The section is designed to cover various dimensions with a view to enable you to help and deal with the persons having sensory disability. These include management of the different aspects of rehabilitation.

1.2.1 Concepts and Definitions

Sensory impairment refers to difficulty either in seeing or hearing. There are different levels of difficulty; for instance, some people may not be able to hear at all while others will be able to hear partly and might use hearing aids. In the same way, a person could be totally blind or able to see partly. The following Section will help us in developing a clear understanding about the different types of sensory impairments, which include the following:

Hearing Impairment

The importance of hearing is known to everybody. You cannot imagine the agony faced by a persons, who has a problem in hearing or hearing impairment. Some important concepts related to hearing impairment are discussed below:

- **Hearing**: Hearing is a process of detection, discrimination, recognition and comprehension of sounds.
- **Hearing impairment** : Hearing impairment may be defined as any deviation or change for the worse in either auditory structure or auditory function. This may involve any defect in the hearing process due to hereditary or environmental factors. Owing to this impairment the child cannot use her or his hearing for ordinary purpose.
- **Hearing disability** : Hearing disability is defined as the auditory problem experienced and complained by the individual. When the impairment reduces the child's

functional potential and restricts her or his level of performance, it becomes a hearing disability.

The Persons with Disabilities Act, 1995, recognizes having impairment as a disabilitiy, defining it as a loss of sixty decibels or more in the better ear in the conversational range of frequencies.

- **Hearing handicap** : Hearing handicap is the disadvantage for an individual resulting from the impairment or disability, which limits or prevents the fulfillment of a normal role depending on age, sex, and social and cultural factors for the individual. The restriction imposed upon, or acquired by the individual affects the efficiency of her or his day-to-day life. For example:
    - A defect in the eardrum is impairment. It distorts the process of sound vibration and restricts the normal process of transfer of the message to the middle ear.
    - This distortion creates a disability in hearing as the normal process of hearing sounds cannot be performed.
    - The result is the loss of quality of life.

Visual Impairment

Vision is the most important sense required to observe and learn from what is happening in one's environment. Any type of impairment in vision not only creates problems in the learning process rather it disturbs whole development of the individual. Visual disability ultimately hampers the development of the child or person, especially her or his learning.

Broadly, visual impairment can be divided into two types. These are:

- **Low vision**: Low vision means markedly reduced functional vision in the individual. Low vision may demand large print materials and magnifiers for reading. Recent technological advancement has facilitated better learning opportunities for low vision children. A person with low vision is one who has impairment of visual functioning even after treatment; for example an operation and/or standard refractive correction with glasses or lenses. The Persons with Disabilities Act, 1995, recognizes low vision as a category of disability and defines it as follows:

"Person with low vision" means a person with impairment of visual functioning even after treatment of standard refraction.

- **Blindness**: "Blindness" refers to a condition where a person suffers from total absence of sight or extremely limited field of vision or visual acuity not exceeding 6/600 or 20/200 in the better eye even with corrective lenses or limitations of the field of vision subtending an angle of 20 degree or worse.

Deaf Blindness

Deaf blindness is a dual sensory loss involving visual as well as auditory sense. According to the U.S. Federal law governing special education (Individuals with Disabilities Education Act – IDEA), the term "children with deaf blindness" means children and youth having auditory and visual impairments, the combination of which creates such severe communication and other developmental and learning needs that they cannot be appropriately educated without special education and related services, beyond those that would be provided solely for children with hearing impairments, visual impairments, or severe disabilities, to address their educational needs due to these concurrent disabilities.

1.2.2 Identification and Assessment

There are different methods for identification and assessment of all types of sensory impairments. The identification can be done through common features or symptoms and through formal clinical methods.

Hearing Impairment

The child with hearing impairment can be identified with the help of the following methods:

- During childhood it can be identified through the following symptoms or features:
  - History of high risk factors,
  - Absence of normal response to various sounds,
  - Language development not seen even after one to two years of age,
  - Attention on the lips of the speaker,
  - Liquid discharge from ears, and
  - Constant itch in the child's ear.
- Hearing impairment at classroom level can be identified through:
  - Lack of linguistic skills, normal for one's age,
  - Difficulty in comprehension,
  - Specific problem in reading and speaking,
  - Slow mastering of language skills, and
  - Asking for repetition frequently

Assessment

Assessment of hearing impairment can be done to know the degree and type of hearing loss. This can be done in two ways. It is illustrated through following Fig. 1.

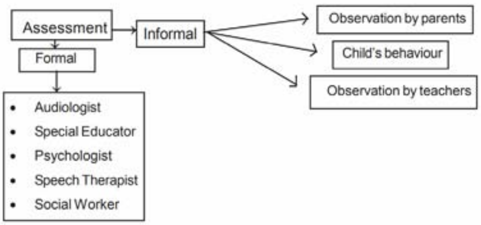

Figure 1. Assessment of hearing impairment.

The child showing one or more than one of the above mentioned signs and symptoms should be referred to an audiologist. The audiologist assesses the hearing loss using various audiological equipment like pure tone audiometer, speech audiometer, play audiometer, sound field audiometer, impedance audiometer, Brain Evoked Response Audiometry (BERA), etc. It is now possible to assess degree and type of hearing loss at an early age of the child.

Screening Audiological Tests for Infants and Children

There are a number of screening audiological tests depending upon the age of children. Let us discuss some of these tests:

- **Birth to Six Months**: Infants with congenital or neonatal hearing loss can be identified using objective physiological tests such as the Auditory Brainstem Response (ABR) evaluations, or the Oto Acoustic Emission (OAE) before 3 months of age, and an intervention program started soon thereafter. Both these tests are accurate, non-invasive and do not require any observable response from the infant. For the purpose of screening, both the methods are extremely effective.
    - ***Auditory Brainstem Response (ABR)***: In order to process sounds, electrical impulses are transmitted through nerves from our ears to the brainstem at the base of the brain. An auditory brainstem response (ABR) is a physiological measure of the brainstem's response to sound. It tests the integrity of the hearing system from the ear to the brainstem. The test is performed by fixing four to five electrodes on the infant's head, after which a variety of sounds is presented to the infant through earphones. As the hearing nerve fires, the sound stimulus travels up to the brain. This electrical activity generated by the nerve can be recorded by the electrodes and is represented as waveforms on a computer screen. The audiologist can then present different

loudness levels of each sound and determine the softest levels at which the infant can hear. For infant screening purposes, only one sound is used to test the hearing, commonly referred to as a "click". The click is a grouping of several sounds to test a wider area of the hearing organ at one time. The click is typically presented at a loud level and a soft one. If a healthy response is recorded, then the infant has "passed" the hearing screen.

- ***Automated Auditory Brainstem Response (AABR)***: The automated auditory brainstem response (AABR) is another objective means of evaluating hearing. It is mainly used in many newborn-screening programs. The instrument is automated and provides a pass-fail report; no test interpretation by an audiologist is required.
- ***Otoacoustic Emission Test (OAE)***: The otoacoustic emission test (OAE) measures an acoustic response that is produced by the inner ear (cochlea), in response to a sound stimulus. The test is performed by placing a small probe that contains a microphone and speaker into the infant's ear. As the infant rests quietly, sounds are generated in the probe and responses that come back from the cochlea are recorded. Once the cochlea processes the sound, neural impulses are sent to the brainstem. In addition, there is a second and separate sound that does not travel up the nerve, but comes back out into the infant's ear canal. This "byproduct" is the otoacoustic emission. The emission is then recorded with the microphone probe and represented pictorially on a computer screen. The audiologist can determine which sounds yielded a response or emission and the strength of those responses. If there is an emission present for those sounds that are critical to speech comprehension, then the infant has "passed" the hearing screen.

Both ABR and OAE tests have advantages and disadvantages when used for screening. The OAE is easy and cost effective. However, the false-positive rate (that is, an infant fails a hearing test but actually has normal hearing) may be higher for an OAE than for an ABR. The two tests, however, rely on different mechanisms of hearing for the screening. For in-depth testing and a complete hearing evaluation of infants, these tests work best together as a complement to each other.

- **Six Months to Two Years**: ***Conditioned Oriented Response (COR) or Visual Reinforcement Audiometry (VRA)***: Children as young as six to 12 months of age can be screened using conditioned oriented responses or visual reinforcement audiometry. These are the behavioural tests measuring responses of the child to speech and frequency-specific stimuli presented through speakers. Both the techniques condition the child to associate speech or frequency-specific sound with a reinforcement stimulus, such as a lighted toy. However, these tests do not give ear-specific results.
- **Two Years to Four Years**: Play audiometry is a behavioral test aimed at measuring the auditory thresholds in response to speech and frequency-specific stimuli presented through earphones or bone vibrator. The child is conditioned to put a peg in a pegboard or drop a block in a box when stimulus tone is heard. It gives ear-specific results and assesses auditory perception of the child. However, attention span of the child may limit the amount of information obtained.
- **Four Years to Adolescence**: Conventional Pure Tone Audiometry is a behavioral test measuring auditory thresholds in response to speech and frequency-specific stimuli presented through earphones or bone vibrator. The child is instructed to raise her or his hand when stimulus is heard. It gives ear-specific results and depends on the level of understanding and cooperation of the child.

Visual Impairment

When prevention of disability is not possible, cure becomes the objective. When cure is not possible, rehabilitation becomes the goal. Identification and assessment help a great deal in facilitating rehabilitation of the blind and those with low vision. The assessment of disability and identification of children or persons with visual disability may be based on the common features, informal methods such as direct observation and formal procedures with the help of some assessment tools. The details in this respect are given below:

Common features

Visual impairment may be identified with the help of common features as mentioned below:

- Blindness
    - Child tilts her or his head to locate the light source,
    - Pain and irritation in the eyes,
    - Bumps into objects in the environment,
    - Unable to write from the blackboard, takes help from peers to copy from the blackboard,
    - Poor performance in the class,
    - Unable to read in poor lighting conditions,
    - Unable to see during night,
    - Depends too much on oral information,
    - Rubs eyes excessively,
    - Watery eyes,
    - Eyelids are often red,
    - Holds objects and the book too close to eyes,
    - Squints or blinks when looking at something,
    - Blinks more frequently, and
    - Regular headaches.
- Low Vision

- Confident movement in school environment,
- Visual orientation to the new stimuli,
- Light gazing,
- Avoidance response to shadows,
- Interested in visual games,
- Avoidance of large obstacles,
- Unusual head tilt,
- Flickering,
- Distracted by movement in the environment,
- Startled response to suddenly approaching objects,
- The child experiences difficulty in reading small prints,
- The child experiences difficulty in identifying small details in pictures or illustrations,
- The child frequently complains of dizziness after reading a passage or completion of assignments involving vision, and
- The child frequently complains of headache, infection in eye; the child uses one eye more than the other.

Informal Methods of Assessment

There are some informal methods to identify visual impairment. These are simple methods and activities that parents and teachers can use in the classroom for assessing visual problems of the child, if any.

Direct Observation

- Light perception of difference between sunlight and dim light,
- Light perception of difference between good light and poor light in a class,
- Tracking of light,
- Detecting hand movement,

- Distance of detecting hand movement,
- Finger counting: Fingers raised one at a time,
- Finger counting: Fingers spread apart,
- Finger counting (General): Fingers closed together,
- Finger counting inside the classroom with good lighting condition,
- Finger counting inside the classroom with poor lighting condition,
- Visual background,
- Color detection,
- Visual closure,
- Form constancy,
- Eye-hand coordination,
- Eye-foot coordination,
- Print size preference without magnifiers,
- Print size preference with magnifiers,
- Time taken to read a passage in mother tongue or English,
- Ability to write, and
- Writing speed.

Formal Methods of Assessment

The assessment of visual problems requires teamwork of educational, medical and other personnel such as volunteers and health workers. The teamwork consists of vision screening of all children, continuous classroom observation for behavioral and physical symptoms, and extending referral services for identified children for comprehensive eye examinations. An adequate program of identification requires carrying out of each step in a carefully planned systematic manner.

Some children may be handicapped due to the restriction of the field of vision. The field of vision is the entire area which can be seen while the eye remains fixed upon one point in straight line. When the widest angle of the central field is restricted to 20 degrees or less in the better eye with correction, the person is considered legally blind, even though she or he is usually able to read ink print materials.

Assessment Tools

These are commonly used tests to measure the extent of visual functioning and are discussed in brief in this sub section.

- **Snellen test and visual field tests**: These tests are used to measure visual acuity and visual field.
- **Muscles Balance Tests**: For testing muscle balance, special instruments are used. The most common tests are:
    - ***Maddox Rod Test***: This test is used to determine the postural position of the eyes when fusion is disrupted. This test yields excellent measurement of heterophoria and can also be used to detect hetrophoria. The procedure calls for the presentation of a different image to each eye at the same time.
    - ***Allied Muscle Balance Test***: This test consists of a procedure in which the child wears specialized lenses while using a projector to place a red dot within a rectangle projected on a screen. This test may be difficult to teach to some children, and it requires fine motor control and eye-hand coordination.
    - ***Tests for Distant Vision***: The tests for distant vision will detect the child with hyperopia or far-sightedness. The hyperopic child usually sees quite well at a distance but must accommodate for near-vision task.
    - ***Plus Lens Test***: It is a more adequate test to detect hyperopia. The child's vision is checked on the Snellen chart or on one of the binocular instruments while he is wearing plus lenses mounted in a small,

inexpensive frame. If the child can see the 20 feet line at 20 feet from the chart with both eyes while wearing these lenses, she or he should be referred.

- ***Near Vision Testing***: Near visual acuity should be determined for children with low vision. Near vision information is of special importance for children with pathological defects where only distance visual acuity may be inadequate. Near vision is determined with one of several reading cards, which have either symbols, numerals or letters printed on them. The reading distance for low vision children and illumination should be recorded.

Deaf Blindness

All the methods applied for identification of hearing and visual disability that we have discussed earlier may be used in combination for identification of deaf blindness in the individual.

1.2.3 Causes and Types

There are many causes which directly or indirectly contribute to the development of sensory disability. Some causes are dominating contributors and some are supportive in the development. Let us now take a look at the causes and types of hearing loss, visual impairment and deaf blindness.

Hearing Impairment

The ear is the sense organ of hearing. It is mainly divided into three parts:

- Outer ear,
- Middle ear, and
- Inner ear.

The sound waves from the environment including speech enter the outer ear, strike on the eardrum, and make the tiny three bones in the middle ear vibrate. This results in the transfer of mechanical energy in the middle ear and then into electrical energy in the inner ear. Frequency and intensity analysis of sounds takes place in the inner ear. The electrical energy from the inner ear is carried to hearing area in the brain through auditory nerve and other complex auditory pathways for processing and interpretation of the meaning of the sounds.

The hearing loss can occur due to damage at any stage or in different parts of ear. The causes of hearing disability can occur at any time during the developmental period that is before birth, during birth or after birth. The causes before birth may concern family history of childhood deafness, consanguineous marriages, illness during pregnancy, history of mother suffering from rubella during pregnancy and poor physical condition of the mother. The possible causes during birth are premature delivery, lack of oxygen during birth, absence of birth cry and low birth weight. The causes after birth are deformities of ear, nose, face and throat; infectious diseases (mumps, measles, meningitis, viral fever etc.); injury to ear, exposure to loud sound and neglected ear discharge. Children with the above factors may be considered as high-risk children and their hearing assessment should be done as early as possible.

Higher the level of hearing sensitivity, greater the severity of hearing loss. Hearing loss may be mild, moderate, moderately severe, severe or profound:

- ***Mild hearing loss (26 to 40 dB HL)***: A child with mild hearing loss will have trouble hearing and understanding soft speech in a noisy background.
- ***Moderate hearing loss (41 to 55 dB HL)***: A child with moderate hearing loss will have difficulty in hearing conversational speech.
- ***Moderately severe hearing loss (56 to 70 dB HL)***: A child with moderately severe hearing loss will have difficulty in hearing conversational speech even at close distances.

- ***Severe hearing loss (71 to 90 dB HL)***: A child with severe hearing loss may only hear loud environmental sounds.
- ***Profound hearing loss (91 dB HL and above)***: A child with profound hearing loss may only hear very loud environmental sounds.

The types of hearing loss are as follows:

- ***Conductive hearing loss***: Hearing loss due to any problem in the outer ear and/or middle ear can lead to conductive hearing loss.
- ***Sensory neural hearing loss***: Hearing loss due to any problem in the inner ear and/or auditory nerve is termed as sensoy-neural hearing loss.
- ***Mixed hearing loss***: Hearing loss due to any problem in the outer and / or middle ear including inner ear is termed as mixed hearing loss.
- ***Central hearing loss***: The hearing loss due to defects in central auditory processing is termed as central hearing loss. The child can hear the sound but has problem in understanding and interpreting the speech and language.
- ***Functional hearing loss***: This is hearing loss when there is no anatomical and physiological abnormality in the auditory system but the child has problem in hearing due to malingering or psychological problems.

Visual Impairment

VISION 2020 has identified many causes of avoidable blindness, among which five conditions have been identified for immediate priorities on the basis of the burden of blindness they represent and the feasibility and affordability of interventions to prevent and treat them. These are cataract, trachoma, onchocerciasis, childhood blindness, and refractive errors and low vision. Other disorders, such as glaucoma and diabetic retinopathy, at present do not meet all these criteria, but are likely in the future. Let us discuss some of the common causative conditions:

- **Cataract**: It refers to a clouding of the crystalline lens of the eye and stands out as the first priority amongst the major causes of blindness. Today, an estimated 20 million people are blind from this condition. Cataracts are not generally amenable to prevention but currently available surgery can restore near normal vision in a large proportion of those who suffer from this condition.
- **Trachoma**: Trachoma remains the most common preventable cause of blindness in the world. Trachoma is common in areas of the world that are socio-economically deprived of basic needs in housing, health, water and sanitation including India.
- **Childhood blindness**: Childhood blindness is caused mainly by vitamin A deficiency, measles, conjunctivitis in the newborn, congenital cataract and retinopathy of prematurity (ROP).

Other causes of childhood blindness that are congenital, or genetically determined, do not generally lend themselves easily to preventive strategies at present.

Childhood blindness is considered as a priority area, because of the number of years of blindness that ensues. Its developmental implications are tremendous.

Deaf Blindness

To know more about deaf blindness let us understand the four groupings of individuals who are deaf blind.

- ***Congenitally deafblind***: Individuals who are born with vision and hearing losses.
- ***Congenitally deaf, adventitiously blind***: Individuals who are born with deafness and later acquire blindness.
- ***Congenitally blind, adventitiously deaf***: Individuals who are born with blindness and later acquire deafness.
- ***Adventitiously deafblind or acquired deafblind***: Individuals who are born with hearing and vision senses

but later lose both the senses in varying degrees and at different times.

1.2.4 Intervention

Intervention is a major and important aspect of rehabilitation process. It is a team approach, in which the role of parents, family members and community people are equally important. Let us now take a focused look at intervention in the case of sensory impairment.

Hearing Impairment

Approximately 1 of every 1,000 children is born deaf. Many more are born with less severe degrees of hearing impairment, while others develop hearing impairment during childhood. Reduced hearing acuity during infancy and early childhood interferes with the development of speech and verbal language skills. Although less well documented, significantly reduced auditory input also adversely affects the developing auditory nervous system and can have harmful effects on social, emotional, cognitive and academic development, as well as on a person's vocational, and economic potential. Moreover, delayed identification and management of severe to profound hearing impairment may impede the child's ability to adapt to life in a hearing world or in the deaf community.

The family members who have just come to know that their child has a hearing loss typically have no prior experience or information about what this means for their child and family. Since more than 90 per cent of the parents with a child who is deaf or hard of hearing are themselves able to hear, the news often comes as a complete surprise. Although parents react to the identification of their child's hearing loss in many different ways, they often need support as they adjust to this new and unexpected information. Parents want information about their child's hearing abilities, how to communicate clearly, and how they can enhance their child's development. Early intervention services provide families with support and information that promote the family's abilities to support their child's growth and development, keeping in mind the special needs of the child. The intervention in the case of hearing disability consists of language and speech therapy, behavior therapy, family counselling and fitting of hearing aid and ear mold.

The most important period for language and speech development is generally regarded as the first 3 years of life and, although there are several methods of identifying hearing impairment during the first year, the average age of identification in the United States remains close to 3 years and even higher in India. Lesser degrees of hearing loss may go undetected even longer. The result is that for many hearing-impaired infants and young children, much of the crucial period for language and speech learning is lost. There is general agreement that hearing impairment should be recognized as early in life as possible, so that the remediation process can take full advantage of the plasticity of the developing sensory systems and so that the child can enjoy normal social development.

During the past 30 years, infant hearing screening has been attempted with a number of different test methods, including cardiac response audiometry, respiration audiometry, alteration of sucking patterns, movement or startle in response to acoustic stimuli, auditory brain stem response (ABR) audiometry has been the method of choice. More recently, attention has turned to the measurement of evoked otoacoustic emissions (EOAE), which show promise as a fast, inexpensive, non-invasive test of cochlear function.

Each method is effective in its own way, but technical or interpretative limitations have impeded its widespread application. Moreover, these approaches vary in their sensitivity, specificity and predictive value in identifying hearing impairment.

Visual Impairment

Following are some of the interventions for visually impaired persons.

Sensory Training

Many people believe that persons with visual impairment have God given abilities in using their senses but it is not true. The abilities of the senses will not develop unless they are specifically trained. As sighted persons tend to rely mostly on the vision, the other senses are not used to the optimum level whereas a visually impaired person is compelled to use other senses. Therefore, proper training in the use of the remaining senses becomes vital. The ability to use the senses enhances the orientation and mobility skills of the child too as concepts like landmark, clue, etc., that we use in the mobility training help the child to understand the environment better. Therefore, systematic development of the abilities to use the senses becomes an integral part of the training to the visually impaired child.

Orientation and Mobility

There are visually disabled individuals who are extremely capable of moving independently without any physical assistance in a known environment. Such individuals have a complete control over things in the environment and their judgment about the distance, direction, etc. of these objects and the relation to self may be remarkable. Visually disabled children are trained by teachers and mobility instructors to have safe, secure and graceful mobility skills. Persons with these abilities are able to move unassisted in known environment. Though this is commendable, the visually disabled individual must be encouraged to use a mobility device as it provides independence even in an unknown environment. The skills also differ between visually disabled person from birth and the one who has acquired blindness later in life.

To improve the mobility, visually impaired persons use the following:

- ***Sighted guide travel***: We also come across visually disabled individuals who prefer to travel with the help of a sighted companion. Specific sighted guide techniques are necessary both for the guide and for the visually disabled individual. This technique has both merits and limitations. The visually disabled individual can feel safe and walk gracefully in the company of the sighted guide. On the other hand, if the sighted guide is the only helper in travel, the visually disabled individual will be developing dependence which is not conducive for her or his overall development.

- ***Long cane technique***: The long cane which is popularly known as the ‘white cane’ is widely used by visually disabled individuals. The cane can help in finding surfaces of different textures, stairs, etc. Visually disabled person should use certain clues and landmarks while using long cane for independent travel.

Daily Living Skills

Daily living skills may be treated as basic survival skills. These are the abilities which enable the visually impaired children to carry on their daily routine without assistance or with minimum assistance. Development of these abilities instills confidence in the children for their mainstreaming with non-disabled children. It is often misunderstood that loss of sight means darkness and incapacity in life. Research studies strongly indicate that it is not true. Daily living skills develop in an individual only by practice and therefore, adequate practice should be given to the child.

Now, the main question that arises here is, ‘‘What is to be done for developing daily living skills?’’.

In daily life, the individual comes across a wide range of events. Combing the hair may be a minor activity compared to preparation of a complete meal but both are important in their own ways. How to teach such activities to the unseeing person is a vital and formidable task. Alternative strategies have to be worked out if the usual techniques fail. Besides, the strategies and instructional procedures, criteria for performance assessment are also needed. Therefore, diagnosis of areas, development of strategies, and evaluation of performance of daily living skills are equally important. There are no special daily living skills for visually impaired children. Whatever skills are expected of a sighted person, the same are also expected of a visually impaired person. Therefore, considering skills of sighted children as reference, may helps in planning better strategies for teaching daily living skills to visually disabled children. The six-stage strategy in teaching daily living skills may be as follows:

Observation of the daily living skills exhibited by sighted children at various grade levels,

- Diagnosing the difficulties faced by visually disabled children in acquiring those skills in a natural manner,
- Designing pre-requisite skills after necessary diagnosis of difficulties encountered by visually disabled children,
- Teaching those readiness skills which lead to the learning of daily living skills,
- Preparing evaluation criteria to measure the level of acquisition of daily living skills, and
- Evaluating the performance of the children in daily living and suggesting appropriate remedial measures.

Daily living skills in an individual are vital ingredients for proper social development. The skills should be in accordance with the norms of any society. The absence of sight in the visually disabled person imposes a restriction on acquiring information of the world in a natural way. This area needs to be strengthened in the overall curriculum of visually impaired children in schools and in rehabilitation programs. Teaching these skills to visually disabled children may be difficult but not impossible.

Deaf Blindness

As the popular sayings state ‘early intervention is the best prevention’ or ‘prevention is better than cure’.

It is vital for medical professionals to be sensitive to their role as the medical care provider on the team promoting rehabilitative therapies for children with disabilities. Medical professionals can help in creating an environment in which the physician, family and other service providers work together in a caring, collegial, and compassionate atmosphere that ensures that early intervention services are of high quality, accessible, continuous, comprehensive and culturally competent.

Some of the early interventions that can be used for persons with both visual and hearing impairments are discussed below:

- ***Pharmacotherapy***: Physicians can recommend the appropriate medicine to the child after considering the condition of the child.
- ***Therapeutics***: Physicians can play a vital role in guiding the therapists like physiotherapist, occupational therapist and/or speech therapist. They can suggest the therapist about the condition of the child, the prognosis, risks for associated disabilities and the effect of continuing drugs thereby affecting therapy decisions.
- ***Clinical assessment***: Families of children with multiple disabilities need support in the area of clinical assessments from doctors. Complete and appropriate information in a simple manner about the child's exact condition is a need for all family members. Appropriate diagnosis for sensory conditions, epilepsy, degenerative disorders, surgeries, biochemical reactions and so on is extremely important for families to cope with the everyday needs of children with multiple disabilities. Often after a thorough check up and diagnosis, families have little idea on what to expect from their child in the future or their role in the child's medical intervention. Interpreting the diagnosis in a simple and straight manner will help the parents to prepare as per the child's medical needs.
- ***Genetic counselling and family counselling***: This is a specialized area for medical professionals and more so in the area of multiple disabilities. Most causes for disabilities are related to genetic factors. A genetic test, analysis and counselling at the appropriate time will reduce the occurrence of children with multiple

disabilities and impede the spread of the disability further.

1.3 MENTAL RETARDATION

Mental retardation is a developmental disability characterized by inadequate adaptation to societal demands. This disability is typically diagnosed in early childhood, when a discrepancy is recognized between a child's level of intellectual and adaptive functioning and that of children of the same chronological age.

The American Association on Mental Retardation (AAMR) has served as the premier authority on matters of definition and classification for mental retardation since 1876. The Diagnostic and Statistical Manual of Mental Disorders (DSM), published by the American Psychiatric Association (APA), incorporated the AAMR definition beginning in 1968.

AAMR (2002) defines mental retardation as a "state of functioning beginning in childhood that is characterized by limitations in intellectual and adaptive skills".

1.3.1 Criteria to Diagnose Mental Retardation

The DSM-IV TR definition has three criteria that must be met for a diagnosis of mental retardation:

- Significantly subnormal intellectual functioning,
- Impairments in adaptive functioning, and
- Onset before 18 years of age.

Intelligence-Test Scores

The first component of the DSM definition requires a judgment of intelligence. According to the DSM, subnormal intellectual functioning is an IQ of approximately 70 or less obtained on a standardized and well recognized instrument that has been developed specifically to assess intelligence (e.g., Wechsler Intelligence Scale for Children, Stanford-Binet, etc.). Approximately 3 percent of the population falls into the criterion of "significant sub average general intellectual functioning."

The determination of IQ should be based on tests administered by a competent, well trained professional. While Interpreting scores the clinician must take into account cultural, linguistic and sensory or motor limitation that may affect performance. For example, when testing a child with cerebral palsy who has limited use of his or her hands, the examiner might select IQ tests that require verbal responses or simple gesture responses, rather than the traditional intellectual tests, which include a nonverbal or performance component requiring complex and rapid motor movements. Similarly, a child who speaks Hindi at home and English at school cannot be tested in a valid way using only English-language measures (American Association of Mental Retardation [AAMR], 1992).

Adaptive Functioning

Adaptive functioning refers to mastering childhood skills such as toileting and dressing; understanding the concepts of time and money; being able to use tools, to shop, and to travel by public transportation; and becoming socially responsive. An adolescent, for example, is expected to be able to apply academic skills, reasoning, and judgment to daily living and to participate in group activities. An adult is expected to be self-supporting and to assume social responsibilities.

Several tests have been constructed to assess adaptive behavior. Best known are the Adaptive Behavior Scale, or ABS and the Vineland Adaptive behavior Scales. One main problem with many assessments of adaptive behavior is that they fail to consider the environment to which the person must adapt. A person who lives in a small rural community Mental Retardation where everyone is acquainted may not need skills as complex as those needed by someone who lives in New Delhi. Youngsters who are competent working at farm chores, walking to school, and shopping at the local store may, when transported to a city, be considered deficient in adaptive behavior if they are not able to ride the metro or take the subway to school or buy groceries at a store where English is spoken. By the same token, city children may find themselves at a loss with some of the activities expected of the youngsters living on a farm. An effective and valid assessment of adaptive behavior should therefore consider the interaction between the child and the surroundings in which he or she must function.

Age of Onset

The final definition criterion is that mental retardation should manifest before age eighteen, so that any deficits in intelligence and adaptive behavior from injury and illness occurring later in the life is not classified as mental retardation. Children with severe impairments are often diagnosed during infancy. Most Children considered mentally retarded, however, are not identified until they enter school. These children have no obvious physiological, neurological, or physical manifestations, and their problems become apparent only when they are unable to keep up with their peers in school.

1.3.2 Classification of Mental Retardation

The most consistent feature of mental retardation is that the person learns very slowly. Other areas of difficulty are attention, short-term memory, planning, and language. DSM-IV-TR describes four levels of severity of mental retardation based on IQ levels as the criteria in distinguishing ranges of impairment. But IQ ranges are not the sole basis of diagnosis; deficiencies in adaptive behavior are also a criterion of mental retardation. For example, if a person's IQ falls in the mildly retarded range but shows no deficits in adaptive functioning then he would not be considered mentally retarded. In fact the IQ criterion should be applied after deficits in adaptive functioning have been identified.

The following is a brief summary of characteristics of people at each level of mental retardation.

Mild Mental Retardation

Mild mental retardation (IQ range, 50-55 to 70) represents approximately 85 percent of persons with mental retardation. In general, children with mild mental retardation are not identified until after first or second grade, when academic demands increase. By late adolescence, they often acquire academic skills at approximately a sixth grade level. Specific causes for the mental retardation are often unidentified in this group. As adults they are likely to be able to maintain themselves in unskilled jobs or in sheltered workshops, although they may need help with social and financial problems. Many adults with mild mental retardation can live independently with appropriate support and raise their own families.

Moderate Mental Retardation

Moderate mental retardation (IQ range, 35-40 to 50-55) represents about 10 percent of persons with mental retardation. Most children with moderate mental retardation acquire language and can communicate adequately during early childhood. They are challenged academically and often are not able to achieve academically above a second to third grade level. During adolescence, socialization difficulties often set these persons apart, and a great deal of social and vocational support is beneficial. Brain damage and other pathologies are frequent. People with moderate mental retardation may have physical defects and neurological dysfunctions that hinder fine motor skills, such as grasping and coloring within lines, and gross motor skills, such as running and climbing. As adults, persons with moderate mental retardation may be able to perform semiskilled work under appropriate supervision.

Severe Mental Retardation

Severe mental retardation (IQ range, 20-25 to 35-40) comprises about 4 percent of individuals with mental retardation. They typically demonstrate basic motor and communication deficits during infancy. Many also show signs of neurological dysfunction and have an increased risk for brain seizure disorder, or epilepsy. In school, they may be able to string together only two or three words when speaking. Individuals in this category usually require careful supervision, profit somewhat from vocational training, and can perform only basic work tasks in structured and sheltered settings. Their understanding of communication is usually better than their speech. In adulthood, persons with severe mental retardation may adapt well to supervised living situations, such as group homes, and may be able to perform work-related tasks under supervision.

Profound Mental Retardation

Profound mental retardation (IQ range below 20-25) constitutes approximately 1 to 2 percent of persons with mental retardation. Most individuals with profound mental retardation have identifiable causes for their condition. This level of retardation is very noticeable at birth or early infancy. With training, people with profound mental retardation may learn or improve basic skills such as walking, some talking, and feeding themselves. They need a very structured environment, with close supervision and considerable help, including a one-to-one relationship with a caregiver, in order to develop to the fullest.

Severe and profound levels of mental retardation often appear as part of larger syndromes that include severe physical handicaps. The physical problems are often even more limiting than the individual's low intellectual functioning and in some cases can be fatal.

The four ranges of MR, according to the DSM-IV-TR (APA, 2000) are:

- Mild MR: 50–55 to approximately 70 IQ
- Moderate MR: 35–40 to 50–55
- Severe MR: 20–25 to 35–40
- Profound MR: Below IQ of 20–25

1.3.3 Causes of Mental Retardation

Mental retardation could be caused due to various factors. It could be a result of injury, disease, brain abnormality, genetic disorder, malnutrition, etc. At times, the cause of mental retardation is unknown. The various known reasons for mental retardation are discussed below.

Genetic Factors

Mental retardation could be caused by genetic factors that the child inherits from the parents in the form of chromosomes and genes. In a normal human being, there are 46 chromosomes or twenty-three pairs of chromosomes, of which twenty-two pairs are called autosomes or non-sex chromosomes and the twenty third pair consists of sex chromosomes. Chromosomes are made of genetic material called genes. Each gene within these pairs of chromosomes has a duplicate gene on the matching chromosome. Deformities may occur during the formation of ovum or sperm. The error occurs when the process of meiosis takes place. The resultant mental retardation conditions are:

- ***Down Syndrome***: Down syndrome is also called mongolism. The person has an extra or deviant chromosome. Down syndrome individual has 21st chromosome genetic disorder. Down syndrome is named after the physician who first described it. This is of three types:
    - ***Trisomy 21***: In this, there is an extra 21st chromsome. Instead of having a pair of 21st chromsome, the person has a triplet of 21st chromosome causing a condition called trisomy.

  - ***Masoicism (Mosaic type)***: In this the person shows trisomy 21st only in a portion of the analysis of blood or skin cells and the rest shows normal 46 chromsomes. So, some parts of the body have faulty development while the other body parts have normal development.
  - ***Translocation***: In this, extra chromosomal material, that is, whole or part of chromosome is attached to another chromosome. In simple words, all or part of the extra chromosome of the twenty-first pair becomes attached to another chromosome pair.
- ***Phenylketonuria (PKU)*** : It involves the inability of the body to convert an amino acid − phenylalanine found in protein foods to tyrosine due to lack of the enzyme needed for the purpose. The accumulation of phenylalanine leads to abnormal brain development and may result in severe mental retardation. A special low protein diet helps to reduce and improve this condition.
- ***Tay–Sachs disease***: It happens when both mother and father are carriers of this disease. It results in progressive brain damage and eventually death of the person.
- ***Cri-du-chat syndrome or Prader-Willi syndrome***: It is an autosomal abnormality and is caused due to deletion of 4th – 5th chromosomes.
- ***Fragile X Syndrome***: It happens from a mutation on the long arm of the X chromosome, and it affects about twice as many males as females – about once in four thousand (Kirk et al, 2006). Fragile X syndrome is the most common form of inherited mental retardation.

Other reasons for mental retardation could be:

- Trisomy 13-15
- Trisomy-18
- Klinefelter syndrome
- Turner syndrome
- Triple X syndrome

Prenatal Causes

The mal-development of the embryo or foetus resulting in mental retardation occurs due to the following factors during pregnancy:

- German measles (Rubella) in the first trimester (first three months) of pregnancy,
- Toxemia,
- Syphilis,
- Influenza,
- Encephalitis,
- Incompatibility between the Rh factor and blood group of the mother's blood and that of the foetus.
- Consumption of alcohol during pregnancy leads to foetal alcohol syndrome(FAS).
- Smoking (nicotine), coffee (caffeine), tea (tannins) have a harmful effect on foetus,
- Heavy metals like lead, cadmium, mercury affect the prenatal development of human brain,
- Drugs both medicinal and non-medicinal like cocaine, opium, smack etc. have a harmful effect on the growing foetus,
- Radiation like X-rays, etc. are quite harmful to the foetus, and
- Oxygen deprivation to the foetus or embryo leads to depletion of brain cells and therefore, mental retardation.

Perinatal Causes

The perinatal causes are the factors that result in mental retardation during the birth process. These are given below:

- During the birth process, lack of oxygen (called anoxia) to the central nervous system results in mental retardation,
- Use of forceps during birth may fracture the skull and cause brain damage, and

- Neonatal jaundice.

Postnatal Causes

Postnatal causes are also known as after birth factors that can lead to mental retardation. These are listed below:

- Illness like meningitis, encephalitis, whooping cough or measles,
- Asphyxia under anesthesia or from drowning or cardiac arrest may lead to permanent brain damage,
- Malnutrition and lack of protein during early childhood years has an adverse effect on intellectual functioning, and
- Niemann - Pick disease is a disorder of lipid metabolism during early infancy which may cause mental retardation.

Other Conditions

There are some other conditions also that may cause mental retardation, these are:

- **Cranial anomalies**: In this, there are alterations to the size and shape of the head. It is of three types:
    - ***Macrocephalus*** : In this, there is an abnormal increase in the size and weight of the brain.
    - ***Microcephalus*** : In this, there is a decrease in the size and weight of the brain.
    - ***Hydrocephalus*** : In this, a rare disorder, there is an abnormal amount of cerebro-spinal fluid within the cranium causing its enlargement and damage to brain tissue.
- Head injury,
- Stroke,
- Iodine deficiency,
- Severe sensory deprivation,
- Severe atypical parent-child interactions, and

- Psycho-social disadvantage like poor diet, poor health practices, poor housing, and use of such language which is not common in the community.

1.3.4 Prevalence of Mental Retardation

The prevalence of mental retardation at any one time is estimated to range from 1 percent to 3 percent of the population. The incidence of mental retardation is difficult to calculate because mild mental retardation sometimes goes unrecognized until middle childhood. In some cases, even when intellectual

Remember that Terman's idea of the intelligence quotient (IQ) allows for comparing the mental functioning of children of different ages. The formula is to divide mental age by chronological age (multiply by 100). For example, Sham is 8 years old (chronologically), but he functions like a 6 year old. His IQ would be 6/8 × 100 = 75.

1.3.5 Prevention and Treatment of Mental Retardation

Prevention of mental retardation depends on understanding its causes. The importance of prevention and early intervention cannot be overemphasized. Prevention programs have to be launched at all levels of intervention from prenatal awareness campaigns (Effects of drug abuse and alcohol; genetic counselling) to early intervention programs targeting parenting skills and early stimulation programs. The impact of early intervention programs within the first 5 years of life has been documented in various studies in the prevention of cognitive declines.

Interventions for children with MR vary widely depending on the specific area (behavioral or intellectual) targeted for improvement. The majority of interventions focus on the reduction of behavioral/ emotional issues, or increasing social, educational, or adaptive functions.

Behavioral Interventions

Behavioral programs have been very successful in targeting and altering problematic social, emotional, and behavioral concerns. The reason for the success of the behavioral programs can be linked to their focus on breaking down problem behaviors into component parts (simplicity) and to systematically shape behaviors into more socially adaptive behaviors through contingency management. There is a wealth of empirical support for the use of behavioral methods with MR populations.

There are many different techniques that can be adapted to suit programs across the developmental spectrum and can be applicable to a wide range of problem behaviors (e.g., behavior chaining, secondary rewards, token economies).

Applied Behavior Analysis (also known as Intensive Behavioral Intervention or IBI) is one of the more effective teaching strategies devised for helping mentally retarded children to learn. The approach is based squarely on learning theory and classical and instrumental learning approaches.

Applied behavior analysis takes complex tasks (such as eating) and breaks them down into their most fundamental parts (pick up spoon, scoop food from plate onto spoon, bring spoon to mouth, remove food with lips, chew and swallow food). Skills are systematically introduced in small steps. As one small skill is mastered, the next is introduced. Students learn by making simple associations between causes and effects. They are presented with a stimulus (an object or a signal) and given an instruction. If they respond appropriately, they are immediately rewarded and inappropriate behaviors are ignored, redirected, or discouraged. Applied behavior analysis's emphasis on providing immediate rewards for correct behavior is crucial to motivation.

Behavioral programs that use contingency management techniques (such as consequences for good behavior i.e. rewards; or consequences for inappropriate behaviors, such as removal of privileges) can be developed to either decrease inappropriate behaviors (aggression, noncompliance) or increase deficit behaviors (compliance, social skills) at school and in the home.

Cognitive Interventions

Many children with mental retardation fail to use strategies in solving problems, and when they do have strategies, they often do not apply them effectively. Selfinstructional training teaches these children to guide their problem-solving efforts through speech. Meichenbaum and Goodman (1971) outlined a five-step procedure.

- The teacher performs the task, speaking instructions aloud to himself or herself while the child watches and listens.
- The child listens and performs the task while the teacher says instructions to the child.
- The child repeats the task while giving himself /herself instructions aloud.
- The child repeats the task again while whispering the instructions.
- Finally, the child is ready to perform the task while uttering instructions silently to her/him.
- Children with more severe retardation use signs rather than speech to guide themselves trough the tasks.

Self-instructional training has been employed to teach retarded children self-control and how to pay attention as well as how to master academic tasks. Children with severe retardation can effectively master self-help skills through this technique.

Computer Assisted Instructions

Computer assisted instruction is increasingly found in educational settings of all kinds. It might be especially helpful in the education of individuals with mental retardation. The visual and auditory components of computers help maintain the attention of distractible students. The level of the material can be made to suit the level of the child and also the computer can meet the need for numerous repetitions of material without getting bored or impatient as a human teacher might.

Parent Training Programs

Including parents in the intervention process (whether academic, behavioral, or social) is extremely important. Research has demonstrated that parents can be effective monitors of their child's progress and improve overall success by helping children to transferring skills from one situation to the next. There are many ways that parents can increase their child's success, such as helping in transferring skills learned at school to the home environment or skills learned in leisure activities to social activities. Transferring information across situations is one of the more difficult tasks for children with mental retardation.

1.3.6 Intervention

Appropriate interventions for the child with mental retardation are important for the child's optimum development, including social adjustment, psychological well-being and educational growth. Intervention has to be need based, that means depending on the needs and requirements of a particular child. Intervention can be given in a group of similar children with similar needs and problems like same IQ, social skills, adaptive behaviour etc. It has to be given in the least restrictive environment to the child. Professional trained educators and sensitised parents can teach and help the child with mental retardation. The child should be provided opportunities to interact with non-disabled peers and community members.

Intervention for Infant

Counselling, family therapy, parent training, language services, assistive technology, intervention for sensory organs, nutrition counselling, occupational therapy and physiotherapy may be provided to the infant who is suffering from mental retardation. It could be home based or institution based.

Intervention for Preschool and School Child

The services for preschool and school going child are mostly center based. Individualized Education Plan (IEP) should be used even for children in the same classroom. Both parents and teachers coordinate with each other to maximize their child's learning and achievement. The intervention services mentioned for infant can also be used here.

Social Intervention

Participation with non-disabled peers in social functions and family ceremonies like birthday party, sports, marriage, etc. benefit in teaching appropriate social skills to the child with mental retardation. Parent support group meetings of children with mental retardation should be frequently held so that parents and/ or caregivers get the opportunity to express their feelings, share experiences and learn from others' experiences.

Education for Children with Mild and Moderate Mental Retardation

During early elementary school, emphasis is more on providing the children with readiness skills and development of abilities that are prerequisites for later learning. Hallahan and Kauffman (1991), said that these include such activities as the ability to:

- Sit still,
- Obey teacher,
- Discriminate auditory and visual stimuli,
- Follow directions,
- Develop language,
- Increase gross and fine motor coordination,
- Develop self-help skills, and
- Interact with peers in a group situation.

Education for Children with Severe and Profound Mental Retardation

Educational programs for children with severe and profound mental retardation according to Hallahan and Kauffman (1991) should include the following:

- Age appropriate curriculum and materials,
- Functional activities,
- Community based instruction,
- Integrated therapy among a variety of professionals such as speech, physical and occupational therapists,
- Interaction with non-disabled students, and
- Family involvement.

1.3.7 Role of Community Members

Environment effects learning of all children – whether normal or those with mental retardation. Role of the community members hence become important. Community members dealing with a child with disability need to be more compassionate, patient and skillful in meeting the challenges of the child. Teachers and parents influence the child the most.

Teachers

Special educators play a significant role for children with mental retardation. Many children go to normal schools and attend special classes. All schools follow, or should follow, an Individualized Education Program 'IEP' to teach the child according to the child's unique abilities, needs and requirements. A well organized and structured classroom environment should be provided. Teachers need to motivate the child to learn. Tools, equipment and materials present in the classroom should be child friendly. Teachers can help the child learn things using concrete experiences and simple verbatim. Teachers should also involve children in group activities. Parents of these children should be taken into confidence and both parents and teachers should work together for the child's optimum growth. Both parents and teachers should follow the same educational plan at a given time. Repetition and reinforcement are two important methods of teaching a child with mental retardation.

Parents

Parents need to overcome their shock and grief quickly to take care of their child with the disability. They should learn more about their child. Parents should consult counsellors and family therapist to help them to deal with this situation and develop resilience to help their children realise their potential. They should encourage and motivate their child to do things rather than making the child dependent on themselves. They should include their child in family functions and celebrations. Parents should be in constant touch with the teachers. They should follow the same educational plan as of teachers. Repetition, reinforcement along with motivation, encouragement, providing opportunities to act and do are important teaching methods for the parents of the child who suffers from mental retardation. Parents should also participate in parent support groups to share their experiences, feelings and concern with others having similar difficulties. The stress among parents is high on discovery of the problem and also when the child reaches adolescence and adulthood. Rehabilitation through educational and vocational training should be done.

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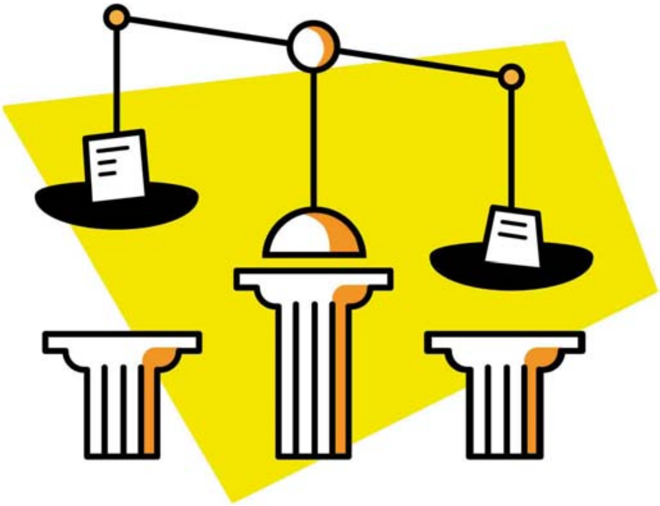
CHAPTER 2

SHIFTING MODELS OF DISABILITY: HISTORICAL PROGRESSION

INTRODUCTION

Disability is a contested concept, with shifting meanings in different communities. It has been referred to as an "embodied difference," but the term may also refer to physical or mental attributes that some institutions, particularly medicine, view as needing to be fixed (the medical model). It may also refer to limitations imposed on people by the constraints of an ableist society (the social model); or the term may serve to refer to the identity of disabled people. Physiological functional capacity (PFC) is a measure of an individual's performance level that gauges one's ability to perform the physical tasks of daily life and the ease with which these tasks are performed. PFC declines with advancing age to result in frailty, cognitive disorders, or physical disorders, all of which may lead to labeling individuals as disabled. According to the World Report on Disability, 15% of the world's population or 1 billion people are affected by disability. A disability may be readily visible, or invisible in nature.



These different understandings of the relationship of impairment to limitation inform two contrasting approaches to disability, often described as opposing models: the medical and social. The medical model understands a disability as a physical or mental impairment of the individual and its personal and social consequences. It regards the limitations faced by people with disabilities as resulting primarily, or solely, from their impairments. In contrast, the social model understands disability as a relation between an individual and her social environment: the exclusion of people with certain physical and mental characteristics from major domains of social life. Their exclusion is manifested not only in deliberate segregation, but in a built environment and organized social activity that preclude or restrict the participation of people seen or labelled as having disabilities.

In their extreme forms, the medical and social models serve to chart the space of possible relationships between impairment and limitation more than to reflect the actual views of individuals or institutions. (A variety of more formal models, described in Altman, 2001, graphically represent the causal complexity of disability.) The medical model is rarely defended but often adopted unreflectively by health care professionals, bioethicists, and philosophers who ignore or underestimate the contribution of social and other environmental factors to the limitations faced by people with disabilities.

2.1 SHIFTING MODELS OF DISABILITY

The shifting approaches to disability have translated into very diverse policies and practices. The various models of disability impose differing responsibilities on the States, in terms of action to be taken, and they suggest significant changes in the way disability is understood. Law, policy, programmes, and rights instruments reflect two primary approaches or discourses: disability as an individual pathology and as a social pathology.

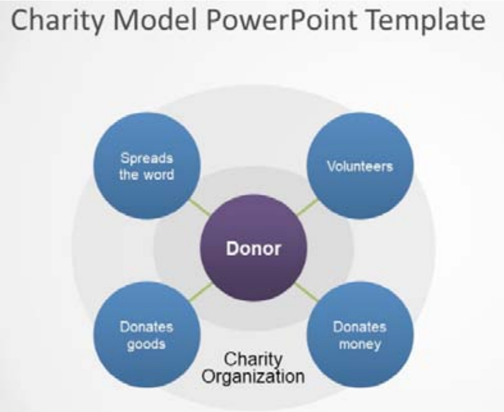
Within these two overriding paradigms, the six major identifiable formulations of disability are: the charity model, the bio-centric model, the functional model, the human rights model, The moral and/or religious model and The social model.

2.1.1 The Charity Model

The Charity approach to disability viewed as being in the 'best interests' of disabled people but it does not consider disabled people's experiences and knowledge as necessarily valuable or essential. This approach is about well meaning 'do-gooders' acting on our behalf without us. Because we aren't in control of the process little good, or even harm, is often the result.

In the past decades, people who follow the charity model have not so much tried to define disability as they have tried to redefine it. These attempts to redefine or rebrand disability have largely failed because they have been made by people, while well meaning, who are largely not disabled and who have a negative and paternalistic view of disability.

One example of the rebranding of disability through the charity model is the term handicapped. The word handicapped replaced gimp, crip/crippled, and lame. Handicap is an offensive and unacceptable term as it is derived from a gaming term which means to equal out a disadvantage by, for instance, spotting points or playing with one hand tied behind your back. The word handicap implies an inherent disadvantage that undermines the quality of disabled people's lives. Handicapped later became differently-abled, which establishes, by definition, what normal is and that we aren't it.


Charity Model PowerPoint Template

Spreads the word

Volunteers

Donor

Donates goods

Donates money

Charity Organization

Similarly, retard was transformed into slow and then to developmentally delayed or developmentally disabled. Again, these terms establish a norm, which is problematic. These terms also embed the concept in them that there is one line of development for people. They imply that people with intellectual disabilities have somehow stalled in their "development" and are fixed at a spot in time where their lives will be forever unfulfilled. They don't have room for the plethora of meaningful experiences that people with intellectual disabilities undergo.

Challenged is another term adopted by others on our behalf as a way of describing our lives. Where the medical model inserts diagnostic labels that are individualizing and define people's entire identities, politically correct liberals individualize our oppression by calling us challenged. This label tells us that all obstacles we face are because of our own minds and bodies, not because of social inequities and inaccessibility.

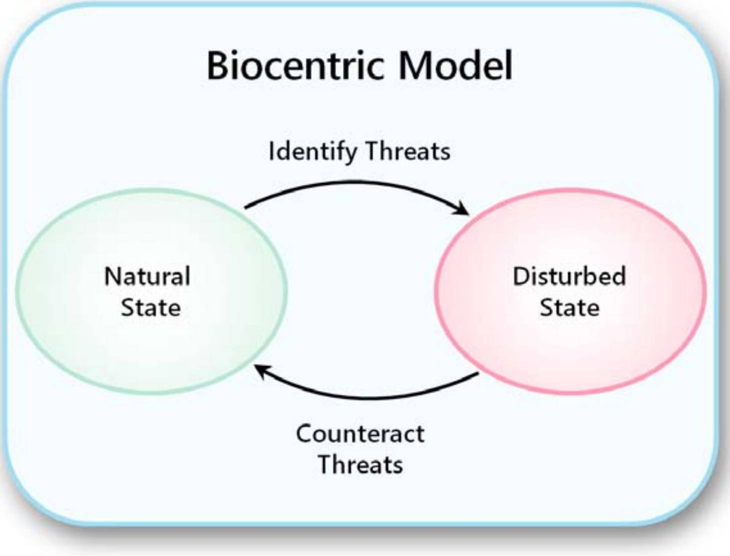
Furthermore, challenged, like developmentally disabled, differently-abled, and handicapped does nothing to change our lives, it doesn't build ramps, or housing; it doesn't provide interpreters or personal support workers; it doesn't bring equality or autonomy; and, it doesn't abolish segregation or discrimination. The attempts by well meaning liberals to establish "politically correct" terms to define disability are just that, attempts to dictate how things change for our benefit. In this case, nothing changes but the label.

The entire charity approach is designed to ensure that no real change ever occurs. It is about people doing good for others, it is not about change, it is not about liberation, it is about the agents of charity – the do-gooders feeling better about themselves and the world they live in.

2.1.2 The Bio-centric Model

The contemporary bio-centric model of disability regards disability as a medical or genetic condition. The implication remains that disabled persons and their families should strive for "normalisation", through medical cures and miracles. Although, biology is no longer the only lens through which disability is viewed in law and policy, it continues to play a prominent role in determining programme eligibility, entitlement to benefits, and it also influences access to rights and full social participation.

A critical analysis of the development of the charity and bio-centric models suggests that they have grown out of the "vested interests" of professionals and the elite to keep the disabled "not educable" or declare them mentally retarded (MR) children and keep them out of the mainstream school system, thus using the special schools as a "safety valve" for mainstream schools. Inclusive education offers an opportunity to restructure the entire school system, with particular reference to the curriculum, pedagogy, assessment, and above all the meaning of education.



2.1.3 The Functional Model

In the functional model, entitlement to rights is differentiated according to judgments of individual incapacity and the extent to which a person is perceived as being independent to exercise his/

her rights. For example, a child’s right to education is dependent on whether or not the child can access the school and participate in the classroom, rather than the obligation being on the school system becoming accessible to children with disabilities.

2.1.4 The Human Rights Model

The human rights model positions disability as an important dimension of human culture, and it affirms that all human beings are born with certain inalienable rights. The relevant concepts in this model are:

Diversity

The Greek philosopher, Aristotle, once said that “things that are alike should be treated alike, whereas things that are unalike should be treated unalike in proportion to their un-alikeness.” The principle of respect for difference and acceptance of disability as part of human diversity and humanity is important, as disability is a universal feature of the human condition.

Breaking Down Barriers

Policies that are ideologically based on the human rights model start by identifying barriers that restrict disabled persons’ participation in society. This has shifted the focus in the way environments are arranged. In education, for example, where individuals were formerly labelled as not educable, the human rights model examines the accessibility of schools in terms of both physical access (i.e., ramps, etc.) and pedagogical strategies.

Equality and Non-Discrimination

In international human rights law, equality is founded upon two complementary principles: nondiscrimination and reasonable differentiation. The doctrine of differentiation is of particular importance to persons with disabilities, some of who may require specialized services or support in order to be placed on a basis of equality with others. Differences of treatment between individuals are not discriminatory if they are based on "reasonable and objective justification". Moreover, equality not only implies preventing discrimination (for example, the protection of individuals against unfavourable treatment by introducing anti-discrimination laws), but goes far beyond, in remedying discrimination. In concrete terms, it means embracing the notion of positive rights, affirmative action, and reasonable accommodation.

Reasonable Accommodation

It is important to recognize that reasonable accommodation is a means by which conditions for equal participation can be achieved, and it requires the burden of accommodation to be in proportion to the capacity of the entity. In the draft Comprehensive and Integral and International Convention on Protection and Promotion of the Rights and Dignity of Persons with Disabilities, "reasonable accommodation" has been defined as the "introduction of necessary and appropriate measures to enable a person with a disability fully to enjoy fundamental rights and freedoms and to have access without prejudice to all structures, processes, public services, goods, information, and other systems."

Accessibility

The United Nations Economic and Special Commission for Asia and the Pacific (UNESCAP) has defined “accessibility” as “the measure or condition of things and services that can readily be reached or used (at the physical, visual, auditory and/or cognitive levels) by people including those with disabilities”.

Equal Participation and Inclusion

By focusing on the inherent dignity of the human being, the human rights model places the individual at centre stage, in all decisions affecting him/her. Thus, the human rights model, respects the autonomy and freedom of choice of the disabled, and also ensures that they, themselves, prioritize the criteria for support programmes. It requires that people with disabilities, and other individuals and institutions fundamental to society, are enabled to gain the capacity for the free interaction and participation vital to an inclusive society.

Private and Public Freedoms

The human rights approach to disability on the one hand requires that the States play an active role in enhancing the level of access to public freedoms, and on the other requires that the enjoyment of rights by persons with disabilities is not hampered by third-party actors in the private sphere. Educational institutions and industry, both in the public and private sectors, should ensure equitable treatment to persons with disabilities.

2.1.5 The Moral and/or Religious Model: Disability as an act of God

The moral/religious model of disability is the oldest model of disability and is found in a number of religious traditions, including the Judeo-Christian tradition. According to one of the primary forms of moral and/or religious models of disability, disability should be regarded as a punishment from God for a particular sin or sins that may have been committed by the person with disability. Henderson and Bryan (2011) offer a thorough explanation of the moral and/or religious model of disability:

> Some people, if not many, believe that some disabilities are the result of lack of adherence to social morality and religious proclamations that warn against engaging in certain behavior. To further explain this model, some beliefs are based upon the assumption that some disabilities are the result of punishment from an all-powerful entity. Furthermore, the belief is that the punishment is for an act or acts of transgression against prevailing moral and/or religious edicts.

McClure laments the devastating influence the thinking characteristic of the moral and/or religious model of disability has had on preaching, highlighting how some forms of Bible interpretation exclude PWDs by directly or indirectly equating '"blindness", "lameness", "deafness", "uncleanness" (chronic illness), mental illness (demonic possession), and other forms of disability . . . with human sin, evil, or spiritual ineptitude'.

Sometimes it is not only the individuals' sin that is regarded as a possible cause of their disability, but also any sin that may have been committed by their parents and/or ancestors. Elaborating on the negative impact of this model on the individual with disability and his or her family, Rimmerman emphasises the potentially destructive consequences of such a view, in the sense that it may lead to entire families being excluded from social participation in their local communities.

Another prominent form of the moral and/or religious model of disability is the idea that disabilities are essentially a test of faith or even salvific in nature. Niemann offers a concise description of the conception of disability as a test of faith, whereby 'individuals and families are specially selected by God to receive a disability and are given the opportunity to redeem themselves through their endurance, resilience, and piety'. Black points out that some people conceive of passing the test of faith as receiving physical healing. If the person does not experience the physical healing of their disability, he or she is regarded as having a lack of faith in God.

The moral and/or religious model of disability, whereby the challenges associated with disability are viewed as a God given opportunity for character development. Such an understanding regards the development and deepening of particular character traits (such as patience, courage and perseverance) as the primary focus of God's plan for PWDs. Consequently, PWDs may be regarded as 'blessed', as they have the opportunity to learn some important life lessons that able-bodied people do not necessarily have the opportunity to learn.

Sometimes the moral and/or religious model of disability perpetuates the myth of disability as mysticism or some kind of metaphysical blessing. According to the mysticism perspective of disability, the fact that one of the senses of a person is impaired inevitably heightens the functioning of other senses of that person, as well as granting him or her ‘special abilities to perceive, reflect, transcend, be spiritual’. From this perspective, ‘Individuals are selected by God or a higher power to receive a disability not as a curse or punishment but to demonstrate a special purpose or calling’.

Although the moral and/or religious model of disability is no longer as prevalent as it was in in premodern times, the basic philosophy underlying the model is still frequently encountered in the way people reason when confronted with illness or disability. Moreover, there are certain cultures where the moral and/or religious model of disability is still the predominant view, especially ‘societies dominated by religious or magical ways of thinking’. In such societies, PWDs are often severely marginalized, even facing the prospect of abandonment or infanticide.

2.1.6 The Social Model

The social model of disability identifies systemic barriers, derogatory attitudes, and social exclusion (intentional or inadvertent), which make it difficult or impossible for individuals with impairments to attain their valued functionings. The social model of disability diverges from the dominant medical model of disability, which is a functional analysis of the body as a machine to be fixed in order to conform with normative values. While physical, sensory, intellectual, or psychological variations may cause individual functional limitation or impairments, these do not necessarily have to lead to disability unless society fails to take account of and include people regardless of their individual differences.

The social model of disability is based on a distinction between the terms impairment and disability. In this model, the word impairment is used to refer to the actual attributes (or lack of attributes) that affect a person, such as the inability to walk or breathe independently. The word disability is used to refer to the restrictions caused by society when it does not give equivalent attention and accommodation to the needs of individuals with impairments.

It is the attitudes and physical barriers imposed on them by society

As a simple example, if a person is unable to climb stairs, the medical model focuses on making the individual physically able to climb stairs. The social model tries to make stair-climbing unnecessary, such as by replacing the stairs with a wheelchair-accessible ramp. According to the social model, the person remains impaired with respect to climbing stairs, but the impairment should no longer be considered disabling in that scenario, because the person can get to the same locations without climbing any stairs.

2.2 CONCEPT OF DEVELOPMENTAL DISABILITY

The concept of developmental disability was formalized in the United States in the 1960s, but it was not widely recognized internationally until the 1970s. In its original incarnation in the United States, in a proposed revision to the 1963 Mental Retardation Facilities and Community Mental Health Centers Construction Act, the term developmental disability was used in place of mental retardation. When the act was reauthorized in 1970, the two terms appeared together, where developmental disability was defined as a “disability attributable to mental retardation, cerebral palsy, epilepsy, or another neurological condition” that originates prior to age 18.

The federal definition in the United States has undergone a number of revisions since the original act. In the 1975 amendment, for example, autism and dyslexia were added to the roster of developmental disabilities, and in the 1978 amendment a non-categorical approach to developmental disabilities marked a significant conceptual change. Rather than using diagnoses of specific conditions (e.g., cerebral palsy or autism), developmental disabilities were defined in terms of functional limitations in major life activity areas. The criteria of severity, chronicity, and origination prior to adulthood remained in the definition. Thus, if substantial care and support were unnecessary, one could have cerebral palsy or autism but not be considered developmentally disabled.

In practice, the U.S. federal definition of developmental disability serves more as a conceptual statement than as a diagnostic standard. In its various incarnations, the term is used interchangeably with diagnostic disability categories and commonly as an alternative for the term intellectual disability (a term that superseded mental retardation). U.S. state governments employ their own eligibility standards using the framework of the federal guidelines but anchored primarily on the older diagnostic groupings of the original definition of developmental disability.

International use of the developmental disability concept is less-formalized and equally variable in application. The term is used interchangeably to represent congenital disorders, conditions arising from trauma or other damage to the brain or nervous system, and other chronic disabling conditions emerging during infancy or childhood.

2.2.1 Causes and Prevalence of Developmental Disabilities

For the majority of persons who have a developmental disability, the underlying cause is unknown. In many instances, developmental disabilities are associated with a broad array of developmental risks that can impair neurological function, including hereditary disorders, perinatal and neonatal complications, malnutrition, disease, and trauma.

The rate of occurrence of developmental disabilities is also highly variable, because of differences in definitions and in reporting. For example, developmental disabilities were estimated to affect as many as one in six children in the United States over the period from 2006 to 2008. About 7.3 percent of children in the United Kingdom were reported to be disabled, based on survey data from 2004–05. In 2009 an estimated 7.2 percent of children under age 14 were reported to be disabled in Australia.

Of the limited epidemiological data available from less-developed countries, reported rates range from 5 to 25 per thousand in the general population. Such variations are not unexpected given the differences in sampling and screening methods used across studies as well as the dissimilar circumstances of risk in different countries. Nonetheless, important risk factors for developmental disabilities, such as trauma, infectious diseases, and malnutrition, tend to be more pronounced in the developing world than in the developed world. Thus, the elevated risk of developmental disability could translate into increased prevalence in less-developed countries.

2.2.2 Services, Research, and Policy

The study of developmental disability spans the breadth of human endeavors; those who work in fields ranging from molecular genetics to civil rights have investigated the concept. A useful organizing template is the International Classification of Functioning, Disability, and Health (ICF), which describes disability across multiple dimensions, including body function and structure, activities and participation, and environmental factors. In general, the dimension of body function and structure refers to body parts involved in mental performance, sensory perception, and speech, in addition to the function and structure of organ systems. The concept of activities in the ICF refers to the performance of specific tasks, and participation reflects involvement in life situations. The expansion of publicly and privately supported services in education, employment training, family support, health care, income support, and residential care have helped to improve activity and participation for many persons affected by developmental disabilities.

Early in the legislative development of the developmental disability concept, the focus of policy was shaped by the idea that the environment in large measure determines the extent of disability. Thus, emphasis was placed on "rights" in the authorizing legislation. The U.S. federal effort developed in parallel with the emerging human rights-based themes of disability advocacy through the United Nations in the 1970s, and both developments were indirectly influenced by the emerging Scandinavian concepts of integration and normalization.

Policy was and remains anchored on the ideal of inclusion: abandonment of segregated institutional care in favor of community-based housing, education in community schools, and emphasis on civil and human rights through legal and other legislative means. Although implementation lagged behind the ideal, the efforts dramatically transformed the options available to persons with developmental disabilities. Within resource-poor countries, service models are anchored on similar themes of social integration, opportunity, and the reduction of stigma. The rise of community-based rehabilitation (CBR) models in less-developed countries in the 1980s, in which local resources and family networks were employed in providing support, enabled increasing numbers of persons with developmental disabilities to live as members of their communities.

2.2.3 Advances in the Field of Developmental Disability

The ethos of human rights and rapid advances in understanding of the basic sciences of human development have been viewed as both productive and challenging for the field of developmental disability. Advances in biology and medicine, for example, could lead to new therapies while also creating difficult ethical challenges. The emergence of human and civil rights as a relevant agenda item for persons with severe disabilities in the post-World War II era dramatically altered the character of the developmental disability dialogue. Humane care was replaced by human rights as a guiding force for shaping services and policy. Yet the logical extension of advances in the biological sciences is the elimination of impairments and prevention of defects, perceived or real. The ability of persons with significant developmental disability to fit into society remains an issue in countries throughout the world, and in many cases that issue is anchored to the discussion of how humanity is defined. The juxtaposition of these questions of disability, inclusion, and humanity represents a major challenge in the evolving conceptualization of developmental disability.

2.3 DISABILITY CULTURE

Disability culture, the sum total of behaviors, beliefs, ways of living, and material artifacts that are unique to persons affected by disability. Particular definitions of culture take many different forms and are context-bound (dependent on the cultural and geographic context in which they are formed), but three common ways of thinking about disability culture are (1) historical, (2) social and political, and (3) personal and aesthetic. Historical definitions of disability culture focus on art, poetry, language, and social community developed by disabled people. Definitions of disability culture that blend the social and the political focus on a minority-group distinction with common values of social and economic justice, radical democracy, and self-empowerment. Notions of disability culture grounded in the personal and the aesthetic emphasize a way of living and positive identification with being disabled.

Although concepts of culture vary as much as concepts of disability, one concept does seem clear. The experience of disability is embedded in culture and the social relations of culture. Those relations influence the ways in which the importance and meaning of disability are defined, and they shape the association of disability with functional impairment. Functional impairment generally is recognized as a loss or limitation of physical, mental, or sensory function, typically on a long-term or permanent basis. Functional impairment gives rise to disability, which, because of physical and social barriers in the environment, limits affected individuals' opportunities to participate in the life of a community to the same degree as nondisabled individuals. It should not be assumed, however, that the severity of an impairment equates with severe functional limitation or disablement. Rather, the meaning and significance of an impairment derive from the treatment of the individual in the broader cultural context within which that individual lives.

Two dominant models of disability have been developed in the popular and scholarly literature on disability in relation to the distinction between impairment and disability. The social model of disability focuses on environment and assumes that impairment is not as significant as the disability that is constructed by social attitudes and cultural mores that underlie the structural environment. In the social-model way of thinking, the environment disables the individual and needs fixing. The second model of disability is known as the medical model. That model assumes that the individual needs fixing in order to adapt to the environment—either by therapy, medicine, surgery, or special treatment. A third model, sometimes called the traditional model of disability, comes mainly from less-developed countries and is not as well known as the social and medical models. It asserts that disablement is created specifically by traditional religion and culture. In the traditional model, people with impairments may be regarded as unfortunate, different, or blemished in some way, and, as a consequence, they are sometimes perceived as having inhuman or nonhuman traits because they are considered unable to perform traditional social roles. Each of the three models relates directly to culture and provides a starting point for understanding how disability culture is developed or enacted.

2.3.1 Disability Culture: The Beginnings

Although disability culture began in different ways in different countries and regions of the world, the primary impetus for its development, particularly in the modern era, has been attributed to the institutionalization and segregation of the disabled from mainstream society. In the United Kingdom and other parts of western Europe, for example, organized groups of disabled people raised the consciousness of their members and brought them together to form a social movement for change during the latter part of the 20th century. The social movement emphasized inequalities in society and focused on economic and institutional discrimination. In the United States, organizations of disabled people built on the momentum of the American civil rights movement, focusing on litigation and legislation connected to civil rights. In that country the disability rights movement began to take form in the 1960s, developing largely as a political movement that emphasized identity as citizens and individual rights.

The 1970s saw remarkable growth in disabled communities, an expansion that ultimately spawned what became known as disability culture. In Africa during that decade, young disabled people in Zimbabwe were institutionalized in residential missionary schools. Isolated from their families and geographically removed from society at large, young people with impairments formed strong ties with each other and a support system among themselves. At one school, in Nguboyenia, self-described "inmates" decided to start a social club, through which they organized excursions and held discussions that enabled them to become aware of their solidarity and the common injustices they experienced. They launched a countrywide campaign and membership drive. Eventually they established clubs in every district of Zimbabwe and a headquarters in the city of Bulawayo that they called Freedom House, where they could congregate as a community and develop a shared group identity. The organization later became known as the National Council of Disabled Persons of Zimbabwe.

In other less-developed countries, such as several other African countries and India, disabled people's organizations were influenced by fundamental human needs (e.g., shelter and food). The need to eradicate extreme poverty in those countries led to the organization of efforts that coupled disability with development, thereby demonstrating the ability of disabled persons to contribute to social and economic advancement. In Latin America and Asia, organizations of disabled people tended to focus on liberation from basic forms of institutionalized oppression as well as on individual human rights and basic needs. Their agendas tended to be broad and all-encompassing.

From those beginnings of political and social organization to confront injustices in mainstream society and to advocate for basic needs and rights, notions of a disability culture began to be talked about and embraced. Impaired individuals who had been "conscientized" to think of their impairments as disabilities constructed by societal practices and norms began to develop a disability pride. Through their collective political association and social interaction with other "disabled" people, they began to realize their individual strengths and abilities and seek ways to celebrate them. Their initial focus on external oppression that manifested itself in segregation, social injustice, and discrimination led to a realization of the ways in which they had internalized that oppression. Negative societal attitudes, discrimination in institutional practices, and cultural beliefs that dehumanized the disabled began to be challenged at a personal level.

Supported by their disability communities (political and social) and exposed through those communities to a different way of thinking about themselves in relation to society at large, disabled persons increasingly became interested in sharing their unique thoughts, actions, and beliefs. That interest manifested itself cross-culturally in unique expressions of literature, poetry, dance, film, theatre, and music.

2.3.2 Expressions of Disability Culture

Numerous individuals who identify as disabled express disability culture as artists, poets, and actors in theatre groups and can be found in all regions of the world. Many such individuals are supported by institutions such as creative art centres and national disability institutes.

Disability culture is also expressed in the academic field of disability studies. Disability-studies scholars worldwide are supported by their own networks of academic communities, such as the Society for Disability Studies, the Centre for Disability Studies, and the Association of University Centers on Disabilities. Since the latter part of the 20th century, disability-studies scholars have challenged perceived knowledge in such wide-ranging fields as anthropology, sociology, feminist epistemologies (study of the origin and limits of knowledge concerning gender), history, arts and humanities, and education as well as the medical fields of public health, bioethics, genetics and genome research, and rehabilitation.

Cultural representations of disability in disability studies have taken many forms within those fields. Examples include the exploration of changing images of disability across time and the analysis of negative images of disability in mainstream literature, art, and film; scholars have uncovered and exposed images that are inadequate, distorted, or contrived. Such critiques have focused on culture as discursive practice (the codified visible representations of culture) and in the process have encouraged transgressive responses among the members of disability culture.

Ethnographies, autobiographies, and narrative stories from authors worldwide provide detailed descriptions of the lived experience of disability. They offer in-depth cultural images of personhood that capture the wide variety of individual experiences of disability.

In the 21st century, expressions of disability culture became increasingly focused on the celebration of difference. Various visual and textual manifestations of a fast-growing disability culture encouraged the development of shared values, such as an acceptance of difference, a tolerance for ambiguity, and a flair for dark humor.

2.3.3 Differences in Disability Culture

Disability movements conceive of disability culture as primarily social and political in nature, whereas academic communities view disability culture from predominantly historical, discursive, and linguistic perspectives. In other cases, individuals view disability culture in personal and aesthetic contexts, constructing a culture through encounters that shape individual identity and identity formation. Individual interpretations of their personal experiences allow for multiple expressions of cultural identity. Aesthetic pride in the impaired body, for example, represents one aspect of personhood related to disability culture.

However, for some individuals with impairments, personal experiences unrelated to disability take precedence in defining their identity. Experiences of racism, for example, may be more immediate and significant than being disabled. For others, being blind is more important than being “disabled.” Still others with no visible markers of impairment or disability may feel marginalized by those with visible traits. To complicate the issue further, some individuals and disability organizations reject the notion of disability as the primary marker of personhood.

Furthermore, within different cultures, constructions of disability may portray disabled persons as heroic, autonomous, and capable or as invalid and entirely dependent on others. In some cultures, religion may play a central role in the formation of a disability culture. A disabled child, for example, may be seen as a gift from God or as divine punishment. In other cultures the genetic transmission of disabilities in blood-related families may be seen as an expression of honouring strong family foundations. Ultimately, each of those different cultural practices and beliefs influences a person's disability identity and his or her identification with a disability culture.

But the three ways of thinking about disability culture described above—historical, social and political, and personal and aesthetic—should be understood to take expression simultaneously. Thus, the boundaries between personal disability identity pride and notions of disability community often are blurred. Identities forged from personal experiences may be supported and further developed by identity with a particular disability community—whether social, political, or academic. Disability culture as social and political coexists with personal values of disability pride. All of those forms of disability culture are expressed through textual, discursive, linguistic, and artistic forms.

2.3.4 Disability Culture in the 21st Century

Understanding disability culture offers several possibilities for future thinking, study, and practice. Those possibilities include (1) study of changes in the way disability and difference are defined and understood, (2) changes in thinking about disability identity in relation to society as a whole as well as in relation to disability movements, and (3) changes in the ways that people think about and develop supportive communities.

Defining Disability and Difference

Disability, disablement, and impairment are universal. They know no national, societal, or cultural boundaries. Anyone can become disabled—regardless of age, class, race, or gender—through birth, accident, illness, war, poverty, or advanced age. Most individuals, at some point in their lives, will experience disability, disablement, or impairment. The vast majority of disabled people worldwide live in less-developed countries. Most of those individuals live in rural areas and experience their cultural identity in traditional agrarian societies. It has been estimated that in some regions of the world as much as 25 percent of the population is impaired. In some countries disability is a condition of everyday life, such that disability and impairment are not merely the experience of a minority group but rather the normal condition of humanity. From that perspective, distinctions between disabled and nondisabled individuals that have formed the basis for developing disability culture become problematic. When all individuals are included, whether because they are frail, limited, or mortal, there is no distinct identity.

Studies of disability culture indicate that people who have impairments often define themselves not by their impairments but in relation to disablement in cultural contexts. Different cultural beliefs and practices, however, make biological impairment difficult to define or to separate from disablement. Notions of the impaired body shift and change, depending on the cultural context and historical times. Definitions of disability culture and the process of enacting that culture suggest that embodiment, or the experience of disability, may be a more-effective way of understanding impairment than attempting to refine or develop universal descriptions and categories of impairment. Seeing disability and impairment as embodiment recognizes historical and cultural aspects of impairment that are inseparable from the biological aspects.

Recognizing Multiple Identities

Disability culture has been associated with identity politics (political views and activities based on shared injustices) because of its emphasis on collective identity to work for social change. That collective identity is based on an understanding of shared oppression and has the principal goals of forging positive images and changing society to meet the requirements of social justice and equity. Notions of disability culture that emphasize a collective identity have been criticized by disability activists and disability scholars as the paradox of disability culture. The paradox lies in the argument that claiming unity against oppression is actually a source of oppression in itself. In other words, claiming unity leads to simple dichotomies of “us” (disabled) and “them” (nondisabled), ignoring and devaluing differences among disabled people.

However, all people have multiple identities, which take on different meanings and importance in different contexts. As an example, for some disabled people in the United States, being a woman, being gay or lesbian, or being African American can be more disabling in relation to societal discrimination than having an impairment.

One of the core values of disability culture is acceptance of difference. At the same time, the social model of disability aims to fix the environment so that differences no longer make a difference. The paradoxes of unity and difference inherent in those values and goals continue to be addressed at a practical level and in theory.

Less-Developed Communities

Although rates of disability are on the rise globally, important differences exist between developed and less-developed countries. In many developed countries, the general rule of thumb for counting the prevalence of disability is 10 percent of the population. In less-developed countries that number tends to be greater, largely because of conditions of poverty. Overall, disabled individuals represent one of the largest minority groups in the world.

The rise of disability culture depended primarily on community building, either as a result of physical exclusion from society (via institutionalization) or as a result of resistance to social, political, or economic exclusion from basic human rights, employment opportunities, or social roles and responsibilities connected to personhood. The social and political movements that developed from community building have been composed largely of middle-class individuals from industrialized countries. Those movements created social and political agendas within a disability culture that is based on Western assumptions about disability. The growing movement in less-developed countries exposes the limitations and narrow vision of earlier Western movements and emphasizes the need for a broad cross-cultural and comparative vision of disability culture. Such a vision necessarily takes into account notions of personhood and "the body functional," as well as traditional models of disability and the broad vision of disability and development.

Globalization of disability culture brought with it technological and medical advances that have greatly benefited disabled people. Examples include electronic vision and hearing devices, physical mobility devices, and opportunities for communication via the Internet. At the same time, those technologies are not available to many disabled persons living in less-developed countries, because of poverty or a lack of health or technological infrastructure. For that reason, globalization carries opportunities as well as dangers. For example, although globalization provides greater numbers of disabled people with access to disability culture, those numbers are likely to represent mainly the privileged classes, thereby increasing the divide and exclusiveness in disability communities.

2.4 THE EXPERIENCE OF DISABILITY

Although it is subject to dispute and qualification, the distinction between biological impairment and social limitation is relevant to many normative and policy issues, especially those concerning the choice between measures that modify the disabled individual or alter his environment. In this section, we consider the role of that distinction in addressing the critical question of how the experiences of people with disabilities are relevant to those issues. The disability rights movement has long complained that the perspectives of people with disabilities are too often ignored or discounted.

Such questions are best approached in terms of the two aspects of impairments recognized by most disability theorists: as structural or functional atypicalities, and as markers for discrimination. These two aspects of impairment roughly correspond with two distinct types of disability experience:

- The experience of living with an atypical structure or function—factual or phenomenological information about living with different physical, sensory, cognitive, or affective functions than does the majority of the population.
- The experience of facing stigma and discrimination based on one’s structural or functional atypicalities.

There may be more commonalities in one kind of experience than the other, and greater relevance to specific research or policy issues. Further, the epistemic and moral authority of statements made by people with disabilities about their experiences may vary with the kind of experience they describe.

2.4.1 Facts and Phenomenology

The first type of experience involves the particularities of living with atypical embodiment or functioning. Questions about this kind of experience are often framed as what-is-it like questions: “What is it like to” have moderate or profound deafness? use a wheelchair to move? be legally or totally blind? be unable to hold or manipulate objects with one’s hands? have atypical speech? have a learning disability or a mood disorder? Such questions are sometimes requests for factual information about how one manages tasks with one’s disability—“how do you do x if you are in a wheelchair?” In other cases, they are requests for self-reports about the phenomenological experience of being in a particular state—“what does it feel like to get around in a wheelchair?”

People accustomed to their impairments may have little to report about “what it feels like” to have them, in part because absence of a function or a sense may not be something they experience as such, and because their atypical ways of functioning or sensing may not, in themselves, be affect-laden—it is what they do unselfconsciously, until it is called to their attention. The experience of atypical functioning or sensing may be far more salient for someone getting to know a person with a disability than it is to the person herself. It may also be highly salient to a person who is recently impaired, trying to function without limbs or senses that she used to have. But the experience of loss and frustration becomes less salient with time, peer and professional support, as she gets more immersed in going about day-to-day life.

Even when people with disabilities do report about what "it is like" to have their impairments, those reports may vary considerably. The most obvious reason is that there is tremendous variation in the sensory, physical and functional states of which "impaired" or "disabled" people are capable. A person who can see but not hear has very different sensory experiences from a person who can hear but not see, who in turn has very different experiences from a person who can see and hear but cannot move his legs. This point should be obvious, but it is worth stressing, because it underscores the fact that the labels "disabled" and "impaired" do not track a distinct phenomenological experience.

Moreover, even two people with the same impairment label might give different reports of how they do things or how they feel as they go about life with their impairment This could be due partly to differences in the character or extent of their impairment—not all people labeled "deaf" are deaf to the same extent. Further, their experience of life with an impairment may vary with the kinds of activity they engage in, and how they regard their impairments as affecting their opportunities for self-fulfillment. Opportunities in turn may be influenced by all the factors, unrelated to impairment, that affect everyone: the family and neighborhood in which one grows up or now lives; one's disposition or personality; the financial resources at one's disposal; or one's education, religion, sex, or race. Moreover, people's experience of living with an atypical function sometimes may be difficult to distinguish from their experience of stigma and discrimination.

Despite these differences, the experiences of living with diverse impairments have one thing in common—they are likely to be ignored, or given insufficient weight, in the design of the physical and social environment. Unlike new acquaintances, planners and policy makers may pay little attention to "what it is like" to get around with atypical functions. In constructing buildings, transit systems, and work schedules, they often fail to listen carefully to what people with various impairments say about their experiences of daily living. Those experiences cannot be adequately simulated by spending a day in a wheelchair or walking around with a blindfold—indeed, the confusion and disorientation that nondisabled people experience in simulating impairments is a very misleading guide to the way people with disabilities experience and negotiate the activities of daily living. Moreover, in learning about the experiences of living with atypical functions, planners and policy makers cannot take any single impairment as representative. The experiences of people with different impairments differ as much from each other as they do from the experiences of nondisabled people. As the human variation model emphasizes, the very diversity of impairments poses an important challenge for an inclusive society.

2.4.2 Stigma and the Social Construction of Disability

If "baby boomers" who have not learned electronic communication become a despised, as opposed to merely statistical, minority, and if, as a result, they become cut off from friends and acquaintances who rely on email and social media for long-distance communication, and who dismiss them as luddites and fogeys, they will learn something about the social construction of disability. They will learn even more if they cannot cross the "digital divide" or can do so only at considerable economic cost or cognitive strain, or if they are still regarded as luddites and fogeys even when they do. They will experience something of the stigma and discrimination that cut across impairments.

The second type of disability experience, then, is of attitudinal barriers to ordinary activity that are facts of life for people with disabilities. According to the social model, which highlights these barriers, the “disability experience” that links people with cystic fibrosis to people with epilepsy, learning disabilities, or cerebral palsy is one of having to deal daily with the largely negative responses of others. These negative responses involve several elements. The most discussed is overt stigmatization and discrimination: being treated as a social outcast, losing out on jobs, friends, or partners, because other people do not want to interact with a person with a disability, or enduring grossly inadequate accommodation because reasonable accommodation is thought too costly or troublesome.

But there are also less overt ways that society makes living with a disability difficult. Simply being different from the majority of the population, in a way that the majority makes salient, can make people with disabilities feel isolated or alienated. This experience is similar to those not only of other stigmatized minorities, such as African-Americans or LGBTs, but of people with atypical characteristics who may not form a distinct political or cultural minority but are nonetheless constantly reminded of their difference. For example, people whose spouses have died and older adults who are single for whatever reason may feel excluded from social events intended for couples, or face the presumption that they have a (usually opposite-sex) partner (“And what does your husband do?”).

It is in the social construction of disability that we move from the particularity of any one disability toward the common social experiences of people with disabilities. Stigma, discrimination, and imputations of difference and inferiority are all parts of the social experience of disability. Being greeted at a party or a conference not by “hello” but by “do you need any help?” and having virtually every aspect of one’s interests, tastes, and personality attributed to one’s disability are also parts of the disability experience. As one writer describes it, if he cooks it is because he doesn’t want to be seen in public; if he eats in restaurants it is because he can’t cook. Disability becomes a “master status,” preventing people from playing any adult social role and eclipsing sex, race, age, occupation, or family. Many nondisabled people assume that people with disabilities won't make good partners and cannot or should not become parents. People with disabilities are perceived to be globally helpless based on their need for assistance with some facets of daily life, fueling the conviction that they are unable to render the help needed for successful partnership or parenting. Most nondisabled people, after all, are not told that they are inspirations simply for giving the correct change at the drugstore. Perhaps there would not even be a "disability experience" in a world without the daily indignities, barriers, and prejudices that characterize life with disability almost anywhere.

Just as there is great variation in how members of racial and sexual minorities experience stigmatization, however, disabled people's experience also varies. In claiming that the experience of stigma unites disabled people, we must be careful to acknowledge those differences. For example, a major source of variation is whether the disability is visible or invisible. Whereas visibly disabled people must deal with being instantly classified as "different" and inferior, people with invisible disabilities are often placed in the stressful and exhausting position of having to convince others that they are "really" disabled and not asking for special treatment. The alternative is to keep quiet and forgo needed assistance, which carries other costs, such as the stress of keeping a secret or trying to decide if a particular disclosure is safe.

In addition, disabled people who are also members of other stigmatized groups may experience a distinct kind of stigmatization that is "more than the sum of its parts." For example, disabled women are disproportionately affected by society's obsession with body image: they must confront not only sexism and prejudice against disabled people, but a particularly virulent combination of the two that stigmatizes women who do not fulfill a narrow ideal of feminine beauty or are thought incapable of performing the stereotypically female role of nurturer. In a similar way, both African-Americans and disabled people are frequently stereotyped as dependent or ineffectual. And so African-Americans who are also disabled face a particularly high burden in overcoming these stereotypes.

Moreover, some would argue that to the extent that people with disabilities have distinct and common experiences, they are due to embodiment as well as stigmatization. A disputed but much-discussed strand of feminist philosophy holds that the experience of being female differs in important ways from being male, regardless of cultural position, discrimination, or political and economic power. On this view, women differ in some important ways from men because of the biology of femaleness and of childbearing, and those differences should be seen as gateways into philosophical and moral understanding. Discussions of "race" are similarly complex: is the experience of "race" entirely socially constructed, or is there a biological component after all?. Debates about the experience of disability can be enriched by understanding these debates about other minority groups, even if disability differs in significant respects. On the one hand, the biological reality of many significant impairments affects the experience of those with the impairments. On the other hand, different impairments shape experience in very different ways. Clearly, "the experience of disability" is complex, and usefully compared to the experience of other stigmatized minorities.

2.4.3 Epistemic and Moral Authority

The first-hand experience of stigmatization may confer two sorts of authority on people with disabilities. The first is epistemic. There should be "nothing about us without us" because any discussion of, or research into, disability not informed by that experience would likely be inaccurate and misguided. For example, discussions of well-being that do not take into account the perspective of disabled people may assume that their level of happiness or satisfaction is much lower than it in fact is, or that it is lower mainly because of difficulties directly attributable to impairments rather than to attitudes and social barriers. This is but one application of the more general issue of first-person authority: the extent to which people have special or privileged knowledge of their own mental states and experiences. Although this is a subject of great controversy in the philosophy of mind, there is widespread agreement that, at minimum, first-person ascriptions of mental states carry a defeasible presumption of correctness.

But there is an additional epistemic reason for according significant weight to the first-hand reports of people with disabilities. The observations and judgments of all stigmatized minorities are frequently discounted, but people with disabilities face a distinct handicap. There is a powerful, pervasive tendency among philosophers, social scientists, and laypeople to dismiss their self-appraisals as reflecting ignorance, self-deception, defensive exaggeration, or courageous optimism. Giving those self-appraisals heightened attention and deference may be an appropriate and effective way to counteract or correct for that tendency.

Epistemic authority thus provides a good reason for encouraging disabled people to speak about their experiences and for nondisabled people to listen when they do. But there is another reason as well: people who suffer stigmatization, disrespect, and discrimination have a moral claim to be heard that is independent of the accuracy of their testimony. Even if someone lacking those experiences could convey them accurately and vividly, she would not be an adequate substitute for those who had the experiences. The experience of stigmatization, like the experience of other forms of oppression, calls for recognition, and thereby may impose a duty on those fortunate enough to have avoided such experiences to listen closely to those who have had them. To settle for second-hand accounts of those experiences or to ignore them altogether seems disrespectful to the victims. The conviction that the oppressed have a right to a hearing lies behind the recent proliferation of Truth Commissions and tribunals. It also helps explain the frustration of crime and torture victims denied an opportunity to tell their stories, even when their oppressors receive punishment without their testimony. Though few disability advocates would demand a tribunal for the routine indignities of life with disabilities in developed countries, most demand a far greater voice in the media depiction of people with disabilities, in research about them, and in policies concerning or affecting them.

At the same time, there are several dangers associated with placing too much emphasis on the moral privilege of victims of stigmatization. First, there is the danger of defining people by their oppression. The victims may not want to be spokespeople or witnesses, or not for very long; they may want to move on. It is important to recognize both the moral authority of victims to testify and their prerogative to decline that role.

Second, emphasizing the moral privilege of the stigmatized may obscure differences in the experience of stigmatization, and in the sort of authority it confers. As we have seen, there is tremendous variation in the ways that disabled people experience stigma, although certain broad generalizations may hold.

Third, in conferring privilege on those who experience particular forms of oppression, we may obscure or slight the shared vulnerability of all human beings. For example, Ruth Anna Putnam champions social improvements for women and other disadvantaged people but is wary of a particularist feminist theory of justice, which may fail to emphasize commonality of human experience and human need. Might a similar wariness be warranted for disability? If, as Scotch and Schriner point out, we had a philosophy and public policy based on common human needs, we might be able to get rid of "special needs" and focus on multiple methods of meeting common ones, with no negative shadow cast on any of those varied methods.

Further, when only the marginalized are asked to share their "experiences," the experiences of the dominant group are left unarticulated, unexamined, and unexplored. Once we argue that people with disabilities need to be heard in bioethics and policy debates as they describe the values and difficulties in their lives, we should also be arguing for experiential accounts of the dominant group. When dominants examine their own experiences, they might see similarities to as well as differences from those who have been marginalized. Both groups might benefit as a result.

2.4.4 Whose Experience and Judgments

The final danger in emphasizing the experience of stigmatization is that it will exclude the voices of many people classified as having disabilities but who do not see themselves as disabled or stigmatized. People with disabilities include millions who do not tend to speak in social model terms and who may not typically speak to their social, as opposed to their medical situation (although they do file discrimination complaints under the ADA when they think it appropriate). People who have back problems, cancer histories, Parkinson's disease, Type II diabetes, stroke, emphysema, forms of dementia, mood disorder, schizophrenia, substance abuse, or HIV do not typically count themselves as part of the "disability community." The case for including such people is based in part on the shared experience of socially-mediated exclusion. For example, a person who has difficulty breathing because of emphysema and cannot visit friends because she cannot walk to a distant bus stop is disadvantaged by social organization in an analogous way to the person with paraplegia who can't meet friends in inaccessible restaurants.

Such inclusiveness, however, requires an acceptance of diverse attitudes and opinions. Even if the majority of people we would classify as having disabilities perceived societal mistreatment and institutional barriers to be more oppressive than their diagnoses, not all of them would share that view or agree on the best response. African-Americans have different views about affirmative action, and many women do not believe that the option of legal abortion is essential for women's full participation in society. Disability theorists can find it frustrating that most nondisabled people in bioethics dispute their claims about their experience, but those theorists must respond to whatever challenge to the social model is posed by people with disabilities who see their condition, and not society, as the major impediment to their living rewarding lives. Many people with both congenital and acquired disabilities have said that they don't want cures but do want societal change, but that hardly warrants the charge that Christopher Reeve wasn't speaking from his experience of disability when he argued that what he wanted was “cure” and not social change.

2.4.5 The Place of Disability Experience in Bioethics and Public Policy

Let us grant that a large number of people with particular impairments will say at least some similar things about life with those impairments, especially concerning stigma and discrimination. We are still left with complex questions about what uses to make of such experience in shaping public policy.

Clearly, one critical role is educational. Forty years ago plenty of well-meaning men wondered why women objected to having doors held for them, or to the exclusive use of male pronouns to refer to humans generally. Language, social conventions, and many aspects of life have changed because men listened to women’s accounts of how seemingly innocuous acts felt, and of why those acts held not-so-innocuous implications for their self-realization and social participation. “Why is that person on crutches so offended when I ask him if he’s traveling alone?” says the flight attendant who doesn’t ask the same question of his nondisabled seatmate. Why doesn’t the man who is blind let it go when a cab driver won’t take his money? A nondisabled person may think it would be great not to pay the outrageous fare as the meter climbs in New York City traffic.

The educational value in explaining the daily experience of stigma goes far beyond “sensitivity training.” In making nondisabled people aware of how much of “the burden of disability” arises from routine, seemingly innocuous social interactions, people with disabilities can help to convince them that the direct or internal effects of their various impairments are not nearly as bad as imagined.

Taking the experiences of disabled people seriously may also have important implications for health policy. As is apparent in many bioethical and policy discussions, most nondisabled people, including health professionals, imagine the experience of disability to be far worse than reported by the disabled themselves. This gap is not explainable solely by the limited contact between the two groups. In developing a plan for Medicaid rationing in Oregon in the early 1990s, nondisabled people ranked treatments to sustain the lives of people with quadriplegia as of very low priority because of their presumed low quality of life; people with quadriplegia complained that they had been left out of the surveys and that their appreciation of their lives had not informed the ranking process. Such serious policy errors might have been avoided by a recognition that people with disabilities had the same epistemic authority as nondisabled people to assess the quality of their lives.

The varied experiences of functioning with an impairment may have a more modest role to play in policy deliberations than the common experiences of stigma and discrimination. But that role is still an important one. In designing buildings, transit systems, and other public and private facilities, and in establishing norms of conduct in schools and workplaces, we need to know a lot about how people with atypical functions get around and get along. It is not enough to ensure that the width of a doorway exceeds the width of a standard wheelchair; it is also important to find out about the preferences of wheelchair mobilizers before and after they enter a building. This kind of information is no different from that routinely elicited from nondisabled people in designing facilities. But it requires the representation of people with a wide array of impairments, and it requires respectful attention to the minutiae of their daily lives.

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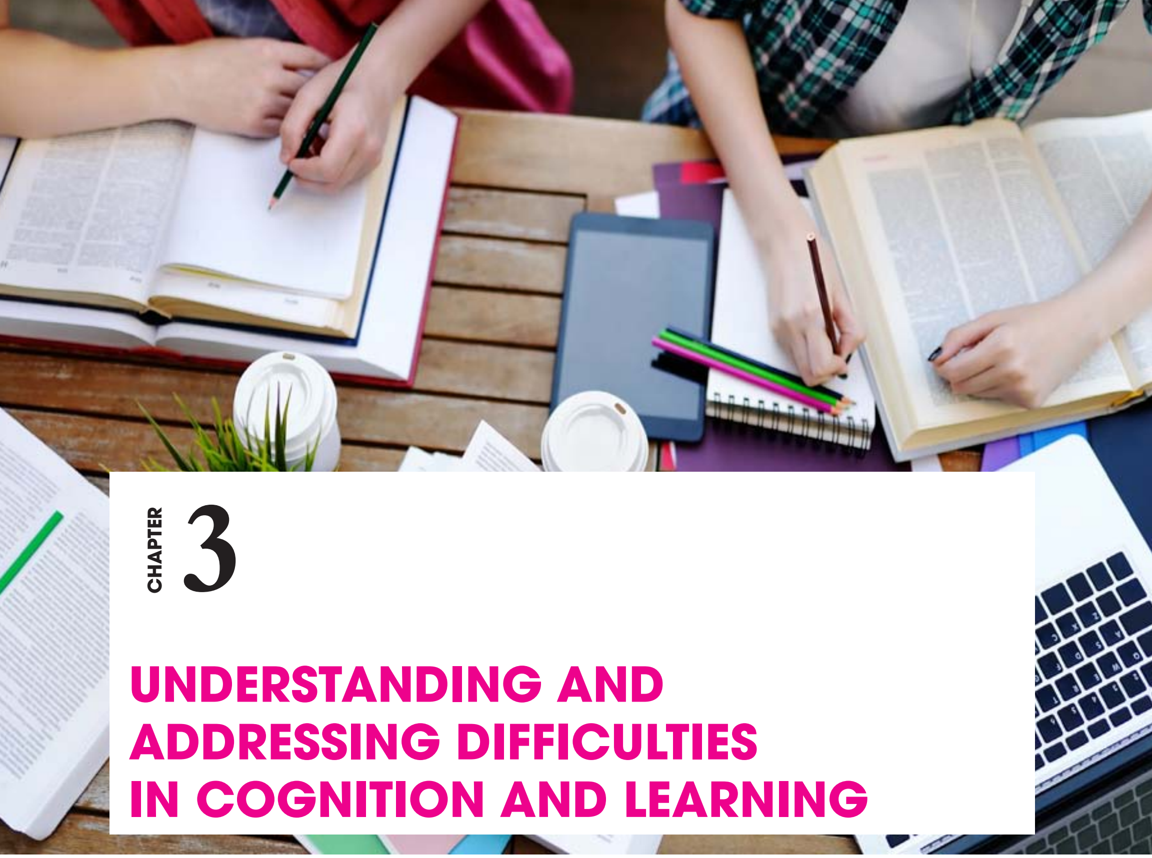

CHAPTER 3

UNDERSTANDING AND ADDRESSING DIFFICULTIES IN COGNITION AND LEARNING

INTRODUCTION

The category of cognition and learning difficulties is one of the four broad areas of need in the Special educational needs and disability code of practice 0 to 25 years. Specific Learning Difficulties (SpLD) is an umbrella term which emphasizes the differences that pupils display across their learning. Pupils with SpLD may have a particular difficulty in learning to read, write, spell or manipulate numbers so that their performance in these areas is below their performance in other areas. Pupils may also have difficulties with short term memory, organizational skills, visual processing and coordination. Pupils with SpLD cover the whole ability range and the severity of their impairment varies widely. The difference in 'Learning Difficulties' and 'Specific Learning Difficulties' is that the term 'Learning Difficulties' is generally applied to people with global (as opposed to specific) difficulties, indicating an overall impairment of intellect and function.

Students with learning difficulties have academic attainments which are significantly below those of their peers due to a slower rate of learning. They will have difficulty acquiring and applying basic literacy, numeracy and language skills.

Children may have difficulties with:

- Spelling and Reading
- Writing and Number
- Working memory
- Learning and processing new information
- They may also find it difficult to concentrate for longer periods of time
- They may have ‘Specific Learning Difficulty’ such as Dyslexia, Dyspraxia, Dyscalculia
- Children may have diagnoses such as Down’s Syndrome or Global developmental delay.

3.1 UNDERSTANDING COGNITION AND DIFFICULTIES IN COGNITION

The Latin root of the word 'cognition' is '*cognoscere*', which means 'to get to know', or 'to recognize'. In general terms, the frame of reference within which 'cognition' is used code of practice relates largely to information-processing associated with problem-solving, language, perception and memory and the development of concepts. The cognitive difficulties experienced by some students clearly extend to the area of communication and interaction discussed.

Cognition refers to "the mental action or process of acquiring knowledge and understanding through thought, experience, and the senses". It encompasses many aspects of intellectual functions and processes such as: attention, the formation of knowledge, memory and working memory, judgment and evaluation, reasoning and "computation", problem solving and decision making, comprehension and production of language. Cognitive processes use existing knowledge and discover new knowledge.

Cognitive processes are analyzed from different perspectives within different contexts, notably in the fields of linguistics, anesthesia, neuroscience, psychiatry, psychology, education, philosophy, anthropology, biology, systemics, logic, and computer science. These and other different approaches to the analysis of cognition are synthesized in the developing field of cognitive science, a progressively autonomous academic discipline.

Cognitive disability (also known as intellectual disability) is a nebulous term describing a person who has greater difficulty with mental tasks than the average person. Cognitive disabilities are by far the most common type of disability.

Most cognitive disabilities are rooted in biology or physiology. The connection between biology and mental processes is most obvious in cases of traumatic brain injury and genetic disorders, but even the more subtle cognitive disabilities stem from brain structure or chemistry. People with profound cognitive disabilities need assistance with nearly every aspect of daily living. Someone with a minor learning disability, however, may be able to function adequately, even to the extent that the disability is never diagnosed.

Some web content is too complex by its nature to ever be fully accessible to users with profound cognitive disabilities. Nevertheless, developers and designers still have techniques available to make content accessible to as wide a spectrum of users as possible.

Clinical vs. Functional Classifications

Cognitive disabilities can be thought of in functional or clinical terms. Clinical diagnoses include autism, Down syndrome, traumatic brain injury (TBI), and dementia. Less severe cognitive conditions include attention deficit disorder (ADD), dyslexia (difficulty reading), dyscalculia (difficulty with math), and learning disabilities in general. Clinical diagnoses may be useful from a medical perspective for treatment, but for the purposes of web accessibility, classifying by functional disability is more useful.

Functional classification focuses on the user's abilities and challenges, irrespective of their medical or behavioral causes. Multiple functional disabilities can stem from one clinical diagnosis: A person with memory deficits may also have difficulty with attention or problem-solving.

Functional categories of cognitive disabilities include difficulties with:

- Memory
- Problem-solving
- Attention
- Reading, linguistic, and verbal comprehension
- Math comprehension
- Visual comprehension

Functional classifications are useful in web accessibility because they align to concerns of web designers and developers. Telling a developer that some people have autism is only meaningful if the developer knows what kinds of barriers a person with autism might face with web content. On the other hand, telling a developer that some people have difficulties comprehending math gives the developer a meaningful context. Developers simply need to understand and consider the user's range of abilities.

Memory

A common model for explaining memory involves the concepts of working (immediate) memory, short-term memory, and long-term memory. Some individuals with cognitive disabilities have difficulties with one, two, or all three. Some users cannot remember how they got to content. If a complex form displays multiple error messages, the user may be unable to remember multiple errors, and may even forget the error information before they are able to address the error. Maintaining consistency in design and presentation minimizes memory requirements.

Problem-Solving

Some individuals with cognitive disabilities have difficulty solving problems as they arise. Low resilience can cause frustration and lead the user to abandon the task or the site. Examples include CAPTCHA puzzles that require high levels of cognitive function, technically worded error messages, and links that do not take user where they thought they were going.

Attention

Many individuals have difficulty keeping focus on the task at hand. Distractions such as animating carousels, “toast” popups, jiggling icons, and spontaneous dialog overlays can make task completion difficult or even impossible. Even for neurotypical users, such movements impair usability.

Some people with Attention Deficit Hyperactivity Disorder (ADHD) have difficulties learning, but often this is due to distractibility rather than inability to process information. People with ADHD can be impulsive, easily distracted, inattentive, and less able to stick to a long-term task. However, some are highly creative and very productive in short bursts, with an abundance of energy and enthusiasm.

To help users focus on important content and functionality, avoid anything that would distract a person’s attention away from the main content or functionality, and use good design, such as color, white space, and simple presentation.

Reading, Linguistic, and Verbal Comprehension

Some individuals have difficulties understanding text, ranging from minor challenges to a complete inability to read any text. Although web developers cannot fully accommodate the entire range from non-readers to genius readers, we can try to write as simply and clearly as is feasible, taking into account the primary audience and including those who may have difficulty with some of the content.

Math Comprehension

Mathematical expressions can be especially difficult for users with cognitive disabilities to understand. This does not mean that authors should avoid math entirely. For people who are comfortable reading equations and thinking mathematically, the best way to explain mathematical concepts is to use equations. However, often it is helpful to explain math conceptually, with or without the formulas. Conceptual explanations help readers understand the reasoning behind the math.

Visual Comprehension

Some individuals have difficulties processing visual information. In many ways, this is the opposite of the problem experienced by people with reading and verbal processing difficulties. Individuals with visual comprehension difficulties may recognize that there are objects on a web page, but not be able to identify the objects. They may not realize that a photograph of a person is a representation of a person, though they can plainly see the photograph itself (as an object) on the web page.

For these users, a moving, talking person in a video may be easier to identify and mentally process than a static image of a person in a photograph. Narrated video and multimedia may be helpful.

3.2 UNDERSTANDING CHILDREN’S MODES OF LEARNING

One very useful frame of reference within which to think about the level of learning at which a child is operating and the difficulty s/he might be experiencing is Bruner’s model of the different modes of representation of reality used by humans as they develop their conceptual understanding of the world. As discussed, Bruner outlines three modes: ‘enactive’, where we ‘do’ and then we understand and know; ‘iconic’, where we understand reality through visual representations of the real thing; and ‘symbolic’, where we understand and can use abstract representations of reality.

As Grauberg notes, one common feature that can be readily identified in children who experience cognitive difficulties is weakness in understanding and remembering that a symbol can represent something else, for example, something concrete or an action.

Whilst these three modes appear to imply that learning occurs in discrete stages, it is, of course continuous. Children may experience difficulty at any point in their development. Those who experience difficulties in cognition are very likely to need much more time to absorb and understand new concepts with representation more through concrete objects if necessary, using an enactive mode to learn by doing.

While learning disability, learning disorder and learning difficulty are often used interchangeably, they differ in many ways. Disorder refers to significant learning problems in an academic area. These problems, however, are not enough to warrant an official diagnosis. Learning disability, on the other hand, is an official clinical diagnosis, whereby the individual meets certain criteria, as determined by a professional (such as a psychologist, psychiatrist, speech language pathologist, or pediatrician). The difference is in degree, frequency, and intensity of reported symptoms and problems, and thus the two should not be confused. When the term "learning disorder" is used, it describes a group of disorders characterized by inadequate development of specific academic, language, and speech skills. Types of learning disorders include reading (dyslexia), arithmetic (dyscalculia) and writing (dysgraphia).

The unknown factor is the disorder that affects the brain's ability to receive and process information. This disorder can make it problematic for a person to learn as quickly or in the same way as someone who is not affected by a learning disability. People with a learning disability have trouble performing specific types of skills or completing tasks if left to figure things out by themselves or if taught in conventional ways.

Individuals with learning disabilities can face unique challenges that are often pervasive throughout the lifespan. Depending on the type and severity of the disability, interventions, and current technologies may be used to help the individual learn strategies that will foster future success. Some interventions can be quite simplistic, while others are intricate and complex. Current technologies may require student training to be effective classroom supports. Teachers, parents, and schools can create plans together that tailor intervention and accommodations to aid the individuals in successfully becoming independent learners. A multi-disciplinary team frequently helps to design the intervention and to coordinate the execution of the intervention with teachers and parents. This team frequently includes school psychologists, special educators, speech therapists (pathologists), occupational therapists, psychologists, ESL teachers, literacy coaches, and/or reading specialists.

3.3 MODERATE LEARNING DIFFICULTIES

Although movement through the three modes above can be seen as developmental, it must be said that they are not necessarily age dependent or invariant. As adults, we habitually use all three modes.

3.3.1 Addressing Moderate Difficulties in Receptive Language

We differentiated between receptive and expressive language skills. Children who experience difficulty in understanding spoken language might learn effectively from teachers who understand that children learn by doing first. The Primary National Strategy suggests that, whenever possible, pupils should have direct experience of a concept before it is used. Some pupils need time to formulate a reply to a question, so it might be appropriate to forewarn some pupils that they will be asked a question. Some pupils also benefit from being prepared for transitions between different activities and different parts of the classroom and school by, for example, having visual timetables and schedules and being told when and where they are going to move during the school day. Children often get the gist of what is meant from nonverbal clues, so it is important not always to speak in terms that are immediately understood by students otherwise their language will never develop. It is important to ensure that students realize they are being spoken to, and when they are being asked a question. They may need to be taught the skills of whole-class listening.

To ensure that all students understand what is said, including those with difficulties in receptive language, as Wearmouth notes, teachers should check that they speak calmly and evenly, and their faces are clearly visible. They might use visual aids related to the topics being discussed, and explain something several different ways if they have not been understood the first time. They might also make a point of repeating what students say in discussion or question and answer sessions.

3.3.2 Strategies to Develop Oral Skills

Children will only want to read a text if they can understand what it is that they are reading. To do this they need prior knowledge and experience. Low performance on tests of reading comprehension can also reflect students' limited vocabulary, and/or limited experience in talking about characters and events within stories or concepts of various kinds, and relating these to their own knowledge and experience. Talking is an essential intellectual and social skill that is shaped by how we think and forms part of how we communicate with others and make sense of the world. The young child's thought development begins through interpersonal negotiation with others, caregivers, teachers and peers at school and this is internalized into personal understanding. It is clearly very important, therefore, to build up students' oral language skills, by supporting them to talk about what they have been reading and about how what they have been reading connects with what they already know. The potential of a meaningful 'talk to expand literacy' approach that goes beyond studying letters and words is supported by a number of research studies

From the time a child first begins to understand the world s/he appears to do so by means of story. 'Any understanding we have of reality is in terms of our stories and our story-creating possibilities'. Sarbin notes that it is through story that children learn to become functioning members of the society into which they are born. 'It is through hearing stories ... that children learn or mislearn both what a child and what a parent is, what the cast of characters may be in the drama into which they have been born and what the ways of the world are'. There is no way to enable children to understand society 'except through the stock of stories which constitute its initial dramatic resources'. If children are deprived of stories 'you leave them unscripted, anxious stutterers in their actions as in their words'.

There is an important question about how learners can take the step 'from speaking to understanding writing on a page or screen, to realize that knowledge of life and language can help them make sense of words and texts'. Orally told stories, rhymes, songs, prayers and routines for meeting and greeting people, all have an important role in literacy acquisition and are promoted within many cultures long before children begin any form of formal education. Gregory advocates addressing the issue of building from the known into new literacy acquisition by explicit scaffolding of children's learning through 'recognizing children’s existing linguistic skills and cultural knowledge’ and then deliberately ‘building these into both teaching content and teaching strategies’. She describes a reading session that draws on children’s oral language and makes use of puppets to mediate learning. This should draw on the child’s emotions, for example, fear, love, sympathy, hate, and aim to tell an adventure or drama. Well-chosen stories told in the classroom by the teacher can scaffold children’s learning about written texts in a way that conversation cannot. Chapters for reading should include ‘memorable stories and texts from all times and places’, perhaps containing ‘universal truths, values and morals, fear and security’ which relate to pupils of all levels and ages. Ways in which beginning readers might be introduced to story-reading sessions include: explicitly discussing the context for the story, one or more of the characters, and the plot; reading the story slowly, clearly, with ‘lively intonation’ and without interruption; discussing the story and the themes, and relating these to the children’s lives. Gregory gives an example of a text, ‘The Clay Flute’ by Mats Rehnman that seems complex but is popular with children. It is set in the Arabian Desert and tells the story of a poor boy who suffers many misfortunes but finally ‘makes good’. The language is difficult but rich in imagery and emotive vocabulary (witch, horrible, grab, scream, kiss, tear, sword, heart and so on). Gregory identifies the reasons for its popularity as its clear purpose in the way the plot develops, its portrayal of the universal values of courage and kindness, and the way good is seen to triumph over evil.

Understanding written text

Having the ability to handle written text with confidence is a key part of coping with the day-to-day expectations of life. Commonly, difficulties in receptive language may include barriers relating to reading comprehension.

Developing reading comprehension

First, it is important to be able to judge the level of difficulty of any text used in class, for example, sentence length and complexity, word length and familiarity and the degree of conciseness in the explanation of concepts. It is also important to consider carefully the interest level of the text and/or prior knowledge of the subject matter. If students are interested in what they are reading or are familiar with the subject material, they can cope with more difficult text. Further, more students can understand higher level concepts if ideas are expanded and explained step by step.

Strategies for developing reading comprehension can include adding pictures, subheadings and summaries to the text and teaching students to take notes, underline key passages or write summaries. Students can be taught to scan the text before reading in depth, including focusing on pictures, diagrams, captions, subheadings and highlighted words. They can be taught to think consciously about the text as they read: whether it fits in with what they already know, whether they have understood it, or what questions they might ask themselves about the meaning of a text as they read it through. The amount read before questions are raised can be shortened. This may mean a page by page reading, or even a paragraph by paragraph reading. Close consideration must be given to the constitution of student groups in this case. As students pay more attention to the messages conveyed by text the amount of text read before questions are asked can be lengthened. Groups of students can be encouraged to share the reading of a book and then discuss topics such as: how did the main character feel?; has anything like this ever happened to you?; what happens next? Cloze can be used to make sure that students are reading for meaning. Here every fifth word or so is deleted from the text, and the student is asked to fill in the gaps with a suitable, meaningful word.

Often students need to gain more experience in reading in order to increase word identification, knowledge of letter/sound combinations and use of contextual information and inference. Excellent ways in which to develop these skills and also the related writing skills of language structure, organization of thought and creative writing are following the text with the eyes while listening to a recording (which has to be word-perfect), ‘paired reading’ or ‘reading buddies’.

ICT support for reading

The use of symbols on some computer programs acts as scaffolding for reading. Symbols can be used with one student and gradually withdrawn until s/he can read without them. The left–right directionality of reading can be reinforced through the Clicker program. Sound to support reading and writing can be used in many different ways. Word processors with speech synthesis can be very powerful. Learners can hear what they have written, either as they are writing, or the whole text after they have finished.

Sound can be introduced to text by dropping it into a standard text to speech utility or talking word processor. The text may also be dropped into a program such as Writing with Symbols which gives a symbolic version that can be printed out and spoken aloud. Talking word processors may be particularly useful tools to enable students to decode text downloaded from the Internet.

An example of a program to develop switch-accessible stories and slide shows is 'SwitchIt. Maker 2'. Each activity has a sequence of on-screen pages which can have a picture, video or text-based material, music or recorded speech. Pages can be turned by a simple switch, the computer's spacebar, the mouse buttons or IntelliKeys.

3.3.3 Expressive Language

Students who experience difficulty in expressing themselves need frequent opportunities for exploratory talk in every area of the curriculum in order to put new information and ideas into their own words and link subject matter to what they already know. Strategies that facilitate oral language development might include exploratory talk in small groups, problem-solving aloud, explanations of how something is made, or how and why things happen, dramatisation and role-play, interviews (live or taped) and group discussion.

Expressive language allows a person to communicate wants, needs, thoughts and opinions. Expressive language is the ability to request objects, make choices, ask questions, answer, and describe events. Speaking, gesturing (waving, pointing), writing (texting, emailing), facial expressions (crying, smiling), and vocalizations (crying, yelling) are all variations of expressive language. Children with poor expressive language skills may become frustrated when they cannot communicate their wants and needs. Temper tantrums may occur when they feel tired, sick or hungry and cannot express their current needs.

Writing

Learners who experience problems in expressing themselves in writing may often benefit from structured support to help them develop skills for different types of writing. Allowing a student to dictate text onto an audio recorder and then transcribing it for him/ her will help him/her to get thoughts and ideas down on paper. Alternatively the student can be allowed to dictate text while the teacher/older student/parent scribes.

Using ICT can also facilitate writing for some pupils. Word-processing can offer 'a means of drafting and re-drafting that is easy, efficient and accessible and so is a great equalizer in presentation. … Pupils can work more quickly and demonstrate different types of writing exercise and have the opportunity to experiment … and thus demonstrate their true ability'.

An example of a writing support and multimedia tool for children of all abilities is 'Clicker Writer'. At the top of the screen is a word processor. At the bottom of the screen is the 'Clicker Grid'. This has 'cells' containing letters, words or phrases that teachers can click on, to send them into Clicker Writer so that students can write sentences without actually writing or using the keyboard.

3.4 ENGLISH AS AN ADDITIONAL LANGUAGE AND SPECIAL EDUCATIONAL NEEDS

The various Codes of Practice across the UK note that the identification and assessment of the special educational needs of young people whose first language is not English requires particular care.

The 2014 Code in England, for example, advises that:

Practitioners should look carefully at all aspects of a child's learning and development to establish whether any delay is related to learning English as an additional language or if it arises from SEN or disability. Difficulties related solely to learning English as an additional language are not SEN.

The Special Educational Needs Code of Practice for Wales acknowledges that some students require 'support to compensate for the impact of a communication difficulty on learning in English or Welsh as an additional language'. The 2010 Code in Scotland recognizes that 'children or young people may require additional support for a variety of reasons and may include those who … have English as an additional language'. However, it cautions that it should not 'be assumed that inclusion in the list inevitably implies that additional support will be necessary'. These Codes clearly recognize that lack of competence in English (or Welsh) cannot be equated with general difficulties in learning, or particular difficulties in language acquisition, as understood in this Code. Students learning English (or Welsh) may say little or nothing for some time, but are learning nevertheless.

There is no possibility of making sense of what bears no relation to one's own ways of making sense of things. Unfamiliarity with local culture, customs and language on entering school can result in complete bewilderment and an inability to understand the expectations and norms of the literacy curriculum. Gregory notes, for example, how 'Tony' arrived at school, aged four years and ten months, with an 'eye for detail' and a 'disciplined and structured approach to reading from his Chinese school'. In his Chinese school he had been 'given an exercise book where he had to divide the page into columns and practice ideographs over and over again until they are perfect'. The carefully and clearly delineated and constrained tasks set by the previous teacher contrasted sharply with the range of personal choice given to 'Tony' and his classmates in the mainstream classroom in Northampton, England. His aimless wandering around the classroom while peers chose activities for themselves indicated that he appeared unable to cope with the non-realization of his expectations about what school should be about. Having said this, we cannot assume that their language status or unfamiliar or conflicting expectations are the only reason for students who learn English as an additional language to make slow progress. They may also experience general cognitive difficulties. This may be a very sensitive area that requires specialist help. If by providing contextual support cognitively demanding tasks can be accomplished the needs are linguistic; if not, they may be educational. It is important always to try to obtain a first language assessment. Standardized tests are often culturally or linguistically biased so it is also important to check whether norm-referencing was on a bilingual population.

Memory Problems

Within the area of moderate learning difficulties, very poor memory is a problem for a number of students. There are a number of common reasons for this. For example, students may not have grasped the information clearly in the first place. They may not have linked the new information to previous knowledge sufficiently. Or they may not have distinguished new knowledge from what is already known, so that the new information interferes with the old. It may therefore not be a good idea to introduce concepts with clear similarities together. For example, if we were to introduce a donkey and a pony at the same time and tell the child that the donkey is the one with the big ears, it may be that the child is forever afterwards confused about which is which.

There are a number of frames of reference against which to conceptualize what happens in the human memory system. In one, memory is seen as having two distinctive parts: long-term memory and short-term or 'working' memory. Long-term memory itself is also often seen as consisting of two parts: knowing that (declarative or semantic memory), and knowing how (procedural memory). There is clearly a big difference between knowing a fact, for example, a date, and knowing how to do something. Memory can be accessed through recall or through recognition. Of these, recognition is usually easier than recall, although if the context in which the initial learning occurred is very similar to the context in which recall is needed and there are strong memory cues, then recall can be easier.

Many students with short term memory difficulties have problems absorbing and recalling information or responding to and carrying out instructions within a busy classroom situation. They may find it difficult to copy from the blackboard as they are unable to memorize what they have seen and transpose it to the paper on the desk. As well as this they are required to rotate this visual image through 90 degrees from the vertical to the horizontal and also to change the size of the letters involved. Young children have to learn sequences of certain items relating to particular areas that are important for everyday living: letters of the alphabet, months of the year, days of the week and numbers, for example. There are many students who, even in secondary schools, cannot recite either the alphabet or the months of the year in the correct order.

Difficulties in this area, however, can be improved with training. Teachers and/or families might try increasing the span of items that are to be remembered and the length of time between presenting the sequence and asking for recall. As memory span increases, an intervening task can be given between presentation and recall. They might also try gradually increasing sequences of instructions, beginning with one or two only: 'Please go to the cupboard and get. Some pencils', and subsequently, perhaps: 'Please go to the cupboard, get some pencils, and give one to Jane and one to Aaron.' They could ask the student to give a verbal message to deliver to another teacher, secretary or administrator, and increasing the length of the message as the student is successful. It is important to encourage the student to repeat the instruction before carrying it out and use his/her own voice to aid his/her memory. After reading a short story, they could make a point of asking the student to identify the main characters, sequence of events and outcome. They might also encourage students to think up their own mnemonic and visualization techniques and, if possible, both together, or to repeat aloud and rehearse items to be remembered, and use a multi-sensory mode of learning through oral, visual, auditory and kinesthetic modes. The learner should be able to see, hear, say and, if possible, touch the materials to be learned. This reinforces the input stimuli and helps to consolidate the information for use, meaning and transfer to other areas. Teachers can keep verbal instructions clear and concise and ensure students are attending before teachers start to speak. It can help to preface instructions with a warning (for example, Peter, in a moment I am going to ask you) to ensure that the student is ready to listen. They might also encourage students to repeat back key points as well as to talk through tasks in their own voice to help to direct their motor movements, and try supplementing auditory verbal material with visual cues and practical demonstrations. In some cases, written checklists or pictorial reminders may be beneficial.

Difficulties Experienced in the Learning of Mathematics

Much teaching and assessment in the area of mathematics takes place in the context of a symbolic representation of mathematics, that is, through written text and pictures. Many children appear to adopt mathematical symbols and algorithms without having grasped the concepts that underpin those. While activities involving reading and writing numbers may tell us something about children's ability to read and write numbers, they do not necessarily tell us anything about children's conceptual understanding of 'number-ness'. Learners' ability to understand symbolic representation depends on understanding of the first-hand experience to which the symbolic representation refers. In the case of younger learners this may involve, for example, the handling and counting of everyday items. Learning to use number symbols is likely to occur simultaneously with acquiring the alphabetic principle and sound-symbol correspondence in literacy acquisition and, as Grauberg comments, 'Where is the "f" in 5?' It is possible to use other number systems, for example, tally charts, first, where one bundle represents five and clearly made up of five. Rogers notes that there is a weak conceptual framework for understanding number in the early years on which to begin formal mathematics teaching:

Make it both difficult to engage children and to correct later, It is also well documented that such difficulties soon become compounded, resulting in distress and further delay. Attention needs to be paid to the negative effects of incomprehension of a prominent part of the mathematics curriculum in which young children are involved on a daily basis. It may be that such incomprehension prompts the early lack of confidence in mathematics that characterizes further failure and poor problem-solving during the later school years. They can often learn to count up and down 'in ones' and can take part in counting games and activities. However, understanding that a number, for example five, is not just the last number in the series 1–5 (the ordinal principle), but also means the whole set of five (the principle of cardinality) is another matter.

Pictorial symbols or icons are clearly different from abstract symbols used at the symbolic stage of reasoning in Bruner's framework. If we take the example of mathematics learning in schools, lack of symbolic understanding can lead to difficulties in the written recording of number work, relational signs: 'plus', 'minus', 'equal(s)', place value and 'zero', money and time, as Grauberg notes.

Relational signs: 'plus', 'minus', 'equal(s)'

Adding and subtracting both imply actions. Without an understanding of what the action is there is little point in trying to encourage the use of the symbol. '=' is often interpreted to children as 'makes', but, as we are all aware, a child's notion of 'makes' is clearly not what the symbol '=' means, mathematically.

Very great care must be taken in working out ways to support children's understanding by making clear links from one small step to the next. Primary schools in particular have a lot of equipment that can be used to play games in adding, subtracting and balancing. Bearing in mind Bruner's three modes of representation, for some children it might be important to use concrete aids to establish number learning, for example, Cuisenaire rods and/or an abacus, for much longer than for other children. A major question is how to move from the act of adding, taking away or balancing to competent use of the abstract symbols. One way to do this might be to spend time thinking about ways in which children will move into and through the iconic mode of representation and to encourage children to devise their own symbols for the actions first so that the icon visibly represents their own understandings.

Common problems: the examples of place value and 'zero'

Difficulties with the concept of place value and 'zero' can be experienced by students to the end of their secondary education.

Without understanding the whole concept of place value the use of zero as a place holder in a multi-digit line is difficult to comprehend for some students. One way to start to address problems with place value might be to continue to use concrete equipment such as Dienes materials – unit cubes, 'longs' of 10 cm cubes, and 'flats' of 100 cm cubes – for much longer than the teacher might have anticipated, providing that this can be done without embarrassing the child(ren).

For example, 54 might be written down at first as 50 with the 4 superimposed over the 0. 504 would be written down as 500 with the 4 superimposed over the last 0. Alternatively, as Grauberg notes, the numbers may be written on transparencies and then superimposed.

Understanding Number-Ness

Teaching number in the early years through the use of number sequences seems to be common in the UK and the USA. In some other countries in Europe and the Far East, for example, Japan, the preference is for emphasizing recognition of small quantities without counting. Recognizing a small number, for example, four, as a quantity involves one operation of matching a sound symbol or visual symbol to an amount. This seems, logically, easier than recognizing four from a number sequence. This latter involves remembering that four comes after three and before five, and simultaneously counting up to the total amount. It will take a lot of concrete activities in a variety of different contexts before a child with cognitive difficulties understands the concept of 'numberness'.

Concepts of time vary, as Grauberg points out. Supporting a student to acquire a concept of time is a very different proposition from teaching him/her to tell the time. There is no constant point of reference in relation to many indicators of time. 'Late' can refer to a time in the morning, if a student should have arrived earlier, or to a point at night when, for example, that student could be early or on time. Our sense of the passage of time is not constant either. It often seems to distort depending on the activity and our engagement with, or enjoyment of, it. For example, the few days before a birthday often seem to young children to pass much more slowly than most other days.

Bruner's three modes of representation – enactive, iconic and symbolic – again offer a framework for thinking about activities and approaches for students who experience difficulties in the acquisition of time-related concepts. Using a timer or some sort might help in the initial stages to enact the representation of time passing. Concentrating on the sounds emitted on striking a percussion instrument themselves might encourage a sense of the frequency of events. To encourage the concept of sequence, a teacher might first organize an activity for children to act out a regular sequence of events in their own lives and then represent sequence pictorially (Bruner's iconic mode of representation). These days the concept of a visual timetable for use in schools with young children and older children who experience cognitive difficulties is quite common.

To tell the time, use of a digital timer is a simpler option than a traditional clock face. However, there are other considerations. The hands of the traditional clock face can be seen to move in the context of the twelve hour cycle, but the numbers on a digital timepiece simply change.

3.5 SPECIFIC LEARNING DIFFICULTIES

Some young people experience difficulties in learning in specific areas that appear to be unrelated to their overall ability. One of these areas of difficulty is often linked to the concept of dyslexia.

The term 'Specific Learning Difficulty' (SpLD) is a term that refers to a difference or difficulty with particular aspects of learning.

The most common SpLDs are dyslexia, dyspraxia, attention deficit-hyperactivity disorder, dyscalculia and dysgraphia. An individual may have one of these independently or they can co-exist as part of a wider profile.

Specific Learning Difficulties (SpLDs) exist on a continuum from mild to moderate through to severe. There are common patterns of behavior and ability, but there will be a range of different patterns of effects for each individual.

Everyone has a cognitive profile. A simple way to define these cognitive skills is to describe them as the underlying brain skills that make it possible for us to think, remember and learn. These are the skills that allows us to process the huge influx of information we receive each and every day at work, at school and in life. We all have relative strengths and weaknesses in our cognitive profiles but overall most of our skills will fall in the normal range.

Where a person has difficulty with the majority of these skills which is reflected in his/her learning and day-to-day living skills he/she is deemed to have a severe learning disability.

However, when an individual has difficulties or weaknesses in just one or two areas in contrast to average or good cognitive skills this is called a Specific Learning Difficulty.

It is very important to note that SpLDs are independent of intellectual ability, socio-economic or language background.

Having a SpLD does not predict academic potential. However, the path to achievement may be harder and may require far greater (usually unseen) effort and a distinct set of skills. The challenge and opportunity in an educational context – for teacher and student - is to be aware of the specific effects of these differences and to explore a variety of methods and techniques to facilitate optimal learning.

3.5.1 Dyslexia

Dyslexia, also known as reading disorder, is characterized by trouble with reading despite normal intelligence. Different people are affected to different degrees. Problems may include difficulties in spelling words, reading quickly, writing words, “sounding out” words in the head, pronouncing words when reading aloud and understanding what one reads. Often these difficulties are first noticed at school. When someone who previously could read loses their ability, it is known as “alexia”. The difficulties are involuntary and people with this disorder have a normal desire to learn. People with dyslexia have higher rates of attention deficit hyperactivity disorder (ADHD), developmental language disorders, and difficulties with numbers.

Dyslexia is believed to be caused by the interaction of genetic and environmental factors. Some cases run in families. Dyslexia that develops due to a traumatic brain injury, stroke, or dementia is called “acquired dyslexia”. The underlying mechanisms of dyslexia are problems within the brain’s language processing. Dyslexia is diagnosed through a series of tests of memory, vision, spelling, and reading skills. Dyslexia is separate from reading difficulties caused by hearing or vision problems or by insufficient teaching or opportunity to learn.

‘Dyslexia’ is a concept about which there is much controversy. Some of this relates to whether or not there is an identifiable entity that we might term ‘dyslexia’ and, if so, what its precise nature, causes and explanations might be. Some concerns best practice in identification, assessment and teaching. There are also issues of equity in resourcing individual learning needs by privileging certain groups of students. One of the ‘major’ tensions in dyslexia research results from the potential conflict between the different agendas of individual and interest groups: researchers and practitioners, parents and teachers, teachers and educational psychologists, schools and local authorities, and local authorities and governments. The issue of funding provision for individual dyslexic students can force the various interest groups into opposition, for example.

‘Dyslexia’ is a psychological explanation of difficulties in learning. The information-processing system of ‘dyslexic’ individuals is seen as different from that of non-dyslexics in ways which have an impact on a number of areas of performance. Pumfrey describes dyslexia as a ‘variable syndrome’, implying that definitions of dyslexia may vary and be interpreted in different ways. Some definitions relate only to difficulty in acquiring literacy, as reflected by its derivation from Classical Greek: δυσ (dys), meaning ‘bad’ or ‘difficult’, and λεξι΄ς (lexis), meaning ‘word’, or ‘speech’. Other definitions are wider and include reference to difficulties in coordination, personal organization, balance, patterning, directionality (right/left confusion), sequencing, rhythm, orientation, memory and so on.

In terms of literacy acquisition, the difficulties experienced by dyslexic students are usually related to difficulties in processing either visual or/and auditory information and making the connections between the visual symbols and the sounds they represent, commonly called 'decoding'. In relation to visual factors, learners may experience difficulty in any of the following areas: recognition of the visual cues of letters and words, familiarity with left–right orientation, recognition of word patterns and recognition of letter and word shapes. Or they may encounter problems with any of the following auditory factors: recognition of letter sounds, recognition of sounds and letter groups or patterns, sequencing of sounds, corresponding sounds to visual stimuli, discriminating sounds from other sounds and/or discriminating sounds within words.

A wider definition espoused by the British Dyslexia Association (BDA) includes difficulty in the development of literacy and language related skills, particularly in phonological processing, and also in working memory, the speed of processing information and the automatic development of skills that may not reflect the level of other cognitive abilities. 'Conventional' teaching methods may not suffice in addressing such difficulties but information technology and individual counselling may lessen the effects.

We identify dyslexia as a learning difficulty associated with 'difficulties in phonological awareness, verbal memory and verbal processing speed' that 'affects the skills involved in accurate and fluent word reading and spelling', but also acknowledges a wider range of information-processing difficulties in various 'aspects of language, motor co-ordination, mental calculation, concentration and personal organization'. However, these aspects alone are not markers of dyslexia. A 'good indication' is the extent to which 'the individual responds or has responded to well-founded intervention'. In other words, as the BPS implies also, if a child experiences difficulties but has not received good teaching, then it cannot be assumed that s/he is dyslexic.

Association between Dyslexia and Intelligence

One debate around dyslexia relates to whether a child is dyslexic if his/her difficulties in literacy can be attributed to general low ability. Two methods used to identify dyslexia, both of which utilize IQ, can be compared to highlight the implications for practice: the 'cut-off method' and the 'regression' method. Both have resource implications for the type of teaching programs and provision allocated. The regression method essentially looks at the discrepancy between IQ and the reading level which would be predicted based on a child's IQ score. This means that a child with a high IQ score who may be around or only slightly below his age level in reading can still be identified as dyslexic because the reading level may still be below that expected for the IQ level. On the other hand the cut-off method means that any child with an average or above IQ but who is lagging in their reading level by at least 18 months can be described as dyslexic. As the British Psychological Society notes, both these methods can be problematic for two reasons. Both rely on the validity of the IQ measure as a robust indicator of a child's abilities. Also, measures of IQ and reading ages can change over time and a child who qualifies for additional help on account of any of these measures may make an improvement in reading which would exclude them, using the discrepancy criteria, from continuing to use the label dyslexia or qualify for extra help. In practice, therefore, a child receiving additional help may lose this support if s/he makes gains which narrow the discrepancy gap between reading and IQ.

Effects on Performance

Riddick, Wolfe and Lumsdon describe how dyslexia affects young children's performance in various areas. At pre-school level there may be a delay in spoken language, including difficulty in learning nursery rhymes and verbal sequencing, for example, days of the week and letters of the alphabet. There may also be poor gross motor co-ordination, for example, in learning to ride a bicycle or swim, poor fine motor skills, for example, in copying shapes and letters, and poor short term memory, for example, remembering a sequence of instructions and/or names. At primary age a child is likely to experience difficulties in reading, writing, spelling and number work. The child may be unable to identify rhythm and alliteration, or read single words accurately. S/he may reverse some words, for example, ‘pot’ and ‘top’, miss out whole lines and read some sections of text twice without realizing it, and have better understanding of text than word accuracy. Reading age for fluency and accuracy is likely to be below chronological age. Children who begin school with poor letter knowledge and poor rhythmic ability may be at risk of developing difficulties in reading. Snowling, for example, says that difficulties in encoding the phonological features of words (that is, the sound system of a language) is core to dyslexic children’s difficulties. ‘Dyslexia is a specific form of language impairment that affects the way in which the brain encodes the phonological features of spoken words. The core deficit is in phonological processing ... Dyslexia specifically affects the development of reading and spelling skills’. A child may spell the same word different ways in the same text, spell incorrectly words learnt for spelling tests, make several attempts to spell words with frequent crossings out, spell phonetically but incorrectly, use what look like bizarre spellings for example, ‘bidar’ for ‘because’, leave out syllables, for example, ‘onge’ for ‘orange’, or part of a letter blend especially when there is a blend of three letters, for example, ‘sred’ for ‘shred’, reverse letters, especially ‘b’ and ‘d’, ‘p’ and ‘q’. S/he may experience difficulty copying from the board, produce work that is chaotic or very untidy, begin writing anywhere on the page, confuse upper and lower case letters, produce very little output and what there is may be unintelligible even to the child.

Dyslexic children experience a number of difficulties in mathematics, including the learning of number bonds and multiplication tables and the understanding of concepts involving directionality. Time and spatial concepts can prove difficult. Children may find sequencing activities and orientation or both numbers and processes hard. Confusion can arise through having to process different operations in different directions, for example, the conventional right to left calculation of addition and subtraction, and left to right of division. There may be limited spatial awareness and visual discrimination, resulting in confusion of signs and reversal of digits. Children may also have very poor mental arithmetic (mental manipulation of number/symbols in short term memory).

Addressing difficulties experienced by primary-aged dyslexic pupils in mathematics.

We offer a number of suggestions about teaching such students:

- make sure they understand basic symbols = + –, etc;
- make sure they understand basic number language e.g. subtract, multiply, etc.;
- repeat learning and revision of number facts;
- teach child to estimate a sensible answer;
- teach child to check their answer against the set question;
- be alert for reversals which lead to child making a wrong calculation;
- practice counting forwards and backwards in sequences, e.g. in ones, then two, etc.;
- use pattern methods to teach number bonds;
- teach multiplication using table squares;
- use squared paper to aid correct setting out of calculations;
- give a sample strip with digits in correct orientation for checking reversals;
- use multi-sensory teaching; rehearse what has just been learnt with oral revision at the end of the lesson;
- teach using logic rather than just rules so conceptual ability can be utilized.

At secondary level, students may become withdrawn, subdued, and anxious about reading out loud or taking written tests, socially isolated and may experience psychosomatic difficulties, for example, sickness and headaches. S/he is likely also to feel very tired because of the exertion involved in trying to cope with increasing literacy demands.

Theories Explaining Dyslexia

There are a number of theories that attempt to explain the difficulties experienced by dyslexic learners.

Visual-based theories

There are visual-based theories which propose that dyslexia may be the consequence of an abnormality in the neural pathways of the visual system. There are others suggesting a lower level of activity in the areas of the visual cortex thought to be responsible for identifying the direction of movement. There is also a view that visual difficulties may be caused by over-sensitivity to certain wavelengths (or colors) of light. This is sometimes referred to as scotopic sensitivity syndrome. The significance of this is that colored filters, overlays or lenses which are said to alleviate reading problems for some learners have increasingly been incorporated into teachers' practice, with variable results.

Cerebellar deficit hypothesis

Nicolson and Fawcett developed the cerebellar deficit hypothesis in order to account for common patterns of difficulties among individuals identified as 'dyslexic: problems in balance, speed and phonological skill. The cerebellum is a densely packed and deeply folded subcortical brain structure, also known as the 'hind brain'. In humans it accounts for 10 per cent to 15 per cent of brain weight, 40 per cent of brain surface area, and 50 per cent of the brain's neurones. Damage to different parts of the cerebellum can lead to different symptoms in humans, ranging from disturbances in posture and balance to limb rigidity, loss of muscle tone, lack of co-ordination and impaired timing of rapid pre-planned automatic movements.

The results of a number of studies investigating the role of the cerebellum and its implications for dyslexia indicate that dyslexic children showed, firstly, clinical symptoms of cerebellar abnormality. Also, there were abnormalities in cerebellar activation in automatic processing and in new learning. Greater frontal lobe activation suggested they were by-passing the cerebellum to some extent. Overall this indicates that dyslexic children may use different methods in sequential learning and automatic performance. Fawcett and Nicolson hypothesize that the causal chain between cerebellar problems, phonological difficulties, and eventual reading problems accounts for three criterial difficulties of dyslexia: writing, reading and spelling.

The 'Balance Model' of reading and dyslexia The 'Balance Model' of reading and dyslexia is another example of a biological model. The balance model hypothesizes that early and advanced reading, that is, reading through decoding and attention to perceptual features of text, and reading for meaning, are mediated by the right and left hemispheres of the brain respectively. This model predicts that some children, P (perceptual)- type dyslexics, rely too much on the perceptual features of text and may not be able to shift from right to left in the hemispheric mediation of reading. Some other children, L (linguistic)-type dyslexics, rely on linguistic features of text to read fast and construct meaning, but pay too little attention to perceptual features of text.

The results of these investigations indicate that P- and L-dyslexics differ with regard to the speed of processing of reading-related information. P-types are faster than L-types in deciding whether all letters in an array are the same or different but P-types are slower than L-types when it comes to the question of whether a word is real or not.

The allocation to sub-types is based largely on observation of pupil performance in the particular aspects of the reading process which are causing concern.

Intervention therefore can aim to directly adapt learning behavior in line with the identified weaknesses in reading behavior.

Phonological deficit hypothesis Since the 1980s the dominant theory used to explain dyslexia has been the phonological deficit hypothesis. Phonological representations can be interpreted as the knowledge about sounds which a reader brings to the task of reading. Phonological processing is strongly related to the development of reading. Difficulties experienced at the level of phonological representation and the relationships between symbols and the sounds they represent constrain reading development. Hatcher and Snowling comment that one of the effects of this is that learners who experience difficulties at the phonological level are less able to generalize knowledge about the phonological properties of sounds and words they are taught. Activities such as non-word reading are problematic because of the difficulties associated with sound-symbol relationships. Hatcher and Snowling feel that this can be viewed as one of the most robust signs of dyslexia.

Hatcher and Snowling suggest that the most crucial factor in the individual profiles of dyslexic children is the severity of the lack of development in phonological representations. This can account for the differences between dyslexic children's profiles and the different presenting characteristics of the dyslexic group. Additionally dyslexic children with poorer phonological representations will have fewer compensatory word attack strategies to draw on and this will further undermine their reading performance.

Hatcher and Snowling conclude that assessment of phonological skills is therefore necessary, by, for example, providing examples of tasks: rhyme recognition, rhyme production, phonological manipulation such as phoneme deletion and letter knowledge, which can be found in some of the established tests available for this purpose. This view has considerable implications for intervention programs in the early years.

Addressing difficulties associated with Dyslexia

In their review of dyslexia, Rice and Brooks conclude that research appears not to indicate that 'dyslexics' and 'ordinary poor readers' should be taught by different methods. The same kind of approaches to addressing reading, writing and mathematical difficulties that are appropriate for dyslexic learners can also be useful for other students.

Teaching approaches for dyslexic students can be grouped into those that are designed to enable the child to overcome the difficulties that are experienced as far as possible – almost to train the personal information-processing system to become more organized in a deliberately systematic and focused way (personal reflections) – and those that enable to child to cope.

Phonological awareness training

When children are very young it may be difficult for them to realize that speech can be broken down into individual words or that words can also be broken down into sounds. Phonemic awareness develops only when there is good experience of speaking and listening. It can be encouraged by playing rhyming games, making up nonsense rhymes, repeating rhyming strings, and playing other games which require the manipulation of sounds. Hatcher and Snowling outline examples of phonological awareness training such as rhyme activities, identifying words as units within sentences, syllable awareness and blending tasks.

Whilst it is important to train phonological awareness it is also important to establish the relationship between sounds and written forms of words. Interventions that rely exclusively on training in phonological awareness are less effective than those that combine phonological training with print and meaning in the context of sentences in text. Interventions that address difficulties in co-ordination, personal organization, directionality, balance and patterning may also be needed for some students.

Acquisition of fluency in reading and writing

At almost any age, paired reading arrangements can enable dyslexic individuals to gain more experience in reading to enable greater experience in reading and in visual tracking of the text in order to increase word identification, knowledge of letter/sound combinations and use of contextual information and inference. Students might be encouraged to choose reading material of high interest to themselves, irrespective of its readability level, and both children might read out loud together, with the reading partner modulating his/her speed to match that of the dyslexic pupil. Or children might be encouraged to use recordings of books that they really want to read, tracking through the text with their eyes while listening to the CD.

In terms of writing, allowing students to dictate their thoughts onto a digital recorder and then transcribing them for him/her, or allowing him/her to dictate thoughts to the teacher/an older child/the parent, in the first instance is a coping strategy. Encouraging the child to listen to the recording of his/her own thoughts and then write the text from this is one way to separate out the conceptual thinking around content and the mechanical aspects of writing with which the child is likely to experience difficulty.

Pupils might also be provided with writing frames to support extended writing and encourage logical sequencing.

Multi-sensory approaches to learning

Multi-sensory approaches are a very important way to harness all the senses to support students' learning. Introducing visual, tactile, auditory and kinesthetic modes to teaching and learning enables students who need extra reinforcement in their learning to see, touch, hear and move, sometimes simultaneously, in their learning activities. The principles of multisensory teaching which apply to language work also apply to the mathematics field, for example, introducing new mathematical concepts and processes using concrete materials, diagrams, pictures and verbal explanation. Progress should be carefully monitored at each stage, checking that a particular concept has been thoroughly mastered and understood before moving on to the next step.

'Metacognitive' strategies

'Metacognitive' strategies can also help dyslexic and other students to think about their own thinking processes so that those who experience difficulty in particular areas of learning can develop alternative routes to accessing these areas. 'Mind-mapping' that encourages learners first to produce a visual representation of all those areas to be covered in the text before beginning on the written task is an example of one way to develop a structure for producing extended text.

Coping Strategies

Research stresses the motivational value of computer-assisted learning, for example, word-processing, which can increase the time that students are willing to practice writing. Spell-checkers can remove much of a pupil's inhibition about writing that comes from poor spelling. Drafting and correcting becomes less laborious and the printed copy can be corrected away from the machine by the student or the teacher and improved versions created without difficulty. Everything can be saved and reused easily, allowing work to be done in small amounts. Presentation is improved;

when the final version is printed it is legible and well presented. Optical comfort is also important. A choice of screen colors can be helpful to students.

Visual discrimination/spatial analysis

Strategies to enable pupils to cope with particular difficulties in the area of spatial analysis and visual discrimination in the classroom might include keeping all visually presented materials simple in format and uncluttered by excessive stimuli and assisting the student in planning and organizing assigned tasks written on paper by providing visual cues and providing step-by-step instructions. When giving directions it is often helpful for teachers and others to be specific and use concrete cues. New concepts might be introduced where appropriate by beginning with the identification of individual parts and moving to integrated wholes.

Reasonable adjustments': examination concessions

Where a young person has a formal assessment of severe dyslexia it may be the case that this is interpreted as a disability under the terms of the 2010 Equality Act. If this is the case then, as discussed above (see p. 84), s/he is entitled to 'reasonable adjustments' to enable access to the school or college curriculum, including internal and external examinations. The school might give internal examination concessions (extra time, answers in note form, oral test to support written examination, use of word processor in coursework, examinations etc.) and 25 per cent additional time. Examination papers might be duplicated so that the pupil can see both sides of a page at the same time, enlarged or printed on colored paper, along with the use of highlighting pens to help with the analysis of questions. Guidelines for access arrangement during external examinations have been issued by some qualifications bodies to ensure compliance with the 2010 Equality Act, for example, the Qualifications and Curriculum Authority (QCA) in relation to secondary students.

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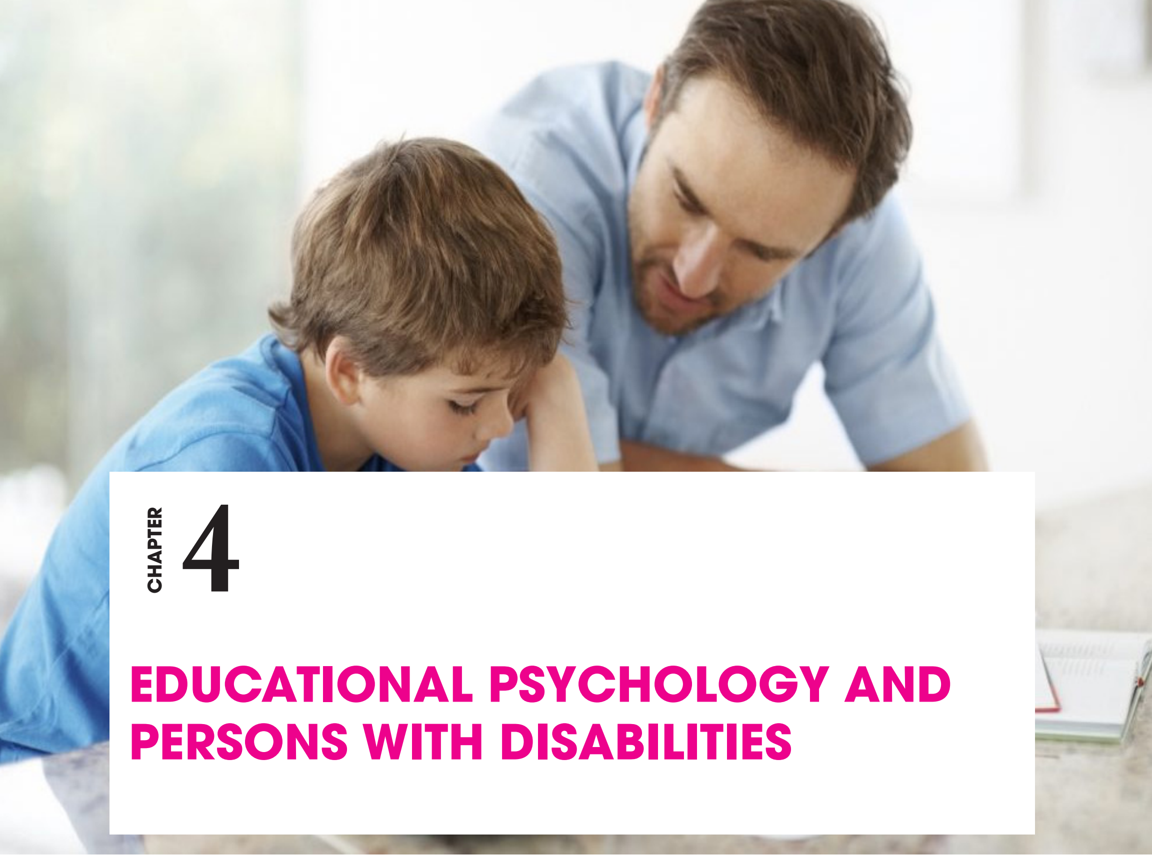

CHAPTER 4

EDUCATIONAL PSYCHOLOGY AND PERSONS WITH DISABILITIES

INTRODUCTION

Special needs children are children who have disability, health or mental health or mental health conditions requiring early intervention requiring early intervention and supports. Psychology has important contributions to understanding, explanation, prediction, control, and solves problems of special needs children. The real contributions of the psychology are in a collaborative process with other stakeholders in a children's bio-psycho-social system. The system involves the children, family, community, educators and educational systems, and other professional. In this context, the contributions of psychologist are best given within a multi-disciplinary group. Psychologists apply psychology theories in understanding, explanation, prediction, control, and solve problems of special needs children. For applied psychologists, theories are the important tool for understanding, explaining, predicting, controlling, and solving problems of special needs children.

In our global world there is a phenomenon of children with special needs. The special needs children are children with some cognitive, affective, and psychomotor limitations. The phenomena of special needs children include children with autism, children with mental retardation, children attention deficit hyperactivity disorder, and children with sensory, physical, and health impairments.

Because of their limitation (cognitive, affective, and psychomotor) they should be supported to adjusting themselves to their spiritual, social, and physical environment. In this context, the society and community where they live should support them so the children can live happily and wealthy. The support can be actualized through education for special needs children.

One way for family, school, community, and school to facilitate the special needs children is knowledge and practices about a psychology perspective towards special needs children. Psychology as a science of behaviour and mental phenomena can help through theories and practices to help special needs children adjust themselves to their environment. The effectiveness of the self-adjustment can help them in acquiring happiness and fulfilling their function in the family, school, community, society, and state.

4.1 APPLICATIONS OF PSYCHOLOGICAL THEORIES TO THE LIFE OF A STUDENT

Psychology plays an important role in what we do on a day-to-day basis, and this is especially true for students. How we learn and incorporate information is directly influenced by psychology, whether we know it or not. Educational psychology is the study of how humans learn in educational settings, the effectiveness of educational interventions, the psychology of teaching, and the social psychology of schools as organizations. It is concerned with how students learn and develop, often focusing on subgroups such as gifted children and those subject to specific disabilities. Understanding the various theories of learning as well as your personal learning style can help you better understand information and develop positive study habits.

Figure 1: Psychology in the life of a student: How we learn and incorporate information is directly influenced by psychology.

4.1.1 Education and Theories of Learning

Within the realm of psychology, there are several theories that help explain the ways in which people learn. By understanding these concepts, students are better able to understand and capitalize on how they acquire knowledge in school. *Behaviorism* is based on both classical conditioning (in which a stimulus is conditioned to create a response) and operant conditioning (in which behavior is reinforced through a particular reward or punishment). For example, if you study for your psychology test and receive a grade of A, you are rewarded; in theory, this makes it more likely that you will study in the future for your next test.

Cognitivism is the idea that people develop knowledge and meaning through the sequential development of several cognitive processes, including recognition, reflection, application, and evaluation. For example, you read your psychology textbook (*recognition*), you ponder what the ideas mean (*reflection*), you use the ideas in your everyday life (*application*) and then you are tested on your knowledge (*evaluation*). All of these processes work together to help you develop prior knowledge and integrate new concepts.

Constructivism is the concept of constructing new ideas based on previous knowledge. For example, our prior experiences with a situation help us to understand new experiences and information. Piaget is most famous for his work in constructivism, and many Montessori schools are based on the constructivist school of thought.

4.1.2 Types of Learners

People also learn in a variety of ways. Styles of learning are generally grouped into three primary categories: visual, auditory, and kinesthetic. Although most people are a combination of these three types, we tend to have a particular strength in one area. Knowing your strongest learning type can help you learn in the most effective way; depending on your learning style, you'll want to tweak your study skills to get the most of your education.

- *Visual* learners usually use objects such as flashcards or take and reread lecture notes. Visual learners will highlight important passages in books or draw pictures/diagrams of ideas to help better understand the concepts.
- *Auditory* learners understand concepts best by listening; many will record a lecture and play it back to further understand the lesson. Many auditory learners will read aloud and tend to do well on oral, rather than written, exams.
- *Kinesthetic* learners (related to kinesthesia) do best when they act out or repeat something several times.

Role-plays, experiments, and hands-on activities are great ways for kinesthetic learners to understand and remember concepts.

4.1.3 Learning Disabilities and Special Education

Special-education programs are designed to help children with disabilities obtain an education equivalent to their non-disabled peers.

There are a variety of learning disabilities that require special assistance in order to help children learn effectively. Special education is the practice of educating students with disabilities or special needs in an effective way that addresses their individual differences and needs. Ideally, this process involves the individually planned and systematically monitored arrangement of teaching procedures, adapted equipment and materials, and accessible settings. Some forms of support include specialized classrooms; teacher's aides; and speech, occupational, or physical therapists.

Special-education interventions are designed to help learners with special needs achieve a higher level of personal self-sufficiency and success in school and their community than may be available if they were only given access to a typical classroom education. Certain laws and policies are designed to help children with learning disabilities obtain an education equivalent to their non-disabled peers.

Types of Learning Disabilities

Intellectual Disabilities

An intellectual disability, or general learning disability, is a generalized disorder appearing before adulthood, characterized by significantly impaired cognitive functioning and deficits in two or more adaptive behaviors (such as self-help, communication, or interpersonal skills). Intellectual disabilities were previously referred to as mental retardation (MR)—though this older term is being used less frequently—which was historically defined as an intelligence quotient (IQ) score under 70. There are different levels of intellectual disability, from mild to moderate to severe.

ADHD

Attention -deficit hyperactivity disorder (ADHD) is considered a type of learning disability. This disability is characterized by difficulty with focusing, paying attention, and controlling impulses. Children with ADHD may have trouble sitting in their seat and focusing on the material presented, or their distractions may keep them from fully learning and understanding the lessons. To be diagnosed according to the Diagnostic and Statistical Manual of Mental Disorders, 5th edition (DSM-5), symptoms must be observed in multiple settings for six months or more and to a degree that is much greater than others of the same age. They must also cause problems in the person's social, academic, or work life.

Autism Spectrum Disorder

Autism spectrum disorder (ASD) is a neurodevelopmental disorder characterized by limitations in language and social skills. While previously divided into different disorders, the DSM-5 now uses the term ASD to include autism, Asperger syndrome, childhood disintegrative disorder, and pervasive developmental disorder not otherwise specified (PDD-NOS). Language difficulties related to ASD will sometimes make it hard for the child to interact with teachers and peers or themselves in the classroom. Deficits in social skills can interfere with the development of appropriate peer relationships, and repetitive behaviors can be obsessive and interfere with a child's daily activities. Although many children with ASD display normal intelligence, they may require special support due to other symptoms of the disorder.

Figure 2: A child with autism stacking cans: Although many children with ASD display normal intelligence, they often require special support due to other symptoms of the disorder.

Dyslexia

Dyslexia is characterized by difficulty with learning to read or write fluently and with accurate comprehension, despite normal intelligence. This includes difficulty with phonological awareness, phonological decoding, processing speed, auditory short-term memory, and/or language skills or verbal comprehension. Dyslexia is the most recognized of reading disorders; however not all reading disorders are linked to dyslexia.

Laws for Children with Disabilities

Two laws exist to help ensure that children with learning disabilities receive the same level of education as children without disabilities: IDEA and Section 504.

The Individuals with Disabilities Education Act (IDEA)

The Individuals with Disabilities Education Act (IDEA) provides federal funding to states to be put toward the educational needs of children with disabilities. IDEA, which covers 13 categories of disability, has two main components: Free and Appropriate Public Education (FAPE) and an Individual Education Program (IEP). In addition to the disabilities listed above, IDEA covers deaf-blindness, deafness, developmental delays, hearing impairments, emotional disturbance, orthopedic or other health impairment, speech or language impairment, traumatic brain injury, and visual impairment (including blindness).

The Free and Appropriate Public Education (FAPE) component of IDEA makes it mandatory for schools to provide free and appropriate education to all students, regardless of intellectual level and disability. FAPE is defined as an educational program that is individualized for a specific child, designed to meet that child's unique needs, and from which the child receives educational benefit. An Individual Education Program (IEP) is developed for each child who receives special education; each plan consists of individualized goals for the child to work toward, and these plans are re-evaluated annually.

IDEA also advocates for the Least Restrictive Environment (LRE), which means that—to the greatest extent possible—a student who has a disability should have the opportunity to be educated with non-disabled peers, have access to the general-education curriculum, and be provided with supplementary aids and services necessary to achieve educational goals if placed in a setting with non-disabled peers.

Section 504

Section 504 is a civil-rights law that protects people with disabilities from discrimination. All students with disabilities are protected by Section 504, even if they are not provided for by IDEA. Section 504 states that schools must ensure that a student with a disability is educated among peers without disabilities. A re-evaluation is required prior to any significant changes in a child's placement, and a grievance procedure is in place for parents who may not agree with their child's educational placement.

4.1.4 The Effect of Educational Psychology on Special Education

With the reauthorization of the Individuals With Disabilities Act (IDEA), all children with disabilities are guaranteed free, appropriate public education. As Congress reasserted the importance of this groundbreaking legislation in 2004, educators began shifting their focus to the individual rather than their impairments. With this dynamic shift, general education teachers are increasingly teaching a mix of disabled of nondisabled students—a task that comes with its own set of challenges. For assistance, general educators often rely on special educators, who can apply their knowledge of educational psychology to the classroom and help provide the ideal learning environment.

4.1.5 The Impact of Educational Psychology on Classrooms

Educational psychology has completely altered the special education landscape. Whereas students with disabilities were once segregated from the rest of the student population, educators now know that the majority of students with disabilities can achieve the same academic standards as their nondisabled peers. However, the needs of every student with a disability must be accounted and provided for if they are to achieve academic success.

Planning Lessons Around Students' Strengths and Weaknesses

There is no one-size-fits-all approach to educating students with disabilities. Taking the lessons learned by educational psychologists, teachers differentiate instruction so that every student has a chance to learn regardless of their abilities. In addition to flexibility, ongoing assessment, and collaboration, differentiated instruction prioritizes group work and a challenging work environment: student-centered concepts shared by the constructivist view of learning. In an inclusive classroom, students with disabilities are taught alongside their nondisabled peers and receive individual, small-group, and whole-class instruction, as well as the opportunity to discuss lessons with peers of varying ability and interests.

Providing a challenging learning environment often proves more difficult. How do you provide engaging content to both disabled and nondisabled students? Remember, students learn by building upon their own experiences, which is why it's best that students always engage with content they are able to learn. This means assessing the progress and needs of every student and planning lessons accordingly.

4.2 TEACHING STUDENTS WITH DISABILITIES

Students of all abilities and backgrounds want classrooms that are inclusive and convey respect. For those students with disabilities, the classroom setting may present certain challenges that need accommodation and consideration.

4.2.1 Terminology

In order to create an inclusive classroom where all students are respected, it is important to use language that prioritizes the student over his or her disability. Disability labels can be stigmatizing and perpetuate false stereotypes where students who are disabled are not as capable as their peers. In general, it is appropriate to reference the disability only when it is pertinent to the situation. For instance, it is better to say "The student, who has a disability" rather than "The disabled student" because it places the importance on the student, rather than on the fact that the student has a disability.

4.2.2 Types of Disabilities

Disabilities can be temporary (such as a broken arm), relapsing and remitting, or long-term. Types of disabilities may include:

- Hearing loss
- Low vision or blindness
- Learning disabilities, such as Attention-Deficit Hyperactivity Disorder, dyslexia, or dyscalculia
- Mobility disabilities
- Chronic health disorders, such as epilepsy, Crohn's disease, arthritis, cancer, diabetes, migraine headaches, or multiple sclerosis
- Psychological or psychiatric disabilities, such as mood, anxiety and depressive disorders, or Post-Traumatic Stress Disorder (PTSD)
- Asperger's disorder and other Autism spectrum disorders
- Traumatic Brain Injury

Students may have disabilities that are more or less apparent. For instance, you may not know that a student has epilepsy or a chronic pain disorder unless she chooses to disclose or an incident arises. These "hidden" disorders can be hard for students to disclose because many people assume they are healthy because "they look fine." In some cases, the student may make a seemingly strange request or action that is disability-related. For example, if you ask the students to rearrange the desks, a student may not help because he has a torn ligament or a relapsing and remitting condition like Multiple Sclerosis. Or, a student may ask to record lectures because she has dyslexia and it takes longer to transcribe the lectures.

4.2.3 Access to Resources

When students enter the university setting, they are responsible for requesting accommodations through the appropriate office.

This may be the first time the student will have had to advocate for himself. For first year students, this may be a different process than what they experienced in high school with an Individualized Education Program (IEP) or Section 504 plan.

Every university has its own process for filing paperwork and the type of paperwork needed.. As part of the required paperwork, the student must present documentation from an appropriate medical professional indicating the diagnosis of the current disability and, among other things, the types of accommodations requested. All medical information provided is kept confidential. Only the approved accommodation arrangements are discussed with faculty and administrators on an as-needed basis.

It is important to note that this process takes time and certain accommodations, like an interpreter, must be made within a certain time period.

4.2.4 Confidentiality, Stigma, and Disclosure

A student's disclosure of a disability is always voluntary. However, students with disabilities may feel nervous to disclose sensitive medical information to an instructor. Often, students must combat negative stereotypes about their disabilities held by others and even themselves. For instance, a recent study by May & Stone (2010) on disability stereotypes found that undergraduates with and without learning disabilities rated individuals with learning disabilities as being less able to learn or of lower ability than students without those disabilities. In fact, students with learning disabilities are no less able than any other student; they simply receive, process, store, and/or respond to information differently.

Similarly students with physical disabilities face damaging and incorrect stereotypes, such as that those who use a wheelchair must also have a mental disability. Additionally, those students with "hidden disabilities" like epilepsy or chronic pain frequently describe awkward situations in which others minimize their disability with phrases like "Well, you look fine."

In Barbara Davis's *Tools for Teaching*, she explains that it is important for instructors to "become aware of any biases and stereotypes [they] may have absorbed….Your attitudes and values not only influence the attitudes and values of your students, but they can affect the way you teach, particularly your assumptions about students…which can lead to unequal learning outcomes for those in your classes." As a way to combat these issues, she advises that instructors treat each student as an individual and recognize the complexity of diversity.

Strategies

- A statement in your syllabus inviting students with disabilities to meet with you privately is a good step in starting a conversation with those students who need accommodations and feel comfortable approaching you about their needs. Let the student know times s/he can meet you to discuss the accommodations and how soon the student should do so. Here are two sample statements:
- The Department of Spanish and Portuguese is committed to making educational opportunities available to all students. In order for its faculty members to properly address the needs of students who have disabilities, it is necessary that those students approach their instructors as soon as the semester starts, preferably on the first day of class. They should bring an official letter from the Opportunity Development Center (2-4705) explaining their specific needs so that their instructors are aware of them early on and can make the appropriate arrangements.
- If you have a learning or physical disability, or if you learn best utilizing a particular method, please discuss with me how I can best accommodate your learning needs. I am committed to creating an effective learning environment for all learning styles. However, I can only do this successfully if you discuss your needs with me

in advance of the quizzes, papers, and notebooks. I will maintain the confidentiality of your learning needs. If appropriate, you should contact the Equal Opportunity, Affirmative Action, and Disability Services Department to get more information on accommodating disabilities.

- Provide an easily understood and detailed course syllabus. Make the syllabus, texts, and other materials available before registration.
- If materials are on-line, consider colors, fonts, and formats that are easily viewed by students with low vision or a form of color blindness.
- Clearly spell out expectations before the course begins (e.g., grading, material to be covered, due dates).
- Make sure that all students can access your office or arrange to meet in a location that is more accessible.
- On the first day of class, you can distribute a brief Getting to Know You questionnaire that ends with the question 'Is there anything you'd like me to know about you?' This invites students to privately self-disclose important challenges that may not meet the EAD accommodations requirements or that may be uncomfortable for the student to talk to you about in person upon first meeting you.
- Don't assume what students can or cannot do with regards to participating in classroom activities. Think of multiple ways students may be able to participate without feeling excluded. The next section on "Teaching for Inclusion" has some ideas for alternative participation.

4.2.5 Teaching for Inclusion: Inclusive Design

One of the common concerns instructors have about accommodations is whether they will change the nature of the course they are teaching. However, accommodations are designed to give all students equal access to learning in the classroom. When planning your course, consider the following questions:

- What is the purpose of the course?
- What methods of instruction are absolutely necessary? Why?
- What outcomes are absolutely required of all students? Why?
- What methods of assessing student outcomes are absolutely necessary? Why?
- What are acceptable levels of performance on these student outcome measures

Answering these questions can help you define essential requirements for you and your students. For instance, participation in lab settings is critical for many biology classes; however, is traditional class lecture the only means of delivering instruction in a humanities or social science course? Additionally, is an in-class written essay exam the only means of evaluating a student who has limited use of her hands? Could an in-person or taped oral exam accomplish the same goal?

When teaching a student with any disability, it is important to remember that many of the principles for inclusive design could be considered beneficial to any student. The idea of "Universal Design" is a method of designing course materials, content, and instruction to benefit all learners. Instead of adapting or retrofitting a course to a specific audience, Universal Design emphasizes environments that are accessible to everyone regardless of ability. By focusing on these design principles when crafting a syllabus, you may find that most of your course easily accommodates all students.

Many of Universal Design's methods emphasize a deliberate type of teaching that clearly lays out the course's goals for the semester and for the particular class period. For instance, a syllabus with clear course objectives, assignment details, and deadlines helps students plan their schedules accordingly. Additionally, providing an outline of the day's topic at the beginning of a class period and summarizing key points at the end can help students understand the logic of your organization and give them more time to record the information.

Similarly, some instructional material may be difficult for students with certain disabilities. For instance, when showing a video in class you need to consider your audience. Students with visual disabilities may have difficulty seeing non-verbalized actions; while those with disorders like photosensitive epilepsy may experience seizures with flashing lights or images; and those students with hearing loss may not be able to hear the accompanying audio. Using closed-captioning, providing electronic transcripts, describing on-screen action, allowing students to check the video out on their own, and outlining the role the video plays in the day's lesson helps reduce the access barrier for students with disabilities and allows them the ability to be an active member of the class. Additionally, it allows other students the opportunity to engage with the material in multiple ways as needed.

4.3 CONCEPTS OF INTELLIGENCE AND APTITUDE IN LEARNING DISABLED STUDENTS

Intelligence testing is the estimation of a student's current intellectual functioning through a performance of various tasks designed to assess different types of reasoning. A student's intelligence quotient (IQ) is typically measured by standardized testing with norm-referenced tests.

Intelligence involves the ability to think, solve problems, analyze situations, and understand social values, customs, and norms.

Two main forms of intelligence are involved in most intelligence assessments:

- Verbal Intelligence is the ability to comprehend and solve language-based problems.
- Nonverbal Intelligence is the ability to understand and solve visual and spatial problems.

Intelligence is sometimes referred to as the intelligence quotient (IQ), cognitive functioning, intellectual ability, aptitude, thinking skills, and general ability.

4.3.1 Importance of Intelligence Testing for Learning Disabled Students

Intelligence testing is done to better understand how well a child can be expected to perform and to assess a student's needs.

- In most cases, intelligence testing is required by federal special education regulations to confirm or rule out the presence of mental disabilities and to establish IQ for the purposes of diagnosing a learning disability.
- Depending on the type of intelligence test administered, it may provide important information on how students approach problem-solving.
- Properly interpreted, intelligence testing help educators develop appropriate specially designed instruction and educational strategies for individual educational plan (IEP) development.

4.3.2 Common Types of Intelligence Tests

IQ tests are one well-known form of normed testing. They compare "normal" skill levels to those of individual students of the same age. Intelligence tests (also called instruments) are published in several forms:

- **Group intelligence tests** usually consist of a paper test booklet and scanned scoring sheets. Group achievement tests, which assess academic areas, sometimes include a cognitive measure. In general, group tests are not recommended for the purpose of identifying a child with a disability. In some cases, however, they can be helpful as a screening measure to consider whether further testing is needed and can provide good background information on a child's academic history.

- **Individual intelligence tests** may include several types of tasks and may involve easel test books for pointing responses, puzzle and game-like tasks, and question and answer sessions. Some tasks are timed. The Wechsler Intelligence Scale for Children (WISC) and the Stanford Binet-Intelligence Scale, formerly known as the Binet-Simon Test, are examples of individualized intelligence tests. The WISC test includes language-, symbol-, and performance-based questions while the Stanford-Binet test helps to diagnose students with cognitive disabilities.
- **Computerized tests** are becoming more widely available, but as with all tests, examiners must consider the needs of the child before choosing this format.
- **Nonverbal intelligence tests,** such as the Comprehensive Test of Nonverbal Intelligence (CTONI) and Universal Nonverbal Intelligence Test, Second Edition (UNIT2), are used to assess students who have language processing problems or those with limited English proficiency. In these tests, tasks are designed to remove verbal intelligence from the assessment of a child's reasoning abilities and to isolate and assess a student's visual learning skills.

The re-authorization of IDEA has stimulated an intense debate over the utility of comparing IQ to achievement scores to determine eligibility under the Learning Disabled classification. The debate has spilled over into a generalized attack against the use of tests of intellectual functioning in the process of determining eligibility for special education. This paper explores the utility of intellectual assessment and the proposed alternative to diagnosing learning disabilities.

4.3.3 What Do Intelligence Tests Measure?

IQ tests are used to measure multiple, complex problem-solving abilities that are affected by a number of specific cognitive processes. These specific processes include, among others, abstract reasoning, concept formation, declarative memory, retrieval of semantic information from memory, working memory, attention to details, multi-tasking, pattern matching, visualconstruction abilities, rapid visual identification, visuo-motor integration, verbal productivity, verbal problem solving, language comprehension, object naming, word knowledge, visualperceptual and visual-spatial problem solving, and sequential reasoning. Intelligence tests uniquely measure the integrated functioning of all these processes to provide an indicator of the integrity of the problem-solving system. IQ tests have been developed to identify individual variability in cognitive functioning. In the hands of a trained professional, the interpretation of a child's performance on these tests can provide insight to the nature of underlying processing deficits and directions for useful modifications or accommodations needed to teach that child. A child's performance on specific subtests indicates his or her strengths and weaknesses in information processing. For instance, some children may have very poorly developed vocabulary and limited world knowledge; but have significant strengths in their ability to repeat auditory information and to rapidly identify and manipulate visual information. This child may be able to repeat information, but lacks comprehension skills to act appropriately on it. Because of this, others may believe that the child chooses to ignore or defy verbal requests or not to demonstrate what he or she has learned, which may result in punitive rather than accommodative reactions to the child's behavior.

Historically, tests of intellectual functioning were strongly influenced by the concept of 'g'. This concept implies that there is only one primary cognitive ability that accounts for an individual's performance on a wide variety of problem solving tests. This conceptualization is supported by the findings that in healthy individuals performance across complex problem solving tasks is highly correlated. Sophisticated factor analytic research has supported the existence of related but dissociable cognitive abilities including verbal and visual perceptual problem solving, working memory, and processing speed. These skills have been demonstrated to exhibit differential sensitivity to the effects of normal aging and brain injury. Most recently, neuropsychology and cognitive neuroscience, have expanded our understanding of how the brain processes information. These advances have produced more sophisticated intelligence tests and increased our understanding of the processing difficulties associated with specific clinical and educational conditions such as learning disability. It is now recognized that IQ tests measure multiple complex problem solving abilities that are impacted upon by a number of more specific cognitive processes These specific processes include, among others, abstract reasoning, concept formation, declarative memory, retrieval of semantic information from memory, working memory, attention to details, multi-tasking, pattern matching, visual-construction abilities, rapid visual identification, visuo-motor integration, verbal productivity, verbal problem solving, language comprehension, object naming, word knowledge, visual-perceptual and visual-spatial problem solving, and sequential reasoning. Intelligence tests uniquely measure the integrated functioning of all these processes to provide an indicator of the integrity of the problem-solving system.

While IQ tests are becoming more sophisticated in enabling the clinician to determine the processes affecting the child's performance on the test, clinical judgment plays an important role in determining the nature of the child's cognitive strengths and weaknesses. The application of this knowledge about the child's information processing to the child's educational planning, including remediation of deficits, modification of curriculum to take advantage of the child's learning strengths or accommodating the environment to better meet the child's needs, illustrates the true power of intellectual assessment. For instance, a child may have very poorly developed vocabulary and limited world knowledge; but have significant strengths in their ability to repeat auditory information and to rapidly identify and manipulate visual information. This child may be able to repeat what has been told to him or her but lacks comprehension skills to act appropriately on that information. The incongruence between his ability to repeat information with the inability to meaningfully apply that information may make others believe that he or she is choosing to ignore or defy verbal requests or chooses not to demonstrate what they have learned. These inaccurate perceptions may result in punitive rather than accommodative reactions to the child's behavior.

IQ Tests Are Sensitive to the Impact of Adverse Developmental Events

While some theorists suggest that 'Intelligence' is a genetically determined, immutable ability that transcends environmental influences. Neuroscientists had provided evidence that brain development and cognitive development are closely linked. Adverse events occurring in utero or post-natally that directly impact brain development concurrently impacts the development of cognitive abilities. Post-natal environmental factors are equally, including effects of the physical and social environment, play a role in cognitive development. This is due to the substantial amount of brain development occurring after birth and continuing well into the teen years. Since IQ tests measure multiple abilities, they have been found to be sensitive to a wide range of adverse pre- and post-natal influences. As an example, researchers have found that extreme premature birth and pre-natal exposure to substances of abuse (e.g. alcohol) or specific types of medications result in cognitive deficits as measured by IQ and other neuropsychological measures. After birth, medical and experiential factors may negatively influence cognitive development. A variety of genetic disorders, such as Neurofibromatosis and Tuberous Sclerosis, affect both brain development and intellectual functioning. Medical disorders such as, temporal lobe epilepsy, sickle cell anemia, brain tumors, and hydrocephalus affect brain function and intellectual development. Physical and social environmental events such as exposure to toxins, witnessing violence, or a head injury due to physical abuse or an accident impact the course of neurocognitive development. The medical and experiential factors reported here are just a small number of the known contributors to cognitive difficulties. This research serves as a strong reminder of the sensitivity of tests of intellectual functioning to developmental, environmental, and medical forces that impact the individual child. These children often require special education services and many have one or more learning disabilities.

The Defamation of Intelligence Testing

It is no secret that the number of children entering special education has dramatically increased in the past decade. The causes of this increase are not well understood, but one thing is certain; IQ testing has not caused the increase in the number of children receiving special education services. The increase is a direct reflection of the rate of referral from the classroom teacher to the multidisciplinary team. The defamation of IQ testing occurs because more and more children are being referred for testing and more parents have to experience the eligibility determination process.

The eligibility and classification system and, to some degree, the use of the term intelligence create negative or positive impressions of the children. The determination that a child is eligible for special education services due to a learning disability is perceived as an entitlement, while eligibility due to an emotional handicap or mental retardation is considered negatively and potentially as punitive, unless of course, the child physically appears handicapped—then services are considered an entitlement. This is illustrated by a lawsuit brought against the state of California, which claimed that IQ tests were used intentionally to place minority children in classrooms for mentally retarded children. The court upheld the claim and banned the use of IQ tests in eligibility determinations for minorities. Later, the court was petitioned to allow the use of IQ tests for determination of learning disability in minority children, but not for determination of mental retardation. This strongly implies that there is a negative perception of some eligibility classifications while others are perceived as an entitlement. This is understandable, as many parents do not like their child referred to as “Seriously Emotionally Disturbed” or “Mentally Retarded.” The connotations to these labels perpetuate the image of IQ tests as the villains, causing these children to receive positive or negative labels. There is also a perception that the nature of the placement, learning disabled versus mentally handicapped, results in superior versus inferior services and outcomes.

The criteria for classifications are not defined the same way among educational professionals, which results in various definitions of eligibility. This inconsistency is also associated with the labels chosen for eligibility classification. The labels themselves suggest "causation" rather than being descriptive of the actual problem. For instance, the term learning disability implies that underlying neurocognitive processes causes poor academic performance, which affects the acquisition of knowledge or skill in a particular domain. In some cases, the child may have specific processing weaknesses while in other cases the child may not speak English as their primary language. Other educational classifications such as "Serious Emotional Disturbance" and "Educable Mental Handicap" have strong negative perceptions. Serious emotional disturbance suggests that the child's academic and behavior problems are not cognitive. Therefore, identified problems appear to be more under the child's control. Mental retardation implies complete mental deficiency even if the child has other strengths. These labels have contributed to the confusion between the goal of the MDT between eligibility for specific services and diagnosis. If the goal of the MDT were to make a diagnosis, particularly with respect to making inferences regarding brain-behavior relationships, then they would need sufficient training and experience in educational, psychiatric, and neuropsychological diagnostic procedures to do so. As a result of this process, there is a tendency to place children in learning disabled category because the term is more palatable and more socially acceptable.

Arguably, the terms intelligence test and IQ feed into the misapplication, misinterpretation, and negative connotation associated with the mental retardation categories. The term mental retardation reflects the historical concepts of "g," which suggests that there is one primary cognitive ability that accounts for an individual's performance on a wide variety of problemsolving tests. It is supported by the fact that performance of complex problem-solving tasks among healthy individuals is highly correlated and, primarily, one skill is being measured. Most measures of intelligence are moving away from this concept toward a more neuropsychologically oriented approach. Recent research supports the existence of related, but dissociable skills, such as verbal versus visual perceptual skills, and crystallized versus fluid intelligence. Working memory and processing speed also have been reliably measured with intelligence tests. Recent advances in neuropsychological and cognitive neuroscience have produced more sophisticated intelligence measures and increased our understanding of processing difficulties associated with specific clinical and educational problems, such as learning disorders. In the most recent version of the Wechsler Intelligence Scale for Children, (Wechsler, 2003) the clinician is encouraged to use factor scores that measure specific cognitive abilities, such as working memory, rather than to focus on a single score. Clearly, a single score does not adequately represent the sum of an individual's problems-solving abilities.

4.3.4 Issues of Defining and Identifying the Learning Disabled

Achievement, like many cognitive abilities, occurs along a normal continuum. Some children simply learn to read faster than others given the same instruction, just as some children learn music or art or physical skills at different rates. On standardized measures of academic achievement, by virtue of scaling, 25% of the children will display low average or lower level of achievement. These children may or may not be doing poorly in school, depending on the composition of the classroom and the relative achievement of their classmates. Using cut scores based on achievement testing alone, one could arbitrarily select a score that captures 2–25% of the population. This approach may miss brighter students who are struggling to keep up with peers in the classroom but do just well enough, through adaptive compensatory mechanisms, on testing to not be identified.

The achievement–ability discrepancy model is the psychometric equivalent to the definition of learning disability as an unexpected failure to learn in the presence of adequate general cognitive ability. The issue with discrepancy models is that the predictor and criterion both have some measurement error. Discrepancy values have more measurement error than the predictor or criterion in and of themselves. When the predictor and criterion are correlated, the measurement error of the difference score increases. This makes the discrepancy score more unstable and likely to change over time or between test sessions. Using a specific cut-off score based on a discrepancy score as single diagnostic criteria invites inconsistency and diagnostic unreliability. Few researchers would argue that using a single cut-off score in the absence of other evidence for learning problems is difficult to justify in the study of learning disabilities. This does not mean that the model of dissociation between intact general problem solving ability and specific ability to learn is invalid.

According to Pasternak (2002), there is no need to distinguish between high ability–low achieving versus low ability–low achieving students either educationally or in clinical research. These statements are driven, in part, by meta-analytic research that suggests there are small differences between low ability and high ability groups on measures related to reading and behavior. It would be illogical to assume that children of low ability, meaning they tend to score poorly or below average on nearly every test they take, would in some way outperform children with learning disabilities on measures of phonological processing, rapid automatic naming, verbal memory, vocabulary or any reading ability measure. By the same token, children who have problems learning to read will perform poorly or below average on measures related to reading such as phonological processing, rapid automatic naming, auditory working memory, declarative verbal memory, vocabulary or any reading related measures. Children with reading problems also have a higher rate of co-morbidity with attention deficit disorder and on group statistics, they appear to have similar ratings on behavior problems as children of lower ability.

The low ability group–low achievement group is an inappropriate comparison group for clinical research. The differences between the groups, particularly in the visual-perceptual domain, are not strongly tied to reading ability. If these skills were linked to reading, then the reading disabled group would not be impaired to start with as they would simply recruit their better visualperceptual skills to help them read. The desire to study students with low ability–low achievement is related to the eligibility issue. The lack of services available for children functioning in the lower end of average to borderline range results in these children not qualifying for services that are consistent with their cognitive needs. Services tend to focus on their behavior problems that result from the discrepancy between the environmental demands and their capacity to fulfill them. This is a source of great frustration for school psychologists and advocates for this group of children who are at great risk for a number of negative social consequences due to their cognitive limitations.

When IQ Tests Should Be Used

By the time a child is referred for more intensive evaluation, it is expected that he or she has had some form of early reading screening that would have included measures of phonemic awareness, phonological processing, basic semantic abilities and rapid automatic naming. The child would have received some classroom intervention and the referral agent, the teacher, or other school personnel would be able to articulate some of the primary issues, such as the child's behavior or learning, and would have completed checklists or surveys to further refine their knowledge of the child.

At the initial stage of determining a child's eligibility for special education, it may not be necessary to complete a comprehensive assessment that includes IQ testing. An assessment of current academic skills and documented classroom observations may be sufficient. The exception to this should be for cases in which a child has a known disability with a high probability of cognitive impairment. This may include, but is not restricted to, children born very prematurely or who have

- a history of exposure to alcohol or anti-seizure medication in utero
- seizure disorder or traumatic brain injury
- genetic disorders
- autistic disorder
- documented histories of significant delays in language development

Children who have received intervention and have not made progress within one year should be referred for a more comprehensive evaluation. Progress must be defined specifically and not left to impressions. Specific goals must be set and documentation that the child has attained the goals or surpassed them must be provided. Any child who does not make adequate progress toward specific educational goals for a period of more than two years should certainly be referred for a comprehensive assessment.

The parents of a child with known cognitive impairments or strongly suspected cognitive impairments due to documented medical or developmental disorders should have the right to request a comprehensive evaluation of the child if he or she has demonstrated poor academic progress or significantly disruptive behavior. Parents should also have the right to request an evaluation of a child without known cognitive impairments but has exhibited chronic school failure despite receiving program modifications and appropriate intervention. This should not be restricted to children who are suspected of school failure due to learning disability but should include academic problems due to on-going behavior problems or impaired attention. The school psychologist should be given the authority to recommend a comprehensive evaluation of a child that has been referred for early intervention if they deem that the evaluation is necessary due to psychosocial factors or if they believe that the child may need more modification to programming than is typically offered at the initial stages of the referral process.

In terms of re-evaluation, not all children in special education services will require a comprehensive re-evaluation. Children with mild cognitive difficulties that are making reasonable progress towards their educational goals do not need a full battery of tests. These children may need an evaluation of specific cognitive areas such as executive functioning that impact academic performance as the children become older. Children with moderate to severe disabilities or multiple disabilities may need a comprehensive re-evaluation if they appear to be making no progress or in some cases regressing in their academic or behavioral functioning. This process should not be done arbitrarily such that all children need re-evaluation at specified intervals. Rather, the process needs to be interactive with the teacher, school psychologist, and multidisciplinary team monitoring the child's progress at regular intervals. The school psychologist or the team may decide to re-evaluate at any point in the special education process.

How IQ Tests Should Be Used

Intelligence testing is a good point at which to start a comprehensive evaluation. IQ tests are sensitive to a number of cognitive difficulties and answers a number of questions about the child relative to children of the same age. The IQ test should be used in conjunction with some specific measures related to the age of the child and to the referral question. IQ–Achievement discrepancies may be calculated as being informative and one possible criterion for receiving services under the specific learning disability category. For instance, a 9-year-old child who has behavior problems, primarily, and has difficulties with course grades but not content mastery would be evaluated with the WISC–IV, a continuous performance test, subtests from the Delis– Kaplan Executive Functioning System, and a checklist for symptoms of Attention Deficit Disorder. Specific academic measures from the Wechsler Individual Achievement Tests, such as reading comprehension and writing may be included if these were areas of identified academic weakness. Additional measures related to mood disturbance such as the Beck Youth Inventory may be included if deemed appropriate. The intellectual assessment provides information regarding the integrity of the child's overall problem solving ability with specific focus on working memory and processing speed as well as the differentiation of problems with the ability to understand the correct answer versus the ability to articulate the correct answer. The child may also exhibit specific strengths such as their ability to process visual-perceptual information versus verbal information. A battery of tests, used flexibly, by the school psychologist would be able to pinpoint the specific areas of cognitive strengths and weaknesses that would be used to develop interventions for use in the classroom. A referral for more intensive services would be based on the multi-disciplinary teams decision of the level of structure needed for the youth based on the global versus more specific cognitive limitations, disruptiveness of behaviors to other students and safety issues. The purpose of the evaluation is not necessarily to make a specific diagnosis, such as attention deficit disorder, but to identify the sources of the child's difficulty in adapting to the traditional classroom environment.

In the past, IQ tests have been used peripherally as part of the classification process. Their strength is in the purpose they serve in creating individualized interventions. The ability to create individualized interventions depends upon the cooperation and effective collaboration of the classroom teacher with the multidisciplinary team and the involvement of other school staff such as librarians, assistive technology personnel, and resource experts. The role of IQ tests should not confined as a mechanism to determine diagnosis or eligibility, although useful for such purposes, but should provide the special education team and classroom teacher a means to identify what intervention the child needs. The intervention may be a modification in their curriculum (e.g., more visually oriented projects or fewer problems per page); modifications to instruction (e.g., use of directive, concrete, simple language versus higher level, complex and abstract language); modification of classroom environment (e.g., increased structure, incentives, more breaks); or accommodations (e.g., use of external aids such as a calculator, shorter tests, tests that do not only measure ability to articulate a response but test knowledge of the correct response, as well). The multi-disciplinary team may choose to use the results of testing as part of the eligibility process but would not rely on a single score or a discrepancy score in doing so. IQ tests would not be used in isolation as other tests of cognitive functioning would be used in conjunction with IQ measures.

The IQ tests, in conjunction with other data about the child, would be incorporated into the child's individualized educational plan (IEP). The current system of developing IEPs fails to specify how the child's cognitive resources have affected their learning and behavior. The IEP tends to reflect specific academic and behavior goals for the student and provides significantly less information about what modifications are necessary to the curriculum, instruction, and educational environment to enable the child to meet those goals. Staff who have direct contact with the student should be aware of the his or her strengths and limitations, and obtain any additional training necessary to respond appropriately to the child's needs.

4.3.5 IQ Tests Measure Skills Related to Reading

Intelligence tests measure multiple cognitive constructs that relate to the development of reading. Two measures on intelligence tests appear to play a significant role in understanding a child's weaknesses in learning to read. Researchers have hypothesized that the working memory system, which is the ability to temporarily hold information in conscious awareness with the intent to use that information to solve an immediate problem, is comprised of three component processes. These components include a phonological or articulatory loop in which auditory information is kept active by rehearsal; a visual-spatial sketchpad that allows visual information to be maintained in active memory until necessary mental operations are performed on that information; and a central executive component, which manages cognitive resources and attentional conflicts. Components of working memory have been identified as important contributors to efficient reading and some children with reading difficulties may exhibit deficits in these skill areas. Children identified as poor readers (decoding and comprehension) display deficits in auditory working memory and phonological short-term memory. Children with poor reading comprehension but not impaired decoding exhibited deficits in auditory working memory but average phonological short-term memory. The deficiency in auditory working memory for reading disabled children is observed in comparison to age-matched children without reading delays but not compared to younger children having the same reading level. Auditory working memory predicts reading comprehension in both skilled and disabled readers and predicts components of writing ability. Auditory working memory tasks that contain an element of storage and active manipulation of the information are good predictors of language comprehension, in general. Working memory skills have also been linked to math abilities in children and adults.

The level of a child's verbal intelligence has been found to be a predictor of his or her reading decoding and comprehension abilities. Verbal intelligence accounts for a large amount of the variance in a variety of language-based skills. The rate of a child's response to intervention for reading comprehension relates to his or her verbal ability. Among children from low socioeconomic settings, verbal ability was found to predict the children who would attain average reading skills versus those who would achieve below-average reading skills. Reading disability is characterized by greater difficulties in decoding single words compared to abilities in verbal reasoning and ability to comprehend aspects of written text. Children with IQ's over 100 who have a reading disorder display a stronger genetic link for phonological processing impairments than children without the large ability–reading discrepancy. In families in which a member is diagnosed with dyslexia, Verbal IQ correlates with reading comprehension in the non-affected sibling and related to reading rate, spelling, and text composition among the dyslexic group.

The link between reading and intelligence, particularly verbal intelligence, is so significant that in medical-legal and dementia evaluations reading tests are used to estimate an individual's intelligence before their injury or illness.

4.3.6 Legislating Clinical Practice

Requiring schools and school psychologists to eliminate or significantly restrict IQ testing as part of their clinical practice puts the government in the position of legislating clinical practice. This requirement is similar to stating that physician's treating Medicare and Medicaid patients are not allowed to order specific tests, ever! If the physician orders an MRI to be completed on a patient, it is because it has diagnostic relevance in that particular case. Legislating clinical practice has significant implications for psychologists and other professionals. In the future, it may be decided that speech-language pathologists should not use tests to diagnose language learning disabilities but rather they should simply talk to the parents and the school. They should provide service to anyone that seems like they have a language disorder. If the child fails to improve in treatment, then they can make a diagnosis. The psychologist is uniquely trained in the administration and scoring of intelligence tests. If the clinician believes that the test will provide useful, diagnostic information, they should not be legislated into not using the information in a school or other clinical environment.

4.4 PERSONALITY AND MENTAL HEALTH AND THEIR IMPLICATIONS TO DISABLED CHILD

Intellectual disabilities (ID, formerly mental retardation) have multiple causes. For example, there are many genetic causes. Brain injuries can cause an intellectual disability. Some types of medical conditions can also affect the brain's development.

These different causes mean each person's disability is unique. There is no single set of shared traits or features. For example, there are no personality traits common to people with ID. However, certain specific syndromes that cause ID have personality characteristics associated with that particular syndrome. For example, children with Williams's syndrome tend to be outgoing. However, by definition, all people with ID have limited intellectual functioning. These limitations often create some commonly observed difficulties.

One such problem is impulse control. You may recall that people with ID have trouble connecting cause and effect. This in turn causes problems with impulse control. For instance, suppose a child sees yummy, hot cookies coming out of the oven. The child wants to grab one immediately. If not controlled, this impulse will cause a nasty burn. Experience is usually a great teacher. So, most children only make this impulsive mistake once or twice. They form a connection between the hot cookie (cause) and the burn (effect). They learn to control the impulse to grab a cookie right out of the oven. However, this is not so easily learned by people with ID. This poor impulse control leads to many unpleasant consequences.

A related problem is poor frustration tolerance. When an impulse is inhibited, it requires the ability to tolerate a bit of frustration. This ability is called *frustration tolerance*. Frustration tolerance is an important developmental skill. It allows people to comfortably endure the small frustrations of everyday life. This in turn serves to limit the unpleasant consequences associated with impulsive behavior. Returning to the previous example, it is frustrating to inhibit the impulse to grab a cookie. However, it avoids the consequence of a nasty burn.

Frustration tolerance also enables people to build confidence. When we attempt to solve problems, our initial efforts may fail. This can be very frustrating. Without frustration tolerance, people give up. As a result, they do not put forth any effort. Clearly, if we make no effort to solve problems, we cannot develop the skills we need to solve them! Poor frustration tolerance is not the only problem. This is coupled with many more opportunities to become frustrated. Return to the prior example of a child's impulse to grab a hot cookie. If a caregiver attempted to stop the child from grabbing the cookie, it frustrates the child. She would not readily understand her caregiver's benevolent motivation. It bears mentioning that not all people with ID become easily frustrated. This example simply illustrates that the opportunities for frustration are significantly increased.

The increased opportunities for frustration highlight the importance of frustration tolerance. People respond to frustration in different ways. Some people respond in an impulsive, stubborn, and aggressive manner. Others respond with passivity, withdrawal, and compliance. Poor frustration tolerance may cause aggression toward caregivers. It may also lead to self-injurious behavior. These behaviors are observed in *some* people with ID.

Another common difficulty is low self-esteem. Self-esteem naturally develops as children learn to solve problems. The ability to solve problems builds self-confidence. However, limited intellectual functioning makes it difficult to solve problems. Skillful problem solving requires sustained attention and persistence in the face of difficulty. These abilities are limited in persons with limited intellectual functioning. Thus, a low self-esteem may develop. Psychiatric disorders related to low self-esteem, such as depression, may accompany intellectual disabilities. However, many people with ID are quite happy and content. They don't exhibit problematic behavior.

4.4.1 Mental Health for Children with Intellectual and Developmental Disabilities

Maybe your child is acting differently and you don't know what to do next. As a parent of a child with an intellectual or developmental disability (IDD), it can be hard to make sense of your child's feelings and behavior all of the time. Maybe they're getting treatment or support services, yet something still isn't right.

The truth is that approximately 30-50% of children with IDD may also have mental health conditions, according to research in the Journal of Intellectual and Developmental Disability. That's more than the average for all other children. Unfortunately, these conditions can go under the radar. If you think your child might be having mental health symptoms, this page has ideas on how to talk to your health care provider and the people already working with your child.

And you can go to our page on Mental and Behavioral Health to learn more. You have the power to ask about mental health support for your child.

Mental Health Matters

Mental health conditions directly affect the quality and length of someone's life. This means that paying attention to mental health really can improve things. That's true for all children and adults, but especially for children with IDD. No matter what abilities your child has, helping them have mental wellness is important too.

There are different reasons why people with IDD might have more mental health needs. They might have more stress and social challenges that are hard to cope with. They may have limited language abilities or nervous system symptoms that affect mental health. They are at a higher risk of experiencing trauma– things like abuse, neglect, bullying, restraint, and more. And trauma might spark mental health symptoms.

Common mental health diagnoses in children with IDD are anxiety, attention deficit hyperactivity disorder (ADHD), and conduct disorders. When a person has both a developmental disability and a mental health condition, it's called "co-occurring disorders" or sometimes called "dual diagnoses."

Common Myths

There are few big myths about children with IDD and mental health conditions. Some people think that children with IDD can't have mental health conditions. Or that standard mental health treatment won't work for them. Or even that mental health services won't work in combination with the other services the child is getting. Those things are just not true. There's no reason why a child with an IDD can't also have one or more mental health conditions.

The important thing to know as a parent is that it can be easy for anyone – family, teachers, therapists, caregivers, other service providers – to misunderstand your child. The caregivers and professionals working with your child might not realize that a mental health condition is causing certain challenging behaviors and think that it's because of your child's disability. So, instead of going straight into developing something like a behavior intervention plan (BIP), you can ask that the people working with your child look closer at your child's mental health.

Taking Action

If your child's personality or behavior seems to change suddenly, it's a good time to stop and ask questions. It might be that they need mental health services. You can help your child and the people working with them figure that out.

Maybe your child can explain what feels different or wrong. Maybe they can't. Either way, if they are acting differently and you are concerned, there is support available.

You might look for mental health help for your child if they:

- Aren't acting like themselves – maybe their basic skills or abilities have changed.
- Refuse to participate in routine tasks like they used to.
- Have major changes in appetite or sleeping patterns.

- Seem moody – extra frustrated, aggressive, angry, worried, or sad.
- Are having trouble sleeping, stomach aches, constipation, or other physical issues – with no clear medical reason why.
- Have quick bursts of energy like pacing back and forth, tantrums, or more vocalizations.
- Are trying risky behaviors or doing things to hurt themselves on purpose.
- Have more (or more intense) challenging behaviors than usual.

Tips for Talking to Your Child's Health Care Provider

Working with a health care provider to diagnose a mental health condition and find the right treatment for your child might take a lot of patience. Especially if your child has a hard time communicating what's going on with them. You can ask for more time to talk or a longer appointment. Together, you, your child, and their provider can take a closer look at mental health.

Here are some ideas to help the conversation along:

- Ask your child's provider, "Have you thought about a mental health condition?" Tell them why you're concerned and what you've noticed in your child lately.
- If your child's provider thinks that a new medication might help, and your child is already taking other medications, ask to be sure that the medications work together.
- Be determined to find answers for your child. Switch providers if one does not have experience working with children with IDD. Not everyone knows how to look for mental health symptoms in children with IDD.

Things to Ask About Mental Health Treatment for Your Child

When talking to a health care or mental health provider, there are some questions you and your child can ask to learn more and make the best decisions:

- What is the mental health diagnosis? Can you explain it in simple language that we can understand?
- What are the possible causes of my child's condition?
- What are my child's treatment options? What are the benefits and risks of each? Which is most successful?
- How soon should treatment start? How long will it last?
- What are our options if this treatment doesn't work for us?

Above all, know that you and your child are not alone in this. There is growing research and information about mental health treatment for children with IDD; more and more mental health providers are learning about the best ways to help.

4.4.2 Early Childhood Mental Health

As early experiences shape the architecture of the developing brain, they also lay the foundations of sound mental health. Disruptions to this developmental process can impair a child's capacities for learning and relating to others — with lifelong implications. By improving children's environments of relationships and experiences early in life, society can address many costly problems, including incarceration, homelessness, and the failure to complete high school.

Significant mental health problems can and do occur in young children. Children can show clear characteristics of anxiety disorders, attention-deficit/hyperactivity disorder, conduct disorder, depression, posttraumatic stress disorder, and neurodevelopmental disabilities, such as autism, at a very early age. That said, young children respond to and process emotional experiences and traumatic events in ways that are very different from adults and older children. Consequently, diagnosis in early childhood can be much more difficult than it is in adults.

The interaction of genes and experience affects childhood mental health. Genes are not destiny. Our genes contain instructions that tell our bodies how to work, but the chemical "signature" of our environment can authorize or prevent those instructions from being carried out. The interaction between genetic predispositions and sustained, stress-inducing experiences early in life can lay an unstable foundation for mental health that endures well into the adult years.

Toxic stress can damage brain architecture and increase the likelihood that significant mental health problems will emerge either quickly or years later. Because of its enduring effects on brain development and other organ systems, toxic stress can impair school readiness, academic achievement, and both physical and mental health throughout the lifespan. Circumstances associated with family stress, such as persistent poverty, may elevate the risk of serious mental health problems. Young children who experience recurrent abuse or chronic neglect, domestic violence, or parental mental health or substance abuse problems are particularly vulnerable.

It's never too late, but earlier is better. Some individuals demonstrate remarkable capacities to overcome the severe challenges of early, persistent maltreatment, trauma, and emotional harm, yet there are limits to the ability of young children to recover psychologically from adversity.

"Most potential mental health problems will not become mental health problems if we respond to them early."

Even when children have been removed from traumatizing circumstances and placed in exceptionally nurturing homes, developmental improvements are often accompanied by continuing problems in self-regulation, emotional adaptability, relating to others, and self-understanding. When children overcome these burdens, they have typically been the beneficiaries of exceptional efforts on the part of supportive adults. These findings underscore the importance of prevention and timely intervention in circumstances that put young children at serious psychological risk.

It is essential to treat young children's mental health problems within the context of their families, homes, and communities. The emotional well-being of young children is directly tied to the functioning of their caregivers and the families in which they live. When these relationships are abusive, threatening, chronically neglectful, or otherwise psychologically harmful, they are a potent risk factor for the development of early mental health problems. In contrast, when relationships are reliably responsive and supportive, they can actually buffer young children from the adverse effects of other stressors. Therefore, reducing the stressors affecting children requires addressing the stresses on their families.

4.5 GUIDANCE AND COUNSELLING FOR CHILDREN WITH SPECIAL EDUCATIONAL NEEDS

Child with special needs is any child that because of a medical, emotional, or learning problem may need added accommodations and supports. These may include medicine, therapy, social skills instruction, and extra help in school, which other kids generally do not need or might benefit from for a temporary time.

Parenting a child with special needs can be a very difficult process.

Children who have special needs may have a hard time regulating their emotions, and they may act out more behaviorally because they have a difficult time communicating their feelings, especially when upset. The fight or flight response is their primal instinct and children, in this mode, are prone to using unsafe hands, challenging limits, trying to take control, and may oppose, as an avoidance strategy, what you are asking them to do.

As parents, emotions may run high because you may be wondering what you are doing wrong, or why your interventions are not working, or how come the same cycle of challenges is repeating on a daily basis. Other families, without special needs children, hold their own judgments. Family members, with good intentions, may offer unsolicited advice. This is a *fine* recipe for high stress. This is unhelpful because to be most effective, parents need to feel calm and confident in their child rearing approaches.

Counselling in education from early childhood, usually from 3 years, up to the higher education institution level includes a wide range of services to support and broaden the effectiveness of pupils' (and children's and students') education. Counselling in education is provided in close cooperation with schools, teachers, parents and adult pupils. Counselling includes psychological, special educational and career services. These activities include diagnostics – psychological diagnostics, special educational diagnostics, diagnostics concerning supporting measures for pupils with special educational needs, specification of recommendations of relevant supporting measures, assistance in their implementation in practice and continuous monitoring of their effectiveness. They also cover consultation, interventions, coordination and career counselling.

Counselling is provided on the basis of an informed consent of the applicant (parent or guardian of the pupil / adult pupil) in accordance with ethical principles.

Counselling in Czech education is a complex system. The institutions are only partly specialised; most of them work in all three areas – educational (study), psychological, and career. Professional competence in the area is required. Institutions focused on the needs of pupils with health disabilities and some institutions that deal only with career counselling stand somewhat apart.

School counselling is targeted at boosting the knowledge and skills of pupils, including social skills, all-round personality development, career decision making, and lifelong learning.

Consulting services also concern the prevention of school failure, dropping out from studies, risky behaviour, the relationship and personal issues, and targeted interventions to solve these problems.

The consulting services are also focused on providing direct psychological and special pedagogical interventions for pupils with special educational needs, assistance in solving their risky situations, and methodological support to parents, teachers and school facilities.

School counselling services also include social consulting services providing social and legal counselling, social interventions, and collaboration with the public authorities (bodies for the social and legal protection of children) to promote the interests of the pupil.

Very important tasks of the school counselling include finding out suitable support measures for pupils with special educational needs, gifted pupils, and pupils from different cultural backgrounds, finding particular support measures according to the needs of the pupils and taking part in their implementation in the process of the pupils' education to increase its success. Another integral part is the monitoring of the effectiveness of the support measures and their functioning in practice.

The task of counselling is to recognise in good time a risky pupil in terms of their development and education, identify their educational needs and, in collaboration with all the relevant workers and behavioural analysis, to specify targeted support measures to improve their learning results and support their personal development and career orientation.

Support measures include a broad spectrum of special educational, psychological, pedagogical and organisational, and personal measures and techniques, which are provided to pupils free of charge from the state budget.

Counselling is provided for pupils, their legal representatives, schools and school facilities, and in close cooperation with them.

Consulting services are provided by:

- schools by means of education staff (school counsellor, prevention specialist in counselling centre, school psychologist, special educational needs specialist) and non- education staff (social worker)
- school guidance and counselling facilities, i.e. pedagogical and psychological counselling centre and special educational centre

Consulting services may also be provided by other natural or legal persons within the specified range and conditions.

The methodological and theoretical background is provided by the National Pedagogical Institute. It has also a coordinating role and role in the further training of guidance counselling staff, and departments of psychology and special education at higher education institutions. The National Pedagogical Institute provides both information and methodological background and direct services in the field of pedagogical, psychological, and career counselling, and cooperates in the latter area with the Labour Office and its regional branches, under the control of the Ministry of Labour and Social Affairs.

The methodological and professional platform is represented by associations that deal with various areas of education and higher education institutions (departments of psychology and department of special education).

The National Institute for Education is authorized to **review the recommendations** of school counselling facilities concerning the requirements of pupils with special educational needs, proposals for their successful education, and the specification of support measures to enhance the educational effectiveness of pupils with special educational needs. Adult pupils, legal guardians of under-age pupils, a public authority, the school or school facility, or the Czech School Inspectorate may ask for a revision of a recommendation issued by a school counselling facility if there are doubts about its accuracy.

Families with disabled children up to 7 years of age can take advantage of **early care services** provided under the Social Services Act. This is a field service, possibly supplemented by an outpatient form, provided to the child and the parents of a child who is disabled or whose development is at risk due to unfavourable health conditions. The service is aimed at supporting the family and the child's development with regard to his/her specific needs. There is a list about 50 providers in the register of the Ministry of Labour and Social Affairs. Some of them, for example, organise various seminars or lend appropriate aids and toys for children. Consultations take the form of field work. They can be supported from public sources.

4.5.1 Counselling services at schools

Schools provide counselling services for their pupils and their parents (guardians). A substantial part of them consist of giving support to the pupil's personality, their educational results, setting suitable conditions for education, the prevention of risky behaviour, and assistance in the pupil's decision-making process on their careers, specification and implementation of the plans of pedagogical support.

The schools provide the consulting services through a school guidance and counselling workplace, which usually includes:

- a school counsellor who provides consulting services in selecting an education pathway or jobs, i.e. career counselling, participates in the solving educational or relationship difficulties of the pupil, or mediates contact with specialists
- a school prevention specialist who coordinates the specification and implementation of the school preventive programme which primarily concerns the prevention of risky behaviour (skipping school, self-harm, drug use, sexual abuse, racism and xenophobia), support for multicultural values, and contact with specialists

Providing consulting services can also be ensured by:

- a school psychologist who is particularly involved in the creation of an inclusive climate at school, participates in the formation of the plans of pedagogical support an individual educational plans, consults issues of education with parents and guardians, assists in matters of education, helps pupils solve their problems, participates in the support of the education of the pupils, including gifted ones, identifies the pupil's risky developmental factors in time, performs indicative psychological diagnostics, and gives direct help to pupils with special educational needs in accordance with the content of the support measures
- a special educational needs specialist who is particularly engaged in creating an inclusive climate at the school, supporting the education of pupils with special educational needs, especially pupils with health disadvantages, the timely identification of risk factors in the pupils' development, performing pedagogical interventions in accordance with the recommendations for pupils' support, participating in the elaboration and fulfilment of the plans of pedagogical support, participating in the creation and fulfilment of individual educational plans, providing methodological help to school staff during the education of pupils with special educational needs, and giving methodological assistance and support to pupils' legal representatives in matters of education

The decision on staffing of the school guidance and counselling workplace falls within the competence of the school head.

School counselling includes, in particular:

- support in establishing an inclusive school climate
- assistance in solving relationship problems in class
- support for success in learning and the prevention of failure

- primary prevention of pupils' risky behaviour, creation and implementation of school preventive programmes, and education for a healthy lifestyle
- starting during basic education, career counselling is employed, integrating educational, information and consulting support in selecting the educational pathway and career opportunities
- professional support for the education of pupils with special educational needs (including gifted pupils, foreigners, and national minorities)
- screening of pupils to find the effectiveness of learning and strong and weak points, making recommendations to solve their problems
- developing the plan of pedagogical support comprising support measures of the 1st level and their fulfilment to help pupils facing failure at school, dropping out, or risky behaviour
- on-going and lasting support for the education of gifted and exceptionally gifted pupils
- methodological support for teachers in applying psychological and special pedagogical know-how in education
- implementation of support measures of 2nd and 5th levels in cooperation with school counselling facilities (pedagogical and psychological counselling centre, special education centre), provision of interventions for pupils with special educational needs
- coordination in providing supporting services at school, participation in work on individual educational plans for pupils with special educational needs
- providing information and opportunities to make use of services related to the educational support of pupils
- providing basic information on available social and other professional services

- methodological assistance to teachers in applying support measures to school educational activities

Counselling at basic and upper secondary schools

In providing consulting services, the school counselling staff of the school guidance and counselling workplace (school counsellor, school prevention specialist, school psychologist and special educational needs specialist) cooperate with the education staff, particularly with class teachers and the school counselling facility in the matter of pupils' education and the adjustment of suitable educational conditions.

The basic school and upper secondary school collaborate with a pedagogical and psychological counselling centre, a special educational centre , or other institutions which participate in the educational support of the pupil and protection of their interest, or with the authorities for the social and legal protection of children and non-governmental organisations working in the field of social inclusion. The school also collaborates with the Labour Office under the control of the Ministry of Labour and Social Affairs.

A basic document concerning the school success in relation to counselling services is a plan of pedagogical support which defines the support measures of the first level. The plan of pedagogical support is drawn up by the school to support the pupil's achievements in some subjects through pedagogical means. The plan of pedagogical support describes the pupil's difficulties towards which the support should be directed, the pupil's strengths, ways to achieve the targets required, and assessment of effectiveness.

On the basis of recommendations by the school counselling facility, schools draw up an individual educational plan for the pupil to support the education of pupils with more special educational needs and pupils needing support measures of the 2nd to 5th levels. The individual educational plan includes pedagogical, organisational, content, personal and technological modifications to the education process and examinations. At the upper education level, the school head may also allow education according to the individual educational plan for other reasons than the existence of special educational needs or the talent of the pupils.

Counselling at nursery schools

Nursery schools, which are intended mainly for children from 3 years of age (no sooner than 2 years of age), provide counselling services to parents in the field of pedagogical support concerning the development of their children and give the parents information on professional consulting and other available services that focus on supporting the children´s interests, development, and preparation for compulsory education.

To provide consulting services, the nursery school can set up a school guidance and counselling workplace.

The nursery school collaborates with a pedagogical and psychological counselling centre, special educational centre, or other institutions which take part in the education of the child and protection of his/her interests. If the child's interests are at risk, it collaborates with an authority for the social and legal protection of children. Nursery schools collaborate with basic schools to prepare a child's smooth transition from preschool to compulsory education and cooperate with organisations ensuring early childhood care under the Ministry of Labour and Social Affairs to ensure the child's smooth transition from preschool to compulsory education.

Nursery schools provide specific support to children with special educational needs through support measures. The support measures are implemented by professionally trained education staff (educators, special educational needs specialists, school speech therapist, and others) in accordance with the children´s educational needs and recommendations by the school guidance and counselling centre.

The key document which is drawn up by the nursery school to use its consulting service, is a plan of pedagogical support. The plan is intended for children who need support measures in the first stage of their education.

On the basis of recommendations by the school counselling facility, nursery schools draw up an individual educational plan, to support the education of pupils with more special educational needs and pupils needing support measures of the 2nd to 5th level. The individual educational plan includes pedagogical, organisational, content, personal, and technological modifications to the preschool education process at nursery schools.

4.5.2 Counselling services at school counselling facilities

Special education centres are primarily focused on supporting pupils with hearing, visual, and physical impairments, speech impediments, multiple disabilities, autism or mental disabilities.

Pedagogical and psychological counselling centres as codified in the Education Act specialise rather in providing counselling for pupils with developmental disorders of behaviour and learning. Another target group consists of pupils with personality or relationship problems, pupils who are foreigners, and pupils who are disadvantaged because of their cultural background or other bad situations in life.

4.5.3 Psychological counselling

Pedagogical and psychological counselling provided for pupils (and children and students) including those with special educational needs is an integral part of their education and harmonious development.

Pedagogical and psychological counselling and special educational support for pupils (and children and students) are provided by school guidance and counselling facilities, i.e. pedagogical and psychological counselling centres and special educational centres .

Diagnostic institutes and centres for educational care provide consulting services within institutional or protection education and preventive educational care.

Pedagogical and psychological counselling centre

The pedagogical and psychological counselling centres are school counselling facilities established by regions, or other legal entities or natural persons (both religious and private guidance and counselling centres). There must be at least one centre in every district.

The services of guidance and counselling centres are provided by psychologists , special educational needs specialists and social workers.

The individual or group work of the experts with pupils and their parents and guardians and teachers includes diagnostic, interventional, methodological and information activities. These are provided by appointment on the premises of the centre and through visits of expert counsellors to schools and school facilities.

The common activities of the pedagogical and psychological counselling centre mainly involve:

- determining whether pupils are ready for compulsory school attendance and submitting report and recommendations;
- determining the special educational needs of pupils using methods of psychological and special education diagnostics;
- drawing up recommendations and proposals for support measures for pupils with special educational needs and gifted pupils;
- providing pupils with direct psychological and special education support and interventions;
- giving support to pupils facing increased risk of school failure or having problems in their personal and social development;

- giving consulting services to pupils from different cultural background and pupils with different environmental conditions;
- providing pupils with career consulting;
- providing pupils' parents and guardians with information, methodological and consulting support;
- through the prevention specialist, ensuring the prevention of risky behaviour, implementation of preventive measures, and coordination of the work of school prevention specialists;
- providing methodological support for teachers and school facilities in offering consulting services of schools and school facilities for applying support measures;
- making adjustments regarding the taking of examinations at the end of the education in upper secondary schools and tertiary professional schools;
- providing assistance and counselling for schools in the field of identifying (exceptionally) gifted pupils and providing them with professional pedagogical, educational, and psychological services;
- regularly evaluating the implementation of support measures.

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CHAPTER

5

IDENTIFICATION AND ASSESSMENT OF PERSONS WITH MENTAL RETARDATION

INTRODUCTION

A school's identification and assessment process should comply with the statewide uniform identification policy in accordance with ESSA and should include standard and uniform procedures for administering and interpreting the Home Language Survey results. This procedure should describe who is responsible for administering the HLS, how it is to be done, and in what forms it should be administered (i.e., orally, written, in English, or in a home language translation). The procedure also should describe how staff is trained to administer the HLS and how often refresher trainings will occur. The procedures should further provide specific guidelines for interpreting HLS responses (for example, what responses trigger an assessment, what happens if responses are unclear or contradictory, etc.). Finally, the procedures should include methods to record results in the student's records and to record translation/interpretation needs of the parents in the student information system.

Timely identification of impairments, a secondary prevention, can reduce the impact of the impairment on the functional level of the individual and also in checking the impairments from becoming a disabling condition. Initially they need to be identified as soon as possible at home by the parents and outside (in the anganwadi centers/ schools/ sub - health centers/ through camps), and then they need to be assessed through a team of specialists to plan necessary interventions

5.1 IDENTIFICATION - ASSESSMENT - EVALUATION AND CLASSIFICATION

All class teachers regularly assess the progress of each of their pupils to check that they are learning well. Once a teacher has identified that a child is not making the progress expected, additional support will be given by the class team- the teacher or/and a teaching assistant working under the guidance of the teacher. If, after this additional help, the child is still not making good progress the teacher will usually ask for advice from the school SENCO (special educational needs coordinator) who will recommend extra help and support.

- ***Assess -*** find out how well the child is learning and what progress s/he has made. These assessments will include the teacher talking with the child to find what s/he thinks about their learning and what s/he they find difficult.
- ***Plan -*** decide what action to take to help the child make better progress, such as special resources or intervention programmers, or help from an adult.
- ***Do -*** carry out the intervention programmers or additional support for a period of time, usually no more than 12 weeks
- ***Review –*** assess the child's progress again to find out what

difference the extra help or intervention programmer has made. Decide if this is the right help for this child and, if not, plan something else.

Teachers use a range of strategies to encourage children with send to concentrate on their work and manage any distractions.

If your child has a hard time with their academic learning, or if you are concerned that they may have a disability that it is important to know what the classifications of disabilities for eligibility and special education programs are. The government has an act called the Individuals with Disabilities Education Act which may provide the availability of a special education teaching program for your child, if they are covered in one of the thirteen different classifications of disabilities which are eligible for special education teaching. The first step to knowing if your child qualifies for special education is to know what the different eligible classifications are.

Identification

Individualized intelligence tests are usually part of the battery of tests a school psychologist will use to evaluate students when referred for evaluation. For many years the WISC has been considered the most valid measure of intelligence, because it had both language and symbol based items and performance based items. The WISC also provided diagnostic information, because the verbal part of the test could be compared to the performance items, to show a disparity between language and special intelligence.

Assessment

Assessment for Special Education is foundational for the success of identification, placement and programming for children with special needs. Assessment can range from the formal--standardized, to the informal:--teacher made assessments. This will cover formal instruments for measuring students' intelligence, achievement (or academic ability) and function.

Individual Evaluation

An individual evaluation means any procedures, tests, or assessments, including observations, given individually to your child to find out whether he or she has a disability and/or to identify his or her special education needs. The term does not include basic tests given to groups of children in a school, grade or class.

5.1.1 Identification and Assessment of Nature

It is the process of defining, selecting, designing, collecting, analyzing, interpreting, and using information to increase students' learning and development. Nature of assessment is embedded in the learning process. It is tightly interconnected with curriculum and instruction.

Assessment is a process by which information is gained relative to some known purpose or goal. In addition, it is a large term that includes testing. Similarly, a test is also a form of assessment. Also, tests are for administrating assessment made under unnatural situations.

In other words, assessment is a process of measuring performance. It also tests the knowledge of the students. For the reason, all tests are assessment but all assessment are not test. In addition, they conduct tests at the end of the lesson or unit.

Assessment is tightly linked with the learning process. Similarly, it unites with the course of study and teaching. For keeping a check on students' progress and achievement course of study play a constant role. Also, the teacher and students work to achieve the outcomes of the course of study.

Classroom review helps teachers to continuously detect students learning. It gives students a calculation of their improvement as a pupil. Provides close examination chance to students in the learning process.

They help in the collection of regular response to students' learning. Also, how they respond to specific teaching approaches. It uses a variety of plans. The opinion has a deep impact on the self-respect of students. Also, it is dangerous for learning.

Thus, the evaluation includes all those activities by teachers which help in reviewing students. Furthermore, this information used as a review and modifies teaching activity.

Functions of Assessment

It performs many functions which are listed below

- *Detecting Function*: It detects all the activities during the elevation. From making plans to estimating the results all activities are closely watched. It also helps in improving performance and achieving desired results.
- *Making Decisions*: They have to decide what has to be done for improvement. All the decision related to assessment has to be taken by the teacher. It helps to focus on improvements.
- *Screening*: The teacher has to assess the probable incidence of the problem. They have to do this by using a simple yes or no. Assessment defines the problem while screening identifies and treats it.
- *Student's Placement in the Remedial Course*: It means that if a student's evaluation is below average. In that case, remedial courses should be provided for them. Furthermore, these courses will in performance improvement.
- *Instructional Planning*: Instructional planning is a process for teachers. It helps the teacher to make a plan to target the course of study. Furthermore, it helps to address the diverse need of students.
- *Feedback/Response*: This process helps to validate how student's marks are derived. It also identifies and prizes specific character in student's work. In addition, it guides students to make improvement in their work.
- *Inspiration*: Inspiration or motivation is a very important tool. This tool provides information about the type of environment and tasks which helps in motivation.

Identification and Assessment at School Level

The primary identification of students with Learning Disabilities is done usually at the school by the teachers, who through observation assess the need for diagnosis and assessment of these children, who are then referred by them to the special educators (or counselors in absence of special educators in the school) who try to identify the traits of the disorder present in the child. If necessary, the special educator through consultation with the school counselor reports the concern to the parents of the children and tries to convince them for getting their child diagnosed at a government registered hospital. Here the choice of the parents is respected and prioritized to ensure their satisfaction. It is essential to obtain the parents' consent before evaluating the child. The academic, developmental and medical history, along with the communication patterns and linguistic usage and efficiency of the child are obtained from the parents. The parents of the student are supposed to be involved in the planning of the intervention program such as attending a resource room, provision of accommodation and modifications to the student. An interview with the student helps in collecting information that "relates to the observed or suspected disability of the child", illuminating the problem through sharing of experiences and difficulties experienced in learning which can help in a proper identification, assessment and remediation; and a careful review of the student's school records, study note books or work samples helps in the assessment and identification of specific areas of concern and intervention. Approaches like the Curriculum-based Assessment, Task Analysis, Dynamic Assessment, and Assessment of Learning Styles yield rich information about students that help in assessing students from culturally or linguistically diverse backgrounds, hence being critical methods in the overall approach to assessment. The first apparent goal is the 'identification of high-risk children and designing suitable intervention procedures', while the next goal to 'minimize the risk of exposing children to academic failure when they enter formal academics'.

5.1.2 Identification and Assessment of Needs

Schools and colleges adopted a variety of pathways to identify mental health needs early, including:

- The admissions process and induction. It was important to get information about a child's mental health before they started at school or college, although sometimes this proved difficult to obtain. Settings used different methods to gather information, for example, some asked previous settings, parents and children and young people during the admissions process. Others, in particular primary schools completed home visits and family meetings to start building a positive relationship with parents. Secondary schools built relationships with their feeder schools and organized transition meetings to share information. Colleges had a section on admissions forms for students to disclose any mental ill health and an induction meeting with students and parents to ask about their wellbeing.
- School and college staff identifying needs. Leadership made it clear that all staff had a responsibility to identify potential mental health needs through noticing changes in behavior that might be a result of mental ill health. Some schools completed welfare risk assessment checklists for all students to identify those who might be at higher risk of mental ill health. Data collected about attendance, behavior and academic progress was another mechanism for staff to identify potential needs. If a child's attendance or behavior was deteriorating then checking these statistics was a warning that staff needed to talk to the child about why this was happening.
- Children, friends and parents advising the setting a child or young person needed support. Self-disclosure by children and young people was an important pathway to identify needs, especially as the age of the child increased. For younger children, staff at primary schools spent time building relationships with parents and families to encourage them to tell the school of any problems

Once a child had been identified with a potential need it would be discussed at pastoral or staff meetings. An assessment would be made either simply through discussions amongst the staff or through the completion of an assessment tool (e.g. a Strengths and Difficulties Questionnaire). After the assessment staff would decide upon an appropriate course of action.

Facilitators

Facilitators to improve the identification and assessment process included:

- An open environment where it was acceptable to talk about mental health. As discussed in practice example Developing a whole organizational approach this was achieved through increased staff awareness and understanding of mental health issues. Staff and students were encouraged to talk about their problems and report any information to the pastoral team.
- Good communication between all staff: staff were an important pathway to the identification of need and required basic awareness and understanding about mental health. To facilitate this pathway some members of staff also needed more in-depth knowledge about prevalent issues in their setting, for example self-harm or anxiety.
- Building a relationship with children, young people and parents: students and parents needed someone they could trust and talk to. In primary schools, where teachers had more regular contact with individual children and their families, they used these opportunities to spend time getting to know the child and family to build this relationship. Secondary schools and colleges, where contact was less frequent, identified staff who students and parents could talk to. In settings where they had dedicated space to support mental health, these people were often based there ensuring students knew where they could go for support.
- Children and young people have good emotional literacy and awareness to self-refer and ask for help

(Developing a preventative approach). The process by which children, young people and parents could refer needed to be widely publicized and accessible to improve the uptake of this pathway. For example, a special secondary school developed a Facebook page for children and parents with links to useful organizations and the school's referral form. Students could also email a wellbeing address which was sent to key members of the pastoral team. Students knew if they sent an email, even if it contained no information, a member of staff would talk to them. Both mechanisms for identifying needs were very helpful and had good up-take from students and parents

5.1.3 Benefits of Identification and Assessment

Schools recognized that they are in a position to identify needs and provide support at an early stage; they can also play a key role in assessments of more complex needs, for example, providing important information to children and young people's mental health services. A whole organizational approach to identifying needs involving all staff meant schools and colleges felt more confident they were identifying potential needs early. One head teacher also believed there was a benefit of identifying needs while a child was at school as they would have better access to support services.

Challenges

Challenges included:

- *Changing the culture and building relationships happens over a period of time*: building the culture of a school where it was acceptable and the norm to talk about and support mental health took time but, until this culture was created, the setting would struggle to identify needs (Developing a whole organizational approach). Building a relationship with a child took time, especially in secondary schools and colleges where one member of staff may not have so much contact time with individual students as staff in primary settings, which meant there was a potential to miss needs. Secondary schools and colleges were more reliant on having a culture that encouraged students to self-disclose if they had any mental ill health.

- *Staff knowledge about mental health*: It would be impossible for staff, who generally were not mental health professionals, to understand all mental health issues. To help build staff knowledge and skills in this area, some staff were receiving mental health training (e.g. Mental Health First Aid) but there were concerns that schools may not recognize or identify potential needs if a child was not displaying behaviors and attitudes that alerted the staff to a potential problem. Having good communication between all staff helped to limit this challenge in settings where the mental health lead had greater understanding and knowledge of mental health.
- *Use of assessment tools*: schools struggled to identify appropriate assessment tools, or alternatively, felt that they lacked the expertise to use tools. As a result, some had developed or adapted tools for their own needs. This was time-consuming but also, could mean that external agencies such as CYPMHS could be reluctant to accept any assessment data gathered by these means. Staff were generally not mental health professionals and lacked the skills, experience and training to complete different assessment tools. Settings with mental health professionals or partnerships with mental health professionals (Working in partnership) felt more confident in using validated mental health assessment tools.

5.2 MENTAL RETARDATION

Mental retardation is a condition of substantial limitations in intellectual functioning that impacts performance in daily life.

Its diagnosis includes three criteria: concurrent, significant limitations in both intelligence and adaptive skills that begin in childhood (birth to age eighteen). The American Association on Mental Retardation's (AAMR's) 1992 definition specifies limitations of two or more standard deviations in intelligence (IQ of 70 to 75 or less) with coexisting deficiencies in two or more of ten adaptive skills: communication, self-care, home living, social skills, community use, self-direction, health and safety, functional academics, leisure, and work. These individuals range broadly in functioning, depending in part on the degree of limitations but also on the services and support received. Individuals with severe and multiple disabilities are considered a small subset of this population. Most persons with mental retardation are capable of achieving self-sufficiency. A 1998 study indicates that prevalence estimates cluster around 1 percent, with a high of 2 percent.

Mental retardation (MR) refers to substantial limitations in present functioning. It starts before age 18 and is characterized by significantly sub-average intellectual functioning, existing concurrently with related limitations in two or more of the following applicable adaptive skill areas:

- communication
- self-care
- home living
- social skills
- community use
- self-direction
- health and safety
- functional academics
- leisure
- work

Mental retardation (MR) is one of the more common developmental disabilities. It can be idiopathic and challenging to recognize in normal-appearing children who have developmental delays. Conversely, MR can be easily recognized when the child presents with dysmorphic features associated with a known genetic MR disorder. Mental retardation currently is defined by the American Association on Mental Retardation (AAMR) as “significantly sub-average general intellectual functioning accompanied by significant limitations in adaptive functioning in a least two of the following skills areas: communication, self-care, social skills, self-direction, academic skills, work, leisure, health and/or safety. These limitations manifest themselves before 18 years of age.” (1) Recognizing that a numerical value alone may be neither precise nor adequate to distinguish between the abilities of a child whose intelligence quotient (IQ) is 71 and one who’s IQ is 69, the AAMR defines the upper limit of sub-average general intellectual functioning as “70 to 75” when there are also significant concerns regarding adaptive abilities.

- If the child does not sit unassisted even much after 12 - 15 months
- Or starts to walke ven much after 2 ½ years.
- Or starts to talk even much after 2 ½ years.
- If a child has undue problems in doing independently any of the following activities by the age of 6 years
  - Eating
  - Dressing or
  - Toilet activity
- Problems in holding a pencil/ or using a scissors
- Unable to play with a ball; or play ‘guilli -danda’ with his peers.
- Frequent tantrums, while playing with the peers
- Usual inattentiveness to the spoken speech or addressable
- Requires too many repetitions to remember simple things
- Problems in naming even 5 fruits, vegetables or plants
- Problems in naming the days of the week
- Exhibit problems in expressing the needs in a clear language unlike the other peers

- Unable to concentrate on tasks even for a short period of time
- Inappropriate oral responses
- Difficulty in performing daily routine work
- Poor comprehension of lessons taught in the school class
- Difficulty in learning new things
- Difficulty in conceptualization
- Does not get well along with the children of same age group
- More efforts are required in learning or practicing as compared to the peers.
- Takes an unreasonable amount of time in perfecting any work
- Poor academic achievements
- Show an undue dependency on visual clues or material for learning.

***Note*: If the responses to any of the above 4 indicators is positive when compared to the average school going peers of same age group and class then the child should be properly assessed by a qualified psychologist or a teacher who is specially trained to take care of the mentally challenged children.

Learning Disabilities

A learning disability is a neurological disorder. In simple terms, a learning disability results from a difference in the way a person's brain is "wired." Children with learning disabilities are as smart as or smarter than their peers. But they may have difficulty reading, writing, spelling, and 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; it is a lifelong issue. 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.

- Difficulty in counting
- Lack of concentration or easily distraction by the surroundings, either at home or school
- Difficulty in sitting quietly in the classroom
- Does not write down the spoken words correctly
- In appropriate additions to the right word; e.g. 'I school' in place of school
- Always confused between Right & Left
- Unreasonable difficulty in remembering the verbal instructions
- General difficulty in memorizing the things
- Extreme restlessness in a child which significantly interferes with the timely completion of various tasks
- Reverses letters or symbols too frequently while reading for example b as d, saw as was, etc.
- Reverses numbers too frequently while reading or writing for example 31 as 13, 6 as 9, etc.
- Excessive errors during reading like looses place or repeat / insert/ substitute/omit words.
- Poor in mathematical calculations
- Problems in accurate copying from the common sources like a book or a blackboard, even though the vision is normal.
- Write letters or words either too close or too far (spacing problems).
- The child appears to comprehend satisfactorily but is not able to answer the questions.

Many children may struggle in school with some topics or skills from time to time. When children try hard and still struggle with a specific set of skills over time, it could be a sign of a learning disorder. Having a learning disorder means that a child has difficulty in one or more areas of learning, even when overall intelligence or motivation is not affected.

Some of the symptoms of learning disorders are

- Difficulty telling right from left
- Reversing letters, words, or numbers, after first or second grade
- Difficulties recognizing patterns or sorting items by size or shape
- Difficulty understanding and following instructions or staying organized
- Difficulty remembering what was just said or what was just read
- Lacking coordination when moving around
- Difficulty doing tasks with the hands, like writing, cutting, or drawing
- Difficulty understanding the concept of time

Examples of learning disorders include

- Dyslexia – difficulty with reading
- Dyscalculia – difficulty with math
- Dysgraphia – difficulty with writing

Children with learning disorders may feel frustrated that they cannot master a subject despite trying hard, and may act out, act helpless, or withdraw. Learning disorders can also be present with emotional or behavioral disorders, such as attention-deficit/hyperactivity disorder (ADHD), or anxiety. The combination of problems can make it particularly hard for a child to succeed in school. Properly diagnosing each disorder is crucial, so that the child can get the right kind of help for each.

5.2.1 Brief History of Education

Prior to the 1700s, those with mental retardation suffered greatly. In the 1700s to the late 1800s, they entered an optimistic period when French educational methods spread to other Western countries. These methods derived mainly from Edward Seguin and less so from his predecessor Jean-Marc Itard in the first half of the nineteenth century. Seguin called his educational methods *physiological education,* which consisted of three components: muscular or physical education, education of the senses, and moral treatment. The goal of Seguin›s method was independence grounded in relationships with other citizens, not isolation from society. These educational methods produced uneven results and were followed by disillusionment.

In the late 1800s to the 1960s there was widespread building of institutions to house individuals with mental retardation. Intelligence tests, developed in the early 1900s, became the tools of the eugenic movement–a period when many people with low intelligence were sterilized under the assumption that the population would be improved. Starting in the 1970s the institutional population in the United States was gradually reduced, primarily because of a reduction in admissions. Many former residents were relocated to smaller community-based settings, but others remained in their natural homes with services and supports provided. Of those remaining in state institutions at the end of the twentieth century, persons over forty with profound mental retardation and multiple disabilities dominated the population.

Schools' Responses and Goals and Methods of Teaching

Before 1975 when the Education of All Handicapped Children Act was passed and special education was required, some students with milder mental retardation attended school until they failed or quit, but others with greater support needs attended parent-operated schools or remained at home. The number of individuals with mental retardation in institutions reached its peak in the mid-1960s, where educational services of widely varying quality sometimes existed. According to the U.S. Department of Education's statistics, at the end of the twentieth century students with labels of mental retardation who were enrolled in U.S. public schools constituted 11 percent of all students with disabilities. The number of students classified as having mental retardation declined substantially since the 1970s, in part because of the label's stigma and recognition of intelligence test inaccuracy. Minority children were overrepresented in school programs serving those with mental retardation, a fact often accounted for by inaccurate testing.

The primary goal of education for this group is to increase self-sufficiency by teaching functional academics and other skills needed in everyday life across home, community, work, and leisure domains. Depending on the student's abilities (conceptual, social, and practical), needs for support (intermittent to pervasive), and school placement, the educational focus and methods will vary. The socioeconomic level of the community influences the quality of special education and the amount of support an individual receives in school and during adult life.

Issues Trends and Controversies

Although the label of mental retardation brings services, it also brings stigma and low expectations. The reduction in students labeled as mentally retarded (with a corresponding increase in those with learning disabilities) from the 1970s to the 1990s serves as evidence. Parents and educators have grappled with this issue. Some believe the label should be reserved for those with organic etiologies, assuming the smaller group would be more homogeneous. Others propose a change in the label and improved education of the public.

Current law requires education in the least restrictive environment with appropriate services and support. Students with mental retardation have a poor record for being served in general education classrooms: 46 percent of all students with disabilities are so served compared with 12 percent of those with mental retardation. Many believe that educators need to understand better how to serve these students in the mainstream and also equip them for the transition to adult life.

5.2.2 Concept and Definition of MR

Mental Retardation is a life - long condition, which cannot be cured. Persons with Mental Retardation possess the ability to be trained to become independent with systematic and planned support. Mental Retardation is not Mental illness. Mental illness can be cured. Persons with Mental Illness have normal development but suffer from psychological disturbance which needs systematic treatment, sometimes even medication whereas Mental Retardation is a condition when child's mental development is not matching with his physical development. For example – if a child is 8 years by age will show behavior younger to the age like a 3 year old would behave.

There are many superstitions about Mental Retardation, regarding what causes and these are common to other disabilities also. These beliefs are not based on facts include:

- Mental Retardation is due to "karma" or fate. A disabled person born in a family is considered to be a curse on the family or due to black magic.
- Mental Retardation is caused by solar eclipse.
- Some believe that a person with Mental Retardation is an "Avtaar"

Major features of Mental Retardation are characterized by delay in overall development and so they need systematic training for learning activities of daily living and other essential adaptive skills. For this they need specific support to be trained at different levels corresponding to their degrees of Mental Retardation as it affects the overall development of the child, such as delay in acquiring language, social and self-care skills. Ability to understand and comprehend are less or delayed, responses are slow and may have associated problems in hearing or vision. Some may have reported history of seizures or fits that require continuous or long-term medication. Best form of management for these children is systematic and regular monitoring of training support for becoming self – reliant towards appropriate rehabilitation.

Myths and Facts

Common misconceptions are:

- Marriage cures MR
- Medicines can make a person normal
- MR is contagious

Often Mental Illness and Mental Retardation are mistaken to be the same therefore Persons with Mental Retardation are also called 'mad' because they are perceived as persons with Mental Illness. Some common misconceptions are listed below that are often responsible for wrong labelling of Persons with Mental Retardation

- Mental Retardation is a life-long condition and it cannot be cured, but they can be taught to become independent with training support whereas Mental illness can be cured.
- Major features of Mental Retardation is delay in overall development and so they need systematic training for learning adaptive skills. Persons with Mental Illness have normal development but suffer from psychological disturbance which needs systematic treatment, sometimes even medication.

Prevalence and Status of Mental Retardation

Persons with Mental Retardation have been historically referred in Indian context, through pro-independence and post–independence era. However the shift has been significant in management and care of these persons over the recent decades. Initially they were seen as subjects of pity who are dependent on others and thus deserved charity; hence only residential care was felt necessary. After the introduction of modern education in post - independence period with scientific advances in health and developmental studies, the scenario underwent a sea change. There was an increased realization that placement in community can improve their competencies behaviorally, socially and cognitively. Hence

Parents became involved with support of community resources made accessible for achieving comprehensive rehabilitation.

Definition

Internationally the definition of Mental Retardation has moved away from medical model to rehabilitative model. Current trend is to describe the condition by using functional and educational terms rather than clinical terms. Definitions are listed chronologically to demonstrate the variations in describing condition of Mental Retardation.

- *Definition of Mental Retardation - American Association of Mental Retardation (AAMR) – 1983*: As per American Association on Mental Deficiency, also previously known as American Association on Mental Retardation - Mental Retardation refers to a significantly sub – average general intellectual functioning resulting in or associated with concurrent deficits in adaptive functioning.
- *Definition of Mental Retardation - Persons with Disabilities Act 1995*: Mental Retardation means a condition of arrested or incomplete development of a person, which is specially characterized by sub-normality of intelligence manifesting before age of 18 years.
- *Definition of Mental Retardation - American Association of Mental Retardation (AAMR) – 1992*: Refers to significantly sub-average intellectual functioning, existing concurrently with or more of the following applicable adaptive skill areas:
  - Communication
  - Self-care
  - Home Living
  - Social Skills
  - Community Use
  - Self-direction
  - Health and Safety

- Functional Academics
- Leisure
- Work

In adopting this definition and accompanying classifications system, AAMR (1992) suggested that Mild, Moderate, Severe and Profound classification categories in previous definitions to be substituted with "levels" of support needed by an individual using term listed below:

- *Intermittent*: Support of high or low intensity is provided as and when needed. Characterized as episodic or short-term during life – span transitions.
- *Limited*: Supports are provided consistently over time, but may not be extensive at any one time. Supports may require fewer staff members and lower expense than more intense levels of support.
- *Extensive*: Supports are characterized by regular involvement (daily) in at least some environment (work or home) and not limited (example: Long-term support & long-term home living support).
- *Pervasive*: High intensity supports are provided constantly, across environment, mostly and may be of life sustaining and intrusive nature. Pervasive supports typically involve a variety of staff members.

This definition essentially restates the 1993 AAMD definition, except that it describes the developmental period age as 22 years, consistent with the USA federal definitions of developmental disabilities.

- *Definition of American Association of Mental Retardation (AAMR) – 2002:* Definition reads "Mental Retardation is a disability characterized by significant limitations, both in intellectual functioning and in adaptive behavior, as expressed in conceptual, social and practical adaptive skills, the disability originating before the age of 18 years.

- The complete and accurate understanding of Mental Retardation implies that a particular state of functioning, which begins in childhood, having many dimensions and affected positively by individualized supports. As a model of functioning, it includes the context and environment within which the person functions and ecological approach that reflects the interaction of the individual with the environment. The outcomes of interaction are with regard to independence, relationships, societal contributions, participation in school and community and to personal well-being.
- *Definition of Intellectual Disability – (2009 American Association on Intellectual and Developmental Disabilities (AAIDD – it was earlier known as AAMR, USA)*: Intellectual disability is a disability characterized by significant limitations both in intellectual functioning and in adaptive behavior, which covers many everyday social and practical skills. This disability originates before the age of 18.

5.2.3 Characteristics and Classification of Mental Retardation

Children with Mental Retardation have skill deficits which are manifested corresponding to the severity and level of Mental Retardation. Severity refers to the degree of damage to the brain and level refers to the level of potential a Person with Mental Retardation has for learning from training support. Severity demonstrates limitations set due to brain damage and a clinical description to explain deficits in expected development. Level the prognostic potential for acquiring skills with training support. It is often noted that brain damage causes delay in development causing skill deficits in some form or degree. When training support is extended in early years and links are strengthened between home and school adequately, then training effects sustain for longer duration. Adaptability in using learnt skills through training can be best integrated when opportunities are increased to practice repeatedly with supervision and in need based natural mainstream settings.

Selecting a training support is often determined by the level of functioning and severity of Mental Retardation. The level of Mental Retardation can vary from mild, through moderate to severe and profound Mental Retardation. Level of Mental Retardation denotes need for placement for Training and intervention. Hence educational placement depends on degree of Mental Retardation, Age, Degree of Adaptability and Residual Current Level of Functioning.

Clinical / Medical Characteristics

Children with Mental Retardation usually look like any other children but some may have distinct features like –

- Small or Large head
- Small stature
- Protruding Tongue
- Blunt features
- Drooling
- Cannot walk with good co- ordination.

Behavioral Characteristics

Brain damage results in skill deficit, which in turn causes challenges in acquiring age, appropriate behaviors, sometimes even manifesting maladaptive behaviors –

- Slow in response
- Unable in making decisions
- Difficulty in completing a task uninterrupted even for a short duration
- Susceptible to aggressive reaction when demands are not met immediately

- Difficulty in remembering
- Difficulty in attending to their self – care needs
- Difficulty in complying with group game rules or social norms
- Difficulty in negotiating skills

Educational Needs

Delay in Development is a characteristic feature such as –

- Slow Reaction
- Slow in understanding and learning
- Poor attention
- Lack of concentration
- Short tempered
- Poor memory
- Lack of co-ordination poor motor development
- Slow in speech development

Classification, Types of Placements and Certification of Mental Retardation (Educational)

Classification systems define Mental Retardation with emphasis on significantly sub – average intellectual functioning of the individual (assessed by the standardized intelligence tests). The deficits resulting from developmental challenges must be seen in light of concurrent skill deficits which can be addressed only by comprehensively seeking support of multi-disciplinary team support. The chart on the nexrt page shows level of educational support appropriate in correspondence with Intelligence Quotient and Mental Age, Chronological Age and severity of Mental Retardation.

5.3 ASSESSMENT AND EVALUATION

Assessment is feedback from the student to the instructor about the student's learning. Evaluation uses methods and measures to judge student learning and understanding of the material for purposes of grading and reporting. Evaluation is feedback from the instructor to the student about the student's learning. Assessment is defined as a process of appraising something or someone, i.e. the act of gauging the quality, value or importance. As against, evaluation focuses on making a judgment about values, numbers or performance of someone or something. Assessment is made to identify the level of performance of an individual, whereas evaluation is performed to determine the degree to which goals are attained.

Mental Retardation affects all developmental processes, cutting across motor, language, social, self-care and cognitive functioning. This condition may also have additional or associated problems like seizures, speech delay, behavior problems and sensory or motor impairments. There is hence need for assessing approach that involves multi-disciplinary inputs, as the challenges faced by person with Mental Retardation are concurrent. Considering the complexity of the condition a comprehensive assessment method and tool is essential to plan an individualized program for training a person with Mental Retardation. Due to complex nature of challenges, an individualized approach for assessment is recommended. This refers to criterion and functional approach in assessment. Continuing from the functional classification approach for Mental Retardation, assessment must contain items that are instructional and relevant to functional adaptation for a given degree and level of Mental Retardation. Assessment of adaptive behavior, which distinguishes a person with Mental Retardation from other disabilities, has become an important component.

Heber describes 'adaptive behavior" as 'the effectiveness with which the individual copes with the nature and social demands of his environment". Prior to the development of adaptive behavior scales and intelligence tests, social incompetence was used to determine whether a person was Mentally Retarded or not. Another component of assessment of person with Mental Retardation is to assess his deficits and strengths simultaneously. This approach requires a comparison with developmental norms to assess deficits and match them with residual adaptive ability that is crucial in selecting prioritized goals for functional / adaptive rehabilitation. This then forms the basis for Educational Program.

Definition of Assessment

Assessment is defined as a methodical way of acquiring, reviewing and using information about someone or something, so as to make improvement where necessary. The term is interpreted in a variety of ways, i.e. educational, psychological, financial, taxation, human resource and so on.

In general, assessment is an ongoing interactive process, in which two parties (assessor and assesse) are involved. The assessor is someone who assesses the performance based on the defined standards, while assesse is someone who is being assessed. The process aims at determining the effectiveness of the overall performance of the assesse and the areas of improvement. The process involves, setting up goals, collecting information (qualitative and quantitative) and using the information for increasing quality.

Definition of Evaluation

The term 'evaluation' is derived from the word 'value' which refers to 'usefulness of something'. Therefore, evaluation is an examination of something to measure its utility.

Simply put, evaluation is a systematic and objective process of measuring or observing someone or something, with an aim of drawing conclusions, using criteria, usually governed by set standards or by making a comparison. It gauges the performance of a person, completed project, process or product, to determine its worth or significance.

The evaluation includes both quantitative and qualitative analysis of data and undertaken once in a while. It ascertains whether the standards or goals established are met or not. If they are met successfully, then it identifies the difference between actual and intended outcomes.

5.3.1 Difference between Assessment and Evaluation

The basic difference between assessment and evaluation lies in the orientation, i.e. while the assessment is process oriented, evaluation is product oriented.

The significant differences between assessment and evaluation are discussed in the points given below:

- The process of collecting, reviewing and using data, for the purpose of improvement in the current performance, is called assessment. A process of passing judgment, on the basis of defined criteria and evidence is called evaluation.
- Assessment is diagnostic in nature as it tends to identify areas of improvement. On the other hand, evaluation is judgemental, because it aims at providing an overall grade.
- The assessment provides feedback on performance and ways to enhance performance in future. As against this, evaluation ascertains whether the standards are met or not.
- The purpose of assessment is formative, i.e. to increase quality whereas evaluation is all about judging quality, therefore the purpose is summative.
- Assessment is concerned with process, while evaluation focuses on product.

- In an assessment, the feedback is based on observation and positive and negative points. In contrast to evaluation, in which the feedback relies on the level of quality as per set standard.
- In an assessment, the relationship between assessor and assesse is reflective, i.e. the criteria are defined internally. On the contrary, the evaluator and evaluate share a prescriptive relationship, wherein the standards are imposed externally.
- The criteria for assessment are set by both the parties jointly. As opposed to evaluation, wherein the criteria are set by the evaluator.
- The measurement standards for assessment are absolute, which seeks to achieve the quintessential outcome. As against this, standards of measurement for evaluation are comparative, that makes a distinction between better and worse.

BASIS FOR COMPARISON	**ASSESSMENT**	**EVALUATION**
Meaning	Assessment is a process of collecting, reviewing and using data, for the purpose of improvement in the current performance.	Evaluation is described as an act of passing judgment on the basis of set of standards.
Nature	Diagnostic	Judgmental
What it does?	Provides feedback on performance and areas of improvement.	Determines the extent to which objectives are achieved.
Purpose	Formative	Summative
Orientation	Process Oriented	Product Oriented
Feedback	Based on observation and positive & negative points.	Based on the level of quality as per set standard.
Relationship between parties	Reflective	Prescriptive
Criteria	Set by both the parties jointly.	Set by the evaluator.

Measurement Standards	Absolute	Comparative

5.3.2 Specific Purpose of Assessment

Need for assessment is to identify strengths and weaknesses of an individual which give a functional profile for identifying areas of training goals in educational functioning. This can be systematically organized through:

- Initial identification and screening.
- Determination of current performance levels, educational needs evaluation of teaching programs and strategies (pre-referral intervention).
- Make decision regarding classification and program placement.
- For developing Individualized Educational Program (defining goals, objectives and evaluation procedures).

Types of Assessment

In view of need for assessing persons with Mental Retardation, there is dual need to compare them with their peer without disability in order to mainstream them and set goals to upgrade their deficit areas through systematic training. This approach requires norms that are standardized for average population and are comparable among given area of development among given age group population by and large. Norm Based Assessment (NBA) is one approach that helps compare individual's development with peer group to help identify areas of deficits in development. NBA is most suited when information is required in context of developmental context which draws averages from larger population for comparison.

On the other hand Persons with Mental Retardation have individualized deficits which are individualized in nature and cannot be compared with peer averages of performance. Therefore it requires a criterion that is comparable with reference to changes gained before and after the training support planned to upgrade individual deficits. This approach is called Criterion Based Assessment (CBA) suitable for planning individualized training plans in education. As culture plays a significant role in shaping functional competencies for a given individual, CBA is most suited to address individual criteria for assessing needs arising from disability and cultural context. Effective assessment needs a combination of both types of assessment types stated above to address the peculiar mismatch between physical age and mental age discrepancy typically seen among persons with Mental Retardation. Hence while administering assessment for person with Mental Retardation, one requires NBA for comparison related decision in context of identifying suitable placement in mainstream educational setting. One has to administer CBA when effects of training have to be reviewed comparing functional progress against same individual exclusively.

Stages of Assessment

Assessment of a child with Mental Retardation is a continuous and cyclic and dynamic process. It ranges from gathering data or information from “entry level assessment” or establishing baseline of functioning, leading to review of intervention effects during mid-term of training called “formative assessment” and finally to assess intervention outcomes after intervention called “summative assessment”. This approach is essential to ensure corrective action is implemented without wasting time and effort in training and assure that training effects take upfront and positive strides in developing life skills education.

As multiple factors play an important role influencing learning styles, checkpoints are essential to monitor the training results in desired outcomes. This three tier system of assessment is characteristic feature of monitoring progress among persons with Mental Retardation, in view of their major learning challenges underlying in their limitations in sustaining attention, assimilating information, connecting information from learnt contexts to applied contexts and finally generalizing learnt concepts independently. A careful and continuous monitoring in assessment helps in checking desired effects targeted in training goals because of above listed challenges in learning process.

Assessment Tools

In context of functional deficits resulting from condition of Mental Retardation require CBA tools for comparing effects of given training program with reference to functional status of adaptive skills that are exclusive for given individual. Indigenous CBA tools have been developed for wide range of age group, severity and level of Mental Retardation. Efforts have also been initiated to address assessment of educational needs across Special School, Resource Room in Regular School, Home Based and Community Based settings. In current scenario existing tools can meet assessment needs at comprehensive nature. A brief description of Indian based assessment tools using CBA approach will enable selecting a suitable tool for any age level, severity and level of MR person for planning educational program.

5.4 ASSESSMENT OF ADAPTIVE BEHAVIOR

Adaptive behavior assessments are often used in evaluations of students with learning disabilities. These assessments can help determine which behavioral strengths and weaknesses need to be addressed in these students to improve their chances of success in both school and life.

Adaptive behavior is usually assessed using questionnaires completed by parents, teachers, social workers, students (when possible and appropriate), or adult learners. Adaptive behavior can also be assessed based on observations of the child's actual performance of a specific skill.

It is not uncommon for students with learning disabilities to require specially designed instruction to learn adaptive behaviors. This instruction will focus on helping these students develop planning, organizational skills, and study skills, which are all important adaptive behaviors.

Assessment Dimensions

The assessment of adaptive behavior is complex. One must consider not only general competencies across relevant domains but also the level, quality, and fluency of those behaviors. In addition, there is the issue of the ability to perform behaviors (i.e., can do) versus the actual performance of those skills (i.e., does do). In order for the assessment to be clinically and scientifically meaningful, it is important that the assessor be sufficiently trained in using and interpreting appropriate instruments. A high level of training is necessary in order to capture and distinguish the level, quality, and pattern of adaptive behavior displayed by a given subject, as viewed by the eyes of the respondent (parent, teacher, or caregiver).

The frequency of performance can be classified along a dimension from “never” to “usually or always.” The number of choice points varies by specific instrument or by the variation in the clinical interpretation of the assessor when a formal assessment instrument is not used. The quality of performance may be somewhat more subjective, but a key feature is the appropriateness of a given level of adaptive behavior performance. For example, one needs to distinguish between an individual’s deficits in a specific adaptive behavior skill, as opposed to a deficit in a larger domain.

Assessment Methods

There are a number of ways to assess the level, quality, and pattern of adaptive functioning, each with its own strengths and weaknesses. These include clinical assessment by interview methods (unstructured, structured, semi-structured, direct observation), usually with the aid of clinical instruments that are completed by the evaluator during the interview, and the use of checklists that are completed either by an observer or by the individual being assessed.

In an unstructured interview, the clinician applies personal, experience-based clinical norms to the adaptive behavior assessment. The advantage of the method is that it frees the clinician from using a set of criteria that may be perceived as restrictive. The disadvantage is that each clinician imposes his or her own subjective criteria, a process that threatens both the reliability and the validity of the assessment.

Both structured and semi-structured interviews, when performed by well-trained and experienced clinicians, appear to be the best available safeguard against threats to the reliability and the validity of adaptive behavior assessment. These procedures, however, need to be employed using an instrument that is reliable, has valid criteria for evaluating adaptive behavior, and uses empirically based norms. In fact, semi-structured interviews require the highest level of professional expertise, as the questioning and interpretation of answers requires a high level of training.

Since the adaptive behaviors that need to be assessed are those found in the context of a broad range of everyday living situations displayed across a wide variety of settings, an assessment of adaptive functioning by direct observation is usually not practical. It would be difficult to set up situations in which individuals can demonstrate their ability to perform a wide variety of social, communicative, and daily living behaviors.

Checklists completed by teachers, parents, or other caregivers are often used to rate individuals' behavior for a broad variety of suspected conditions (e.g., mental retardation, autism, other pervasive developmental disorders, attention deficit disorder). However, the simplicity and lack of reliability or validity of many such procedures render them less useful than more complex measures administered professionally. Checklists may add valuable information and insights, but they are seldom solely sufficient for diagnostic purposes. In order to make reliable and valid judgments about the presence or absence of many behaviors, the items may need such extensive clarification as to obscure the meaning of such behaviors for many respondents.

The issues of cross-cultural, racial, ethnic, and subcultural biases are of concern to some who view many aspects of adaptive functioning as culturally determined. The issue of sociocultural bias also arises in the context of the adaptive behavior interview. Administration of adaptive behavior scales generally follows one of two possible formats. One is an interview with a professionally trained interviewer and a respondent who knows the individual being assessed well. The other consists of a person who also knows the individual being assessed well but who independently completes a checklist of specific items without assistance. Other scales permit someone to help the person answer questions that cannot be answered without assistance. Some scales can be administered either way. When trained professionals use an interview format, the phrasing of items contained in the record booklet is not used. In this format, the professional has the opportunity to ask questions that are at the appropriate level of sophistication and also appropriate to the cultural group of the respondent.

Adaptive behavior is generally not a mental health issue, since the focus is on developing positive behaviors, rather than deficits. Thus, some of the concerns about cultures that are less accepting of mental illness labels than the majority culture are much less relevant to adaptive behavior assessment.

There seems to be little evidence that adaptive behavior assessment is as prone to cultural, racial, and ethnic bias as other areas of psychological testing. For example, adaptive behavior tests are not as culturally or ethnically bound as tests of intelligence. However, a recent surgeon general's report focuses on the miscommunication that may exist when the interviewer and the respondent speak different languages. The report notes that "several studies have found that bilingual patients are evaluated differently when interviewed in English as opposed to Spanish." It is also possible that different subcultural expectations about independence or religious or medical causes for certain behaviors may affect the validity of reports. In such instances, if a same-language or same-culture interviewer is not available, the clinician needs to be very aware of such possible miscommunications in order to obtain a valid interview. The surgeon general's report emphasizes that more research is needed to better understand how, when, and if culture affects interview-based assessments.

5.4.1 Nature and Definition of Adaptive Behavior

Adaptive behavior has been an integral, although sometimes unstated, part of the long history of mental retardation and its definition. In the 19th century, mental retardation was recognized principally in terms of a number of factors that included awareness and understanding of surroundings, ability to engage in regular economic and social life, dependence on others, the ability to maintain one's basic health and safety, and individual responsibility. Today, fulfillment of these personal and social responsibilities, as well as the performance of many other culturally typical behaviors and roles, constitutes adaptive behavior.

By the close of the 19th century, medical practitioners diagnosing mental retardation relied on subjective or unsystematic summaries of such factors as age, general coordination, number of years behind in school, and physiognomy. These practices persisted over that century because of the absence of standardized assessment procedures. And many individuals who would currently be considered to have mild mental retardation were not included in these early definitions.

Professionals voiced early caution about diagnosing mental retardation solely through the use of intelligence testing, especially in the absence of fuller information about the adaptation of the individual. In addition, mitigating current circumstances (not speaking English) or past history (absence of schooling) were often ignored in the beginning years of intelligence testing. At the turn of the century, intelligence assessment placed primary emphasis on moral behavior (which largely comports with the current construct of social competence) and on the pragmatics of basic academics.

Doll emerged as a leader in the development of a psychometric measure of adaptive behavior, called social maturity at that time. His work emphasized social inadequacy due to low intelligence that was developmentally arrested as a cardinal indication of mental retardation. Doll objected to the definition of mental retardation in terms of mental age, which had proven problematic in IQ testing (because it resulted in classification of a significant proportion of the population). The VSMS, which measured performance of everyday activities, was the primary measure used to assess adaptive behavior, social competence, or social maturity for several decades. One concern that emerged over time was that it was developed and normed for use with children and youth. It did not cover adults and had a limited range of items tapping community living skills.

The assessment of adaptive behavior became a formal part of the diagnostic nomenclature for mental retardation with the publication of the 1959 manual of the American Association of Mental Deficiency discussed adaptive behavior with respect to maturation, learning, and social adjustment. This framework, reiterated in 1983, described adaptive behavior limitations consisting of "significant limitations in an individual's effectiveness in meeting the standards of maturation, learning, personal independence, or social maturity that are expected for his or her age level and cultural group, as determined by clinical assessment and, usually, standardized scales".

The 1983 manual characterized the tasks or activities encompassed by adaptive behavior (and, plausibly social competence) as:

- In infancy and early childhood: sensorimotor development, communication skills, self-help skills, socialization, and interaction with others;

- In childhood and early adolescence: application of basic academic skills in daily life activities, application of appropriate reasoning and judgment in mastery of the environment, and social skills—participation in group activities and interpersonal relations; and
- In adolescence and adult life: vocational and social responsibilities.

During the 1960s, a wider variety of adaptive behavior measures was developed and disseminated, the number of available adaptive behavior measures, largely interview or observational in format, had burgeoned, including checklists pertaining to vocational behaviors. Measures developed in the 1960s have typically been updated in subsequent editions with enhanced psychometric characteristics and scoring.

Over the past 25 years there has also been further refinement of the parameters and structure of tests of adaptive behavior and social competence. This refinement was based on large samples of research participants and data from service registries. Novel frameworks for conceptualization of adaptive behavior have been proposed, and conventional frameworks have been endorsed for application in differential diagnosis and classification practices. Finally, the difficulties and complexities of differentiating mild mental retardation from its absence or from other disabling conditions have remained an enduring concern in both professional practice and policy formulation.

Social Skills Dimension of Social Competence

Most adaptive behavior scales contain factors addressing interpersonal relationships or social skills, but they do not address overall social competence. For individuals whose diagnosis is most in question because their measured IQs are near the cutoff, this vital area may determine the presence or absence of mental retardation. You have argued that social competence has received too little attention in the conceptualization and measurement of adaptive behavior (Figure 1). Their model divides social competence into two overall dimensions: (1) adaptive behavior, which includes the factors contained on most adaptive behavior scales (independent functioning, self-direction, personal responsibility, vocational activity, functional academic skills, physical development) and (2) social skills, including domains that are likely to be most key to identifying mental retardation at the borderline levels (interpersonal behaviors, self-related behaviors, academic-related skills, assertion, peer acceptance, communication skills). The dimensions of adaptive behavior and social skills in the Gresham and Elliott model are surprisingly similar to the 10 adaptive skill areas in the 1992 AAMR definition of mental retardation.

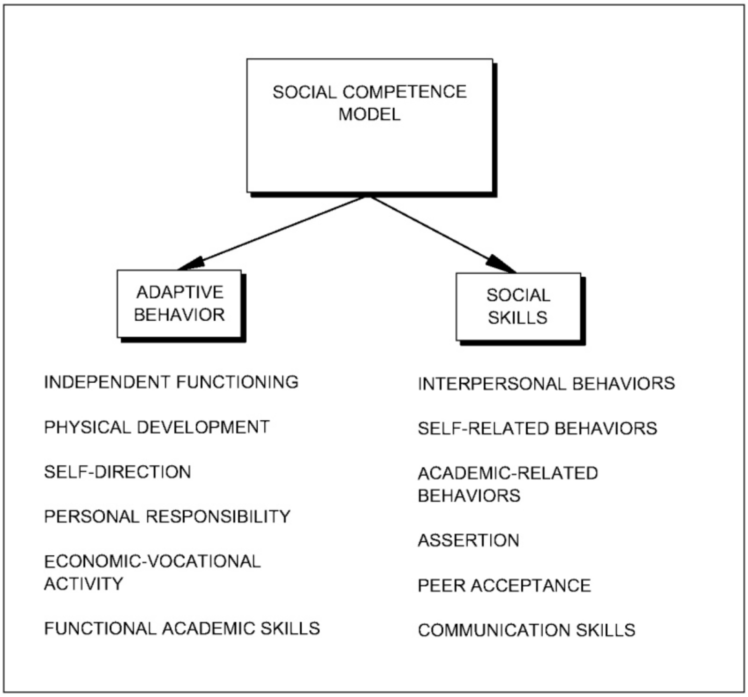

Figure 1. Social competence model.

Gullibility/Credulity Component of Social Competence

Greenspan and colleagues have argued that social intelligence, some aspects of which are not contained on any current scales of adaptive behavior or social skills (e.g., credulity, gullibility), should be a key determinant of a diagnosis of mental retardation for adults (Figure 2)." They suggest that intelligence, as measured by IQ, is typically viewed as an independent variable that predicts outcomes, whereas personal competence is the combination of what individuals "bring to various goals and challenges as well as their relative degree of success in meeting those goals and challenges".

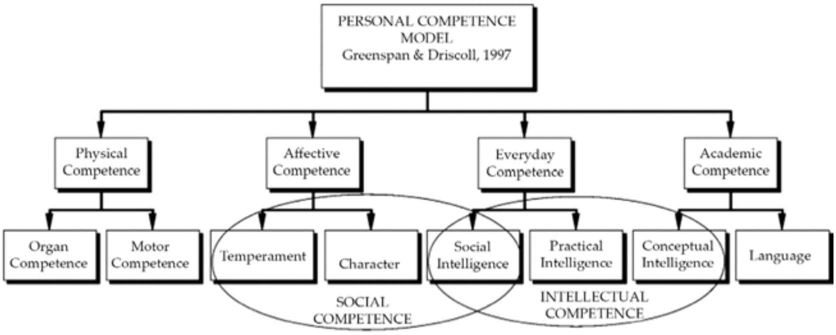

Figure 2. *Personal competence model.*

The victimization of people with mental retardation, observed in social and economic exploitation, is "a more central (and generally more subtle) problem that goes to the heart of why people with mental retardation are considered to need the protections (ranging from in-home services to conservators) associated with the label". The proposed ideas for assessing vulnerability in a comprehensive assessment of adaptive behavior or social competence. As there is no research yet on credulity in people with mental retardation, these proposals for assessment are unlikely to be found in practice in the next several years. Nevertheless, there is merit to the idea of considering these subtle indicators of social competence, i.e., vulnerability, gullibility, and credulity, as important indicators of adaptive behavior in people with mild cognitive impairments.

5.4.2 Maladaptive Behavior

Many adaptive behavior scales contain assessments of problem or maladaptive behavior, but relationships between domains of adaptive and maladaptive behavior are generally low. Division 33 makes it clear that the presence of clinically significant maladaptive behavior *does not* meet the criterion of significant limitations in adaptive functioning also emphasized that behaviors that interfere with a person›s daily activities, or with the activities of those around him or her, should be considered maladaptive behavior, not the lack of adaptive behavior. Refusal to perform a task that a person is capable of doing is also a reflection of problem behavior and should not be considered in relation to adaptive behavior. The classroom form of the Vineland Adaptive Behavior Scales does not include a section on maladaptive behavior, which also suggests that these authors viewed measures of problem behavior as irrelevant to diagnosis or eligibility. The presence of maladaptive behavior, or mental illness, is irrelevant for the purpose of diagnosing of mental retardation.

If it is assumed that maladaptive behavior ratings should not contribute to diagnostic decisions about adaptive functioning, then problems in their measurement need not affect this process. However, because several adaptive behavior scales contain maladaptive components, it is worth noting important challenges to reliable measurement. Specifically, several roadblocks to meaningful ratings of maladaptive behavior were noted after publication of the original AAMD Adaptive Behavior Scales (ABS). Scales developed subsequently improved on the simple rating format found in the ABS, which contained a finite list of problem behaviors rated according to the frequency of occurrence. These improvements notwithstanding, the complexity of balancing frequency and severity of problem behavior occurrence will continue to pose problems of score interpretation.

5.4.3 Psychometric Concerns in Using Adaptive Behavior Scales

The primary use of adaptive behavior scales in the classification of mental retardation has frequently been confirmatory (i.e., to confirm that a low IQ is associated with delayed acquisition or manifestation of everyday personal and social competencies). This use may result from concerns among clinicians about the robustness of adaptive behavior measures. For the most part, such concerns result from considerations of the structure of measures (e.g., as related to items and other factors mentioned), procedures for obtaining information used to complete the protocols, and issues surrounding informant bias.

Such concerns arise in part because intellectual performance, the other criterion associated with mental retardation, is measured by comprehensive intelligence tests that are the most thoroughly researched forms of psychological assessment. Research studies in the past decade that employ adaptive behavior measures have used them as outcome measures or to study the structure or dimensions of adaptive behavior, rather than behavioral development. Clinicians may consequently believe adaptive behavior to be less well understood than intelligence. Nonetheless, there is a rich literature documenting differential outcomes for quality of life, autonomy, and clinical decision making for adaptive behavioral development as measured by existing assessment instruments. Newer adaptive behavior scales evidence more robust psychometric properties than older scales. You discuss a variety of psychometric features of adaptive behavior scales that have implications for decision making about mental retardation.

Floor and Ceiling Effects

The initial, and probably primary, application of adaptive behavior scales in clinical practice has been to assess the behavioral development of children thought to have mental retardation. Thus, most norming samples, item development, and scale selection have been targeted at groups ages 3 to 18 or 21. This facilitates the early identification of preschool children at risk of mental retardation and permits confirmation of persisting developmental delays. Adult norming samples are often included as well, but they tend to consist of people with already identified disabilities. Thus, adaptive behavior scales have particular relevance in application with preschoolers and with teens, who are often participants in Supplemental Security Income (SSI) determinations or redeterminations. However, depending on the age range of adult participants without disabilities sampled during norming studies, the ceiling (i.e., the highest level of behavioral performance assessed) may differ across scales and may affect the characterization of the degree of delay manifested. Measures of behavioral functioning or responsiveness of children younger than 36 months have not been strengths of many adaptive behavior measures. Infants and toddlers may more appropriately be assessed with more specialized measures in most cases.

Developmental Range Effects

Floor and ceiling effects are also evident as developmental range effects. Scales typically include items that permit behavioral assessments for young children and adolescents without disabilities (i.e., superior behavioral development or skill). For older adolescents, ages 18 to 21, the difficulty level of items often permits identification of either delayed or typical skills. Thus, to the extent that a young adult with mild mental retardation has selected skills that are well developed relative to others, it may not be accurate to describe those skills in developmental terms. Instead, it may be possible to establish only that their skills are superior to those achieved by other young adults with mild mental retardation, and they may sometimes fall in the normal range of performance of similar age peers. Some data suggest that ceiling and developmental range effects hinder the full description of skill assets for some individuals with mild mental retardation.

Item Sampling in Relation to Age-Typical Behavior and Settings

Because adaptive behavior scales are designed with applicability for a wide age range but with primary emphasis on childhood and adolescence, some items may not be suitably worded or may not reflect a performance that is age-relevant. For example, an item may tap skills associated only with childhood (e.g., performing a specific activity or completing a task with adult assistance in an age-typical manner) or with adulthood (e.g., menstrual care for an adult or adolescent woman). Some scales contain provisions for alternative items or alternative performance of items. However, depending on the nature of these provisions, they may reduce the comparability of measures of the related skills from different adaptive behavior scales.

In other instances, scales may be constructed such that they are relevant to only certain age groups (e.g., the motor scale in the Vineland ABS), or different versions of the same scale may be used in different settings (e.g., school versus residential and community settings). For example, the Adaptive Behavior Assessment System is available in four forms: parent, teacher, adult self-report, and adult reported by others. The two versions of the AAMR ABS differ with respect to the age groups emphasized and the settings about which items are structured and weighted in item selection. For example, in relation to the AAMR school-age scales, "items were selected in part based on discrimination among institutionalized individuals and community dwelling individuals previously classified at different adaptive behavior levels, and among adaptive behavior levels in public school populations".

Item Density

Adaptive behavior scales are structured to be comprehensive without being cumbersome. Consequently, several features must be balanced. A number of factors and descriptive categories of behavioral development must be represented adequately in order to ensure comprehensiveness and documentation of both strengths and limitations for clinical and diagnostic purposes. The number of items associated with each descriptive category must be sufficient to provide a scale and to be applicable across age ranges. A relatively wide age range must be represented. In balancing these factors, item density, that is, the inclusion of multiple items reflecting age-typical performance at a range of ages, must be maintained at a fairly uniform level. This means that within any one subscale of an adaptive behavior scale, for example, there may be only one or two items typical of performance for a 10-year-old. When subscale scores are aggregated into summary scores, this results in a meaningful number of age-relevant items, although the items sampled in each subscale are limited. For this reason, some manuals recommend that clinicians fully explore the nature of tasks that the focal person performs that may be age typical. Nonetheless, it should always be recognized that items in adaptive behavior measures represent a *sampling* of items that have passed reliability and validity screens, rather than a complete characterization of adaptive behavior.

5.4.4 Adaptive Behavior Scales with Well-Known Properties

There are at least 200 published adaptive behavior instruments that have been used for diagnosis, research, program evaluation, administration, and individualized programming. Some of these scales were developed to serve only one of these purposes; however, several have attempted to include both the breadth required for diagnosis and the depth required for clinical use. Most tests fall short of accomplishing both purposes. Referring to the dual purpose of adaptive behavior scales, concluded that it is "unrealistic to think that the same test can be used for program evaluation, diagnosis, classification, and individual programming". Among the very large number of adaptive behavior scales on the market, very few have adequate norms and reliability to diagnose mental retardation in people with IQs in the questionable range (e.g., 60-80).

Vineland Adaptive Behavior Scales

The Vineland Adaptive Behavior Scales have their conceptual roots in the Vineland Social Maturity Scale, although overlap between the original and the new scales is minimal. There are actually three scales, including a survey form (VABS-S) and an expanded form (VABS-E), which uses a conversation data gathering format during interviews with parents or guardians. A psychologist, social worker, or other professional who has appropriate training in interview techniques must complete these forms. Norms on children having no disability are available from birth to 18 years, 11 months, based on a standardization sample of 3,000 cases that were stratified by age, gender, ethnicity, parental education, geographic region, and community size consistent with U.S. census data. The proportion of children from homes with low socioeconomic status was lower than that in the census data. The expanded version is designed to meet the requirements of diagnosis and of planning/intervention, and is intentionally longer and more detailed in order to ascertain information on specific skill deficiencies. Data from reliability and validity studies of the survey form are very impressive, especially in light of the flexible conversational procedures used for obtaining information.

The third scale is a classroom form (VABS-C), appropriate for children ages 3-12, and can be completed by the teacher fairly quickly. It does not require specific or graduate training to complete. However, teachers have limited opportunities to observe all behaviors on the VABS-C and must necessarily provide estimates of behaviors that do not occur in the school context. A strength of this scale is that teachers are asked to record when they estimate behaviors, so the resulting threat to reliability and validity can be appraised.

AAMR Adaptive Behavior Scales

There are two versions of the Adaptive Behavior Scales (ABS)–a school version and a residential and community version. The ABS-S:2 is used to identify students who are significantly below their peers in adaptive functioning for diagnostic purposes. It also determines strengths and weaknesses, documents progress, and assesses the effects of intervention programs. Although it is linked to AAMR by name, the ABS does not provide subscale scores in the 10 adaptive skill areas listed in the 1992 AAMR definition of mental retardation. Stinnett (1997) matched ABS items to the 10 adaptive skill areas in the AAMR definition and found that some skill areas are addressed in depth by the ABS (social skills and self-care domains), while others have too few items to give reliable estimates (home living, health and safety, leisure). Nine behavior domains measure personal independence and personal responsibility in daily living, including prevocational/vocational activity. A second part of the ABS-S relates to social and maladaptive behavior.

The ABS-S was standardized on population samples of people with and without mental retardation. Standard scores, age-equivalent scores, and percentile rank scores can be converted from raw scores on the adaptive behavior subscales and three factor scores for ages 3-21. The standardization samples have been judged to be excellent, although the fact that the sample of people with mental retardation did not include people in the IQ range 71-75 is likely to overestimate adaptive behavior when using the mental retardation norms. Since other norms should be used for determining a diagnosis of mental retardation, according to the manual, this should not be a problem in the current SSA context. The ABS-S:2 has excellent interrater reliability.

The ABS-S:2 provides norms only through age 21 and includes some content specifically appropriate for school settings rather than adult environments. The residential and community version, ABS-RC:2, was developed to be appropriate for use with persons through 79 years of age. ABS-RC:2 norms are not available for adults with typical functioning, and most norm-referenced scores provide comparisons only with adults with developmental disabilities. The standardization sample consisted mostly (80 percent) of adults living in residential facilities, and the overall functioning level of the sample may be lower than if other community-dwelling adults had been included. Because standard scores and percentile ranks do not indicate standing relative to people without developmental disabilities, and because the norming sample is probably not representative of the population of adults with developmental disabilities, the ABS-RC:2 may not fit the psychometric criteria used in determining a diagnosis of mental retardation according to AAMR requirements.

Scales of Independent Behavior

The Scales of Independent Behavior is a component of the Woodcock-Johnson Psycho-Educational Battery. The SIB provides norms from infancy to adulthood (40+ years), contains 14 adaptive behavior subscales that fall into four major clusters, and provides an additional full-scale broad independence score.

The SIB-R manual addresses many of the issues that make the scoring interpretation of adaptive behavior scores challenging, including physical disability, the use of adaptive equipment, alternative communication methods, tasks no longer age appropriate, partial performance of multipart tasks, lack of opportunity due to environment or safety, and cognitive ability to understand social expectations for performing behaviors. In general, individuals are to be rated according to what they actually do (or would do if age appropriate), rather than giving "credit" for these considerations or denying credit if tasks are performed well with the assistance of adaptive equipment, medication, or special technology. However, if functional independence is to be considered "within the context of the environments and social expectations that affect his or her functioning", interpreting scores without considering opportunity and societal expectations for a person with physical limitations could be problematic for a diagnosis of mental retardation.

5.5 MENTAL RETARDATION - SOCIAL PERSPECTIVE

Mental retardation (MR) is one of the most distressing handicaps in any society. Development of an individual with mental retardation depends on the type and extent of the underlying disorder, the associated disabilities, environmental factors, psychological factors, cognitive abilities and comorbid psychopathological conditions. Social development means acquisition of the ability to behave in accordance with social expectations. Becoming socialized involves 3 processes: i) learning to behave in socially approved ways, ii) playing approved social roles and iii) development of social attitudes. For people with mental retardation, their eventual level of social development has implication for the degree of support needed in their literacy arrangement and their integration in the community with increasing emphasis on mainstreaming the attainment of skills in personal, domestic and community functioning. It also contributes considerably to quality of life. Thus investigation of factors that may facilitate or inhibit social development assumes particular importance.

Mentally retarded children, due to low intellectual growth, function with a limited capacity in comparison to normal children. Hence the social functioning of these children is found to be affected, and this is closely related to degree of impairment. In addition to brain pathology, there are other factors related to the malfunctioning of these children in a normal social setup. A particular environmental setup in which a child grows up is likely to play an important part in improving or deteriorating the child's functioning in a social milieu. The assessed 56 school-going children (aged 6-13 years) with mental retardation with the help of Social Maturity Scale and found that the mentally retarded children function more in the lower level of social interaction. As the degree of impairment in terms of intelligence goes down, it is observed that the child approaches an average or satisfactory level of social functioning. They also found that the level of social development varies with the intellectual level among persons with mental retardation, or a wide range of family and environmental variables may also influence social development. The designed a study to identify the effects of severity of retardation, age, type of services attended and location of services in rural/urban area on the social development of children with mental retardation using a sample of 113 subjects diagnosed as children with mental retardation. The analysis of results suggested that with increasing severity of retardation, social development also decreases. Further it was found that age, type of services and location of center do not have any effect on social development. The found that a positive relationship exists between measures of adaptive behavior and IQ or mental age. For people with Down's syndrome, the level of social functioning was found to exceed the level of cognitive functioning. The designed a study to identify the effects of seizure disorders/epilepsy on psychopathology, social functioning, adaptive functioning and maladaptive behaviors using a sample of 353 people diagnosed with a seizure disorder and either severe or profound intellectual disability. People with a diagnosis of seizure disorder were found to have significantly less social and adaptive skills when compared to developmentally disabled controls with no seizure disorder diagnosis. In the light of the above investigation, the present study was designed with the following aims: (1) to find out the effects of severity of mental retardation on social development, along with possible correlation with social quotient (SQ) and IQ, which will eventually help in formulating appropriate training management and rehabilitation of mentally retarded children; and (2) to find out the relationship between age and social development.

5.5.1 Transitional and Vocational Assessment

Vocational assessment is the process of gathering information about a student's interests, abilities, and aptitudes as they relate to his or her vocational potential

How does vocational assessment support transition planning?

Vocational assessment supports the process of transition planning by:

- Determining the student's strengths and challenges
- Determining the student's interests and preferences
- Preparing the student for postsecondary education, vocational training, and adult life

- Teaching the student how academics relate to career choices

Information gathered through vocational assessment provides a foundation for developing an Individualized Education Program (IEP) that facilitates effective transition from school to work.

What areas are included in vocational assessment?

The Center for Innovations in Special Education (1991) has established seven components in the vocational assessment process. These include:

- Cognitive skills
- Sensory and motor skills
- Perceptual skills
- Learning preferences
- Vocational skills and development
- Career awareness and development
- Knowledge of jobs, job requirements and rewards, aptitude strengths, and employment challenges

Do all students with disabilities require assessment in each of these areas?

Not necessarily. These organizes vocational assessment into three levels:

- Level I assessment provides a summary of pre-existing information about a student's skills. Sources of data include:
  - Cumulative data review to interpret existing evaluation and cumulative file information
  - Informal interview with the student to determine his or her interest in vocational education and adaptive behavior

  - Informal conference with the teacher to gather information about a student's interests, abilities, and adaptive behaviors
  - Informal conference with parents to determine their career expectations for their son or daughter and their perceptions of the student's adaptive behavior
  - Observations of student behavior and academic performance
- Level II assessment incorporates data related to a student's vocational needs, interests, and aptitudes, a Level II assessment includes:
  - Aptitude, achievement, and interest inventories
  - Work readiness assessment of job-seeking and job-keeping skills
  - Work-related behavior inventories
  - Learning style inventories
  - Functional living skills assessment that indicates a student's preparedness to live and work independently
- Level III assessment incorporates comprehensive vocational evaluations conducted when Level I and II evaluations have not produced sufficient data to identify a student's long-range goals in an appropriate vocational education program. Methods to gather and interpret Level III assessments include:
  - Formal assessment instruments that provide detailed instructions for administration and scoring
  - Situational assessment to observe and evaluate a student's work-related behaviors in a controlled or semi-controlled work environment
  - Work samples/simulated job stations to simulate specific jobs

Information gathered from these vocational assessments should be summarized in the present level of educational performance and become the framework for developing a secondary student's IEP. Goals and objectives of the IEP should reflect those areas in which the student needs to develop the necessary knowledge or skills to achieve his or her postsecondary goals. Through a systematic process such as this vocational assessment can facilitate comprehensive transition planning.

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CHAPTER

6

MENTAL RETARDATION - ITS MULTIDISCIPLINARY ASPECT

INTRODUCTION

Mental retardation is an intellectual disability that results in intellectual capabilities significantly below average. Mental retardation can interfere with learning, the ability to care for oneself, and the ability to meet general societal expectations about how to behave. It is generally defined as an IQ below 70, although people with IQs slightly above this number may have extreme difficulty functioning while people with IQs slightly below this number may not have such difficulties.

Mental retardation (MR) is one of the most distressing handicaps in any society. Development of an individual with mental retardation depends on the type and extent of the underlying disorder, the associated disabilities, environmental factors, psychological factors, cognitive abilities and comorbid psychopathological conditions.

6.1 TEACHING METHODOLOGIES, STRATEGIES AND ADAPTATIONS FOR CHILDREN WITH MENTAL RETARDATION

Measures to formulate Individualized Educational Program are a key to meet learning challenges faced by students with Mental Retardation. This challenge is different in inclusive setting, because it does not privilege Teacher to focus on individual with disability but use techniques to include learning interests of children without disabilities as well. It may help if minimal information is shared regarding challenges at foundational level for teaching functional academics, which at times is a common concern of few other children in class from non-disability background.

6.1.1 Functional Reading

Functional Reading is defined as a student's actions or responses resulting from reading printed words. Functional term is related to application of learnt skills in real community settings. Hence words selected for reading must be "functional" allowing the reader to become independent in community living. Reading is the key to personal and social adjustment and for successful involvement in community activities.

- Primary goal for all students who are mildly or moderately disabled for learning: academics, is to develop "ability to read for protection and survival". This includes examples like – Directions in community, Sign Boards in community, Labels on consumer products for daily use and significant symbols that direct for safety and survival such as symbol for toilets, danger symbol, signage for restaurant etc.

- Second goal is for reading to gain “information and instruction” which: implies an individual to deal with application for jobs, reading news-papers to be updated on current happenings for general knowledge, reading advertisements, facilitate usage of telephone and address book for accessing social contacts.
- Third goal is to read for “pleasure”. For most of students with Mental: Retardation this is an essential pre-requisite and a realistic goal which helps them engage in making simple accessible choices in daily life at home and outside home in community

6.1.2 Teaching Functional Reading

Teaching functional reading has several approaches as stated by Auckerman (1971), however he endorses an eclectic method is necessary for meeting individualized needs of students with Mental Retardation. However approaches are separately explained for purpose of clarity in selecting approaches rationally to suit each child with disability meaningfully and disability level wise.

i. Sight Word Vocabulary (Whole Word Approach):

By helping student recognize the “whole word” at one time and later introducing the awareness to decode each letter to spell appropriately helps child first pay attention to group of familiar alphabets in a cluster. Later while decoding the student can become familiar with sequence of placement of letters and the rational for spelling the word by associating sound with specific letter and arrangement of letters and corresponding sounds that represent placement of letters in given word spelling.

We use this technique for the student to identify his or her own name and then the alphabets in it. Start with the student’s name to read and write. The letters in the name have to be associated with the pics first, then letter-letter matching and then writing the whole name. Matching left –right then diagonal and then placing the letters in the required sequence for the name. Similarly for surname, home address. Once these are achieved father’s name, mother's name, sister's name, brother's name. Start with words the students can associate and is relevant for them through this method.

Several strategies have been engaged in applying this approach-

- **Imagery Level:** This refers to the ease with which a word evokes a concrete picture, they usually include concrete nouns such as domestic items like refrigerator or TV brand used at home ex1: TV Co. named "GODREJ".
  - ex 2: Brand of sweet "CADBURY"
  - ex 3: Cold Drink brand "PEPSI"
  - ex 4: Toothpaste "COLGATE"
  - ex 5: Bath soap "LUX", "LIFEBOUY"
  - ex 6: Mobile subscribers "VODAFONE", "AIRTEL", "LOOP"
- **Paired Association:** Like whole word approach, in this method picture is introduced and then gradually faded out till the student learns to transfer the meaning from the picture to the written word. This method is then applied also to teach students to learn reading of words and form of sentences.

ii. Errorless Discrimination:

  - Here teacher can present the whole word in isolation and read aloud by pointing to the word beginning with 3 to 4 letter words then slowly progressing using same method to read complex words increasing in letters from 5 to 6 and onwards according to the child's pace and ability to progress in reading, in 4 to 6 trials.
  - After child follows the pattern of pointing at the word and reads aloud, successfully, then introduce different set of 3 to 4 words with corresponding number of letters, along with the word that child has been earlier taught to read without making an error, as listed below:

PEPSI **NIKE** **GEMS** **LAYS**

Initially select set of words that have different set of letters to help child distinguish between learnt word and new words with different set of letters.

- As student with Mental Retardation learns to discriminate words and letters successfully after repeated exposures, then introduce words that look similar with minimal difference in cluster of words as in EX given below:

PEPSI **PIPE** **POINT** **PAINT**

- Errorless Discrimination: We can use actual wrappers/ boxes of soap, cold drinks and biscuits. We (Teachers) can paste a small cutting of the original wrapper on the flash cards.

iii. Phonetic Approach:

Teacher selects words starting with similar letter that is common in all word as first letter. The letter selected must be familiar in terms of sound frequently exposed Ex- if child name begins with letter "B" in his name starting with letter "B" as in "B"unny. Teacher will restrict words that are commonly used in child's environment and begin with same letter "B" so that sound for letter "B" is clearly recognized and associated with shape of "B".

Ex – "B" for BUNNY

"B" for BOOK

BED

BULB

BUTTER

BOARD

BIRD

This helps child to learn associate sound that represents the letter shape of "B". Then teacher can introduce family of letters or cluster of letter combination as in Ex – as "IN"

Read “B” with “in” as in “Bin”
Read “P” with “in” as in “Pin”
Read “T” with “in” as in “Tin”
Read “R” with “in” as in “Rin”

This will enable child to combine sounds in association with shapes of letters they represent and use them in sequential arrangement of sounds and corresponding placement of letters.

iv. Error analysis in Generalization:

After learning a new skill, it must be remembered and recalled when necessary he should be able to generalize the skill to the situation when required. If generalization and maintenance of learnt skill has to be ensured, the learnt behavior must occur appropriately outside the training conditions and should be retained to be repeated when needed over a period of time. The sustained ability for generalization does not lie in analysis of success but in analyzing errors. When a learnt task is performed in trained / structured conditions, he then must also be exposed to new and untrained conditions with some similarities. There is a possibility of committing an error when student performs in untrained conditions. Teacher must be sensitive to train the student to prevent error in new conditions for purpose of generalizing a learnt skill. This will help identifying methods to prevent the established error pattern.

As Horner, Albin and Ralph (1987) stated that generalization must be functional and must be precisely performed under appropriate but non-trained conditions. It must not be performed precisely under inappropriate non-trained conditions. This demands teaching not only what is not correct Example: if on a clock dial when instructed to show numeral “1” , then student identifies “1” after ‘12’, then it is correct, but it should not be accepted when shown ‘1’ before ‘2’ as in 12, or ‘1’ before ‘0’ as in case of 10. This because 10 and 12 numbers have other accompanying numbers. This approach would limit or prevent errors from occurring right in the beginning during stage of acquisition itself, thus making generalization an easier process. Engelmann and Carnine (1982), state that faultless presentation rules out the possibility of learner making an error in response. This will lead to precise generalization of the learnt response. Above all the successful generalization of the communication by the teacher should be faultless and clear. These authors suggest tips to prevent ambiguity in teaching and suggest that teacher should:

- Provide sufficient examples
- Be sensitive to learner readiness before communicating
- Demonstrate a range of variations within a given concept
- Reward the student for his right response

v). Generalization of concepts come at later stage when the letter and associated picture concepts are achieved. Ex: B—bus, Black board, Box, Bench. Banana. , C— cup, cupboard, cake, can.

- One can teach the concept: Chair-Used for sitting—made from plastic, wood, metal though the material used is different the use is the same. Ex: Glass—used to fill water, juice made from plastic, metal, glass. Teaching this also helps develop perceptual constancy

6.1.3 Functional Writing

One of the important mode of communication is written expression. This demands eye – hand coordination, motor co-ordination, sense of direction and recognition of symbols (pictures/letters/ numbers/ words/punctuation etc). Some writing tasks require "left to right" orientation in horizontal direction (for writing words), whereas some tasks require vertical orientation (for writing numbers in arithmetic problems as in addition or subtraction).

Writing involves Four Stages:

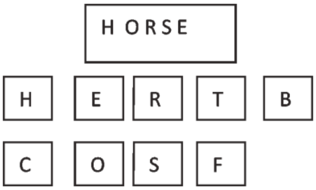
i. Tracing
ii. Joining Dots
iii. Copying
iv. Writing by Memory (including spellings of words and sequence of words in a sentence).

Teaching Writing again has Six Stages:

- First teacher says the word loudly and student repeats it (auditory assimilation). Meaning of the word is explained by discussion (auditory information inputs for organizing information given)
- The word "HORSE" configuration is drawn (visual inputs)
- The word "HORSE" is then traced (co-ordination between visual input and kinaesthetic output)
- The student is instructed to say each letter separately as student traces the letters individually in the word 'horse' – "H", "O", "R", "S", "E", (This involves auditory, visual and kinaesthetic co-ordination).
- Student then copies the model of word "HORSE" firstly with help of dotted lines and then without dotted lines.
- Finally student attempts to write the word "HORSE" independently with help of memory, errorlessly.

Teaching Spelling:

- Has the student uttered the sound of each letter in the word example- "HORSE", while tracing or copying the word.
- Ask student to pick up individual letters in a word "HORSE' and match with shown word model:



Make sure student reads and says the sound of an alphabet when he picks the letter and places in sequence to make the word.

- As the student learns to match the letters in correct sequence, then remove the model word and ask student to arrange letters in order by memory.

HORSE

- nstruct the student to check spellings by comparing with the model of the given word.

HORSE

6.1.4 Functional Arithmetic

Numbers play an important role in our lives. Our communication involves reference to negotiating quantities. Schwartz and Budd (1983), define Functional Mathematics as "use of mathematics needed for vocational, consumer, social, recreational and home making activities".

Functional mathematics includes

Functional Arithmetic: At the preschool level of education and primary, the students need to count parts of the body, things in the classroom, blades of the fan, legs of an animal, table, fingers of one hand, etc.

Pre-Computational Skills

Development of maths skills follows a sequence:

- Relative position of one in quantities – such as being aware of terms to describe quantities "more"/ "less"/ "few"/ "none" even before introducing number values.
- Teach the student to identify "1" object only. Then introduce the symbol "1" only after student successfully identifies real object in "1" quantity. Then place the object under the flash card with written symbol "1". Finally ask the student to read the numeral "1" by showing the flash card.
- Teach the student further numbers only after learning concept of "1" successfully. Place "one more" after "1" and then by counting say "1" and "2" in orderly manner. Also encourage to identify which of the body parts are

in “2” numbers on one’s own body. Same procedure will follow for teaching higher numbers in sequential order. Counting items in daily use must follow “left to right” orientation.

- Writing Numerals: This includes – Tracing, Copying and Writing from Memory.
- Cardinal and Ordinal Numbers: Numbers indicating “quantity” is called a “cardinal numbers” (Ex: How many boys have visited house.) and those values that identify “position” are called as “ordinal numbers” (Ex- in case you are searching a house address, often directions read left turn and third house on the left side, this denotes position of the house

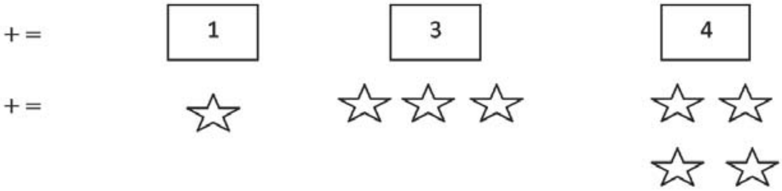
Computational Skills

Addition- is a basic operation upon which all other computation operations are constructed. Many specific, addition related skills are used in other operations such as “multiplication” and “division”. Students who show challenges in “addition” skills are likely to exhibit problems in all other areas of computation skills. Therefore it is important for every primary teacher to plan instructions carefully and clearly to teach operational skills for “addition”. Initial stage of teaching addition can use concrete objects, such as counting real objects, before starting addition. Addition can be taught informally, in situations of simple counting of 2 objects by saying “1” more is added to “1” object and then together after adding 1+1= 2. However formal addition instruction activity may follow sequence listed below:

- Start with simple word problems using concrete objects
- Give three/four objects to students and ask them how many they have. Tell student “A” to give two objects to student “B”. Then ask student “B’’ how many objects he has now. See that the student visualizes and understands

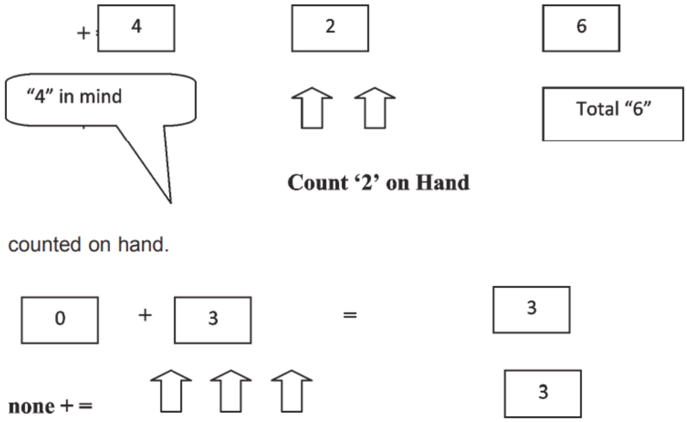
that the amount 'increases' when we add.

- Use flannel board and arrange kites or birds pictures to demonstrate addition operations by adding more pictures.
- Show students the symbol of addition is " + " which joins two lines together (one vertical " l " and other horizontal " – "). This means to "put together" referring to increase in value when added.
- Introduce number flash card for specific number value and place them on flannel board. Then again place same number of object pictures flash card and ask child to read the number figure and then count the number of pictures and see if total number counted and number figure shown match the value read.
- Then push three object pictures towards one picture and ask student to count total number of pictures. Then place the number flash card that corresponds with the total number of picture cards counted- Example below illustrates the same:



Example-

- For higher values, use the method used for non-disabled students, by asking child to keep "4" in mind "2" in hand. This means ask child to count numbers after "4" to add 2 more to 4 in mind. This will result in counting total added value upto "6". Always ask the child to retain higher value of number in mind and lower value number to be



- Introduce addition of Zero in similar method.
- Once student learns to count single digit addition and then teach the child to add double digit value without carry-over. Remember to insist on addition from "units" and not from the "tens' as children have a tendency to work from left to right as in reading language. If needed, initially color coding can be used such as all "unit" numbers written in "green' and "tens" in number written in "red". Instruct the child to always start from "green" and proceed to "red" and so on. As the student acquires mastery slowly fade the color code for denoting difference between place value for "unit" and "tens".

6.2 EMOTIONAL OR BEHAVIORAL ASPECTS IN RELATION TO MENTAL RETARDATION

A clear and widely accepted definition of emotional or behavioral disorders is lacking for numerous reasons. First, disordered behavior is a social construct; no clear agreement exists about what constitutes good mental health. All children behave inappropriately at times. How often, with how much intensity, and for how long must a student exhibit problem behavior before he is considered disabled because of the behavior? Second, different theories of emotional disturbance use concepts and terminology that do little to promote meaning from one definition to another. Third, expectations and norms for appropriate behavior are often quite different across ethnic and cultural groups. Finally, emotional or behavioral disorders sometimes occur in conjunction with other disabilities (most notably learning disabilities), making it difficult to determine whether one condition is an outcome or the cause of the other.

Of the many definitions of emotional or behavioral disorders that have been proposed, the two that have had the most influence are the definition in the Individuals with Disabilities Education Act (IDEA) and one proposed by a coalition of professional associations concerned with children with behavior problems.

6.2.1 Federal Definition of Emotional Disturbance

Emotional disturbance is one of the disability categories in IDEA under which a child is eligible to receive special education services. IDEA defines emotional disturbance as:

Condition exhibiting one or more of the following characteristics over a long period of time and to a marked degree that adversely affects educational performance:

- An inability to learn which cannot be explained by intellectual, sensory, and health factors;
- An inability to build or maintain satisfactory interpersonal relationships with peers and teachers;
- Inappropriate types of behavior or feelings under normal circumstances;
- A general pervasive mood of unhappiness or depression; or
- A tendency to develop physical symptoms or fears associated with personal or school problems.

At first glance, this definition may seem straightforward enough. It identifies three conditions that must be met: chronicity (“over a long period of time”), severity (“to a marked degree”), and difficulty in school ("adversely affects educational performance"); and it lists five types of problems that qualify. But in fact, this definition is extremely vague. What do terms such as satisfactory and inappropriate really mean? Differing degrees of teacher tolerance for student behavior, differences between teachers' and parents' expectations for student behavior, and the fact that expectations for behavior vary across ethnic and cultural groups make the referral and identification of students with emotional or behavioral disorders a highly subjective process.

And how does one determine that some behavior problems represent "social maladjustment," whereas others indicate true "emotional disturbance"? Many children experiencing significant difficulties in school because of their behavior are ineligible for special education under IDEA because their problems are considered to be "merely" conduct disorders or discipline problems. The federal definition was derived from a single study conducted by Eli Bower (1960) in the Los Angeles County schools more than 50 years ago. Bower himself never intended to make a distinction between emotional disturbance and social maladjustment. Indeed, he stated that the five components of the definition were, in fact, meant to be indicators of social maladjustment

It is difficult to conceive of a child who is sufficiently socially maladjusted to have received that label but who does not display one or more of the five characteristics (especially "B") included in the federal definition. As written, the definition seemingly excludes children on the very basis for which they are included. The federal definition's illogical criterion for ineligibility, the dated and arbitrary list of the five characteristics, and the subjective wording that enables school districts to not serve many children with behavioral problems have produced strongly voiced criticism.

6.2.2 CCBD Definition of Emotional or Behavioral Disorder

The Council for Children with Behavioral Disorders drafted a new definition using the term emotional or behavioral disorder. The

CCBD definition was later adopted by the National Mental Health and Special Education Coalition (a group of 30 education, mental health, and child advocacy organizations) and subsequently submitted to the U.S. Congress as a proposed replacement for the IDEA definition. The CCBD definition of emotional or behavioral disorder reads as follows:

- The term "emotional or behavioral disorder" means a disability that is characterized by emotional or behavioral responses in school programs so different from appropriate age, cultural, or ethnic norms that the responses adversely affect educational performance, including academic, social, vocational or personal skills; more than a temporary, expected response to stressful events in the environment; consistently exhibited in two different settings, at least one of which is school-related; and unresponsive to direct intervention in general education, or the condition of the child is such that general education interventions would be insufficient.
- The term includes such a disability that co-exists with other disabilities.
- The term includes a schizophrenic disorder, affective disorder, anxiety disorder, or other sustained disorder of conduct or adjustment, affecting a child if the disorder affects educational performance.

6.2.3 Characteristics

Children with emotional or behavioral disorders are characterized primarily by behavior that falls significantly beyond the norms of their cultural and age group on two dimensions: externalizing (aggression, acting out) and internalizing (anxiety, social withdrawal). Either pattern of abnormal behavior has adverse effects on a child's academic achievement and social relationships.

Externalizing Behaviors

The most common behavior pattern of children with emotional or behavioral disorders consists of antisocial, or externalizing, behaviors. In the classroom, children with externalizing behaviors frequently do the following:

- Get out of their seats
- Yell, talk out, and curse
- Disturb peers
- Hit or fight
- Ignore the teacher
- Complain
- Argue excessively
- Steal
- Lie
- Destroy property
- Do not comply with directions
- Have temper tantrums

All children sometimes cry, disrupt others, and refuse to comply with requests of parents and teachers; but children with emotional or behavioral disorders do so with disturbing frequency. Also, their antisocial behavior often occurs with little or no apparent provocation. Aggression takes many forms—verbal abuse toward adults and other children, destructiveness and vandalism, and physical attacks on others. These children seem to be in continuous conflict with those around them. It is no wonder that children with emotional or behavioral disorders find it difficult to establish and maintain friendships.

Many believe that most children who exhibit deviant behavioral patterns will grow out of them with time and become normally functioning adults. Although this optimistic outcome holds true for some children who exhibit problems such as withdrawal, fears, and speech impairments, research indicates that it is not so for children who display consistent patterns of aggressive, coercive, antisocial, and/ or delinquent behavior. A pattern of antisocial behavior early in a child's development is the best single predictor of delinquency in adolescence. Children who enter adolescence with a history of aggressive behavior stand a very good chance of dropping out of school, being arrested, abusing drugs and alcohol, having marginalized adult lives, and dying young.

Internalizing Behaviors

Some children with emotional or behavioral disorders are anything but aggressive. Their problem is the opposite—too little social interaction with others. They are said to exhibit internalizing behaviors. Although children who consistently act immaturely and withdrawn do not present the threat to others that antisocial children do, their behavior creates a serious impediment to their development. These children seldom play with others their own age. They lack the social skills needed to make friends and have fun, and they often retreat into daydreams and fantasies. Some are extremely fearful of certain things without reason (i.e., phobia), frequently complain of being sick or hurt, and go into deep bouts of depression. Obviously, such behavior limits a child's chances to take part in and learn from the typical school and leisure activities that children participate in and enjoy. Table 1describes the most common types of anxiety disorders and mood disorders seen in school-age children.

Table 1. Types of anxiety, mood, and other emotional disorders in children

Condition	**Characteristics/Symptoms**	**Remarks**
Anxiety Disorders	Maladaptive emotional state or behaviors caused by excessive and often irrational fears and worries.	

Generalized anxiety disorder	Excessive, unrealistic worries, fears, and tension that lasts 6 months or more; in addition to chronic anxiety, symptoms include restlessness, fatigue, difficulty concentrating, muscular aches, insomnia, nausea, excessive heart rate, dizziness, and irritability.	Excessive worrying interferes with normal activities. Children tend to be very hard on themselves, striving for perfection, sometimes redoing tasks repeatedly; they may also seek constant approval or reassurance from others. Usually affects children between the ages of 6 and 11.
Phobias	Intense fear reaction to a specific object or situation (e.g., snakes, dogs, or heights); level of fear is inappropriate to the situation and is recognized by the person as being irrational; can lead to the avoidance of common, everyday situations.	Most phobias can be treated successfully with behavior therapy techniques such as systematic desensitization (gradual and repeated exposure to feared object or situation while relaxing) and self-monitoring.
Obsessive/ compulsive disorder (OCD)	Persistent, recurring thoughts (obsessions) that reflect exaggerated anxiety or fears; typical obsessions include worry about being contaminated, behaving improperly, or acting violently. The obsessions may lead an individual to perform a ritual or routine (compulsions)—such as washing hands, repeating phrases, or hoarding—to relieve the anxiety caused by the obsession.	OCD most often begins in adolescence or early adulthood. Most individuals recognize their obsessions are irrational and that the compulsions are excessive or unreasonable. Behavioral therapy is effective in treating most cases of OCD; medications are often effective.

Anorexia nervosa	Refusal to maintain body weight at or above a minimally normal weight for age and height. Obsessive concern with body weight or shape. Intense anxiety about gaining weight or becoming fat, even though severely underweight. Two subtypes: restricting food intake by starving oneself down to an abnormal weight and binge eating/ purging.	Anorexia and bulimia (see below) are primarily disorders of females, particularly adolescent girls. Early in the course of anorexia, the person often denies the disorder. Depression, anxiety, compulsive exercise, social withdrawal, obsessive/compulsive symptoms, and substance abuse are often associated with eating disorders.
Bulimia nervosa	Recurrent episodes of (a) binge eating (eating in a discrete period of time an amount of food much larger than most people would eat under similar circumstances while feeling that one cannot stop eating) and (b) inappropriate compensatory behavior in order to prevent weight gain (e.g., self-induced vomiting, misuse of laxatives or other medications, fasting, excessive exercise).	Preoccupation with weight and shape and excessive self-evaluation are primary symptoms of both anorexia and bulimia. Many patients demonstrate a mixture of both anorexic and bulimic behaviors.
Posttraumatic stress disorder (PTSD)	Prolonged and recurrent emotional reactions after exposure to a traumatic event (e.g., sexual or physical assault, unexpected death of a loved one, natural disaster, witnessing or being a victim of acts of war or terrorism). Symptoms: flashbacks and nightmares of the traumatic event; avoiding places or things related to the trauma; emotional detachment from others; and difficulty sleeping, irritability, or poor concentration.	Increased recognition of PTSD in children has occurred in the U.S. since the terrorist attacks of September 11, 2001. Individual and group counseling and support activities can be helpful. Teachers can help by providing an environment in which the child with PTSD feels safe and positive social attention for the child's involvement with normal activities.

Selective mutism (also called elective mutism, speech phobia)	Child speaks normally to specific person or group (e.g., family members) but refuses to talk to others. May be a response to trauma, more often caused by anxiety or fear of speaking in certain settings or to certain individuals or groups.	Treatment uses positive approach, no attention or punishment for not speaking, reinforcement for approximations of speaking (e.g., participation in class activities, nonspeech vocalizations).
Mood Disorders	Characterized by impaired functioning due to episodes of abnormally depressed or elevated emotional state.	
Depression	Marked by pervasive sad mood and sense of hopelessness. Symptoms include social withdrawal; irritability; feelings of guilt or worthlessness; inability to concentrate; loss of interest in normal activities; drastic change in weight, appetite, or sleeping pattern; prolonged crying bouts; recurring thoughts of suicide. Several symptoms must be exhibited over a period of time and not be temporary, reasonable responses to life circumstances (e.g., grief over death of a family member).	Researchers estimate that 15% to 20% of adolescents experience depression at one time or another; adolescent girls are twice as likely as boys to be depressed. Depression is often overlooked in children, especially when symptoms are overshadowed by externalizing behavioral disorders. Teachers should be attentive for signs of possible depression and refer students for evaluation.

Bipolar disorder (formerly called manic-depressive disorder)	Alternating episodes of depressive and manic states. During manic episodes, person is in an elevated mood of euphoria—a feeling of extraordinary elation, excitement—and exhibits three or more of the following symptoms: excessive egotism; very little sleep needed; incessant talkativeness; rapidly changing thoughts and ideas in uncontrolled order; easily distracted; agitated, "driven" activities; and participation in personally risky activities. The peak age at onset of first symptoms falls between the ages of 15 and 19. Five years or more may elapse between the first and second episodes, but the time periods between subsequent episodes usually narrow.	Some patients are reluctant to participate in treatment because they find the experience of mania very enjoyable. Patients often recall this experience and minimize or deny entirely the devastating features of full-blown mania or the demoralization of a depressive episode. Regular patterns of daily activities, including sleeping, eating, physical activity, and social and/or emotional stimulation may help. Medications are often effective in treating acute episodes, preventing future episodes, and providing stabilizing moods between episodes.
Other Disorders		
Schizophrenia	A severe psychotic disorder characterized by delusions, hallucinations (hearing voices), unfounded fears of persecution, disorganized speech, catatonic behavior (stupor and muscular rigidity), restricted range and intensity of emotional expression (affective flattening), reduced thought and speech productivity, and decreased initiation of goaldirected behavior. Affects males and females with equal frequency. Onset typically occurs during adolescence or early adulthood. Most people with schizophrenia alternate between acute psychotic episodes and stable phases with few or no symptoms.	Although no cure exists, most children with schizophrenia benefit from a variety of treatments, including antipsychotic medication, behavioral therapy, and educational interventions such as social skills training. The general goals of treatment are to decrease the frequency, severity, and psychosocial consequences of psychotic episodes and to maximize functioning between episodes.

Tourette syndrome	An inherited neurological disorder characterized by motor and vocal tics (repeated and involuntary movements) such as eye blinking, facial grimacing, throat clearing or sniffing, arm thrusting, kicking, or jumping. About 15% of cases include coprolalia (repeated cursing, obscene language, and ethnic slurs). Symptoms typically appear before age 18; males affected 3 to 4 times more often than females. Many students also have attentional problems, impulsiveness, compulsions, ritualistic behaviors, and learning disabilities.	Tics are experienced as irresistible; student may seek a secluded spot to release symptoms after delaying them. Tics are more likely during periods of tension or stress, and decrease with relaxation or when focusing on an absorbing task. Tolerance and understanding of symptoms are of paramount importance to students; untimed exams (in a private room if vocal tics are a problem) and permission to leave the classroom when tics become overwhelming are often helpful.

Because children who exhibit the internalizing behaviors characteristic of some types of anxiety and mood disorders may be less disturbing to classroom teachers than are antisocial children, they are in danger of not being identified. Happily, the outlook is fairly good for the child with mild or moderate degrees of withdrawn and immature behavior who is fortunate enough to have competent teachers and other school professionals responsible for his development. Carefully targeting the social and self-determination skills the child should learn and systematically arranging opportunities for and reinforcing those behaviors often prove successful.

6.2.4 Causes

The behavior of some children with emotional or behavioral disorders is so self-destructive and apparently illogical that it is difficult to imagine how they got that way. We shake our heads in bewilderment and ask, “Where did that behavior come from?” Numerous theories and conceptual models have been proposed to explain abnormal behavior. Regardless of the conceptual model used to view emotional or behavioral disorders, the suspected causes can be grouped into two major categories: biological and environmental.

Biological Factors

Brain Disorders

Many individuals who have brain disorders experience problems with emotion and behavior. Brain disorders are the result of either brain dysgenesis (abnormal brain development) or brain injury (caused by influences such as disease or trauma that alter the structure or function of a brain that had been developing normally up to that point). For the vast majority of children with emotional or behavioral disorders, however, there is no evidence of brain disorder or injury.

Genetics

Evidence indicates the presence of genetic links to some forms of emotional or behavioral disorders. The disorder with the strongest research support for a genetic risk factor is schizophrenia, a severe and debilitating form of mental illness characterized by auditory hallucinations (hearing voices), delusions, unfounded fears of persecution, and disordered speech. Relatives of schizophrenics have an increased risk of acquiring schizophrenia that cannot be explained by environmental factors alone; and the closer the relation, the higher the probability of acquiring the condition. However, genetics alone has not been found to cause schizophrenia. A person in either of the two highest-risk groups (a child of two parents with schizophrenia or an identical twin of a sibling with the condition) still has a less than 50% chance of developing schizophrenia.

Temperament

No agreed-on definition of temperament exists, but it is generally conceived to be a person's behavioral style or typical way of responding to situations. Because physiological differences or markers are associated with differences in infants' temperament, it is considered an inborn biological influence. An infant who seldom cries but smiles and coos when passed from one person to another might be said to have an easygoing temperament. In contrast, an infant who is distractible, frequently fusses, and withdraws from new situations might show signs of a difficult temperament.

Some research shows that an easy or positive temperament is correlated with resilience to stress and that a difficult temperament at an early age increases the likelihood of behavior problems in adolescence. In one study, children with an inhibited temperament style characterized by withdrawing from novel situations, playing alone, and spending time on the periphery of social action in the second year of life were more likely to develop social phobias and symptoms of anxiety by age 13.

Although a child's temperament is unlikely in itself to cause emotional or behavior problems, it may predispose the child to problems by interacting with environmental factors, such as making parenting interactions more difficult. Thus, certain events that might not produce problem behavior in a child with an easygoing temperament might result in disordered behavior by the child with a difficult temperament.

Environmental Factors

Three primary environmental factors contribute to the development of conduct disorder and antisocial behavior: (a) an adverse early rearing environment, (b) an aggressive pattern of behavior displayed when entering school, and (c) social rejection by peers. Considerable evidence shows that these causal factors occur in sequence. The settings in which these events occur are home, school, and the community.

Home

The relationship children have with their parents, particularly during the early years, is critical to the way they learn to behave. Observation and analysis of parent–child interaction patterns show that parents who treat their children with love, are sensitive to their children's needs, and provide praise and attention for desired behaviors tend to have children with positive behavioral characteristics. Decades of research show clearly that children with emotional or behavior problems are more likely to come from homes in which parents are inconsistent disciplinarians, use harsh and excessive punishment, spend little time engaged in prosocial activities with their children, do not monitor the whereabouts and activities of their children, and show little love and affection for good behavior. When such conditions are present in the home, a young child may be "literally trained to be aggressive during episodes of conflict with family members"

Because of the research on the correlation between parental child-rearing practices and behavior problems, some mental health professionals have been quick to pin the blame for children's behavior problems on parents. But the relationship between parent and child is dynamic and reciprocal; in other words, the behavior of the child affects the behavior of the parents just as much as the parents' actions affect the child's actions. Therefore, at best it is not practical and at worst it is wrong to blame parents for the emotional or behavior problems of their children. Instead, professionals must work with parents to help them systematically change certain aspects of the parent–child relationship in an effort to prevent and modify those problems.

School

School is where children spend the largest portion of their time outside the home. Therefore, it makes sense to observe carefully what occurs in schools in an effort to identify factors that may contribute to problem behavior. Also, because most children with emotional or behavioral disorders are not identified until they are in school, it seems reasonable to question whether school contributes to the incidence of behavioral disorders. Educational practices that contribute to the development of emotional or behavioral problems in children include ineffective instruction that results in academic failure, unclear rules and expectations for appropriate behavior, inconsistent and punitive discipline practices, infrequent teacher praise and approval for academic and social behavior, and failure to individualize instruction to accommodate diverse learners.

A teacher's actions can maintain and actually strengthen deviant behavioral patterns even though the teacher is trying to help the child. Consider the all-toocommon interaction between teacher and student illustrated in Figure 1. It begins with a teacher request that the student ignores and follows a predictable and escalating sequence of teacher pleas and threats that the student counters with excuses, arguments, and eventually a full-blown tantrum. The escalating aggression and tantruming become so aversive to the teacher that she withdraws the task demand (thereby reinforcing and strengthening the student's disruptive behavior) so the student will stop tantruming (thereby reinforcing the teacher's withdrawing the request). This process teaches the child to argue, make excuses, tantrum, destroy property, and even use physical aggression to get what he wants.

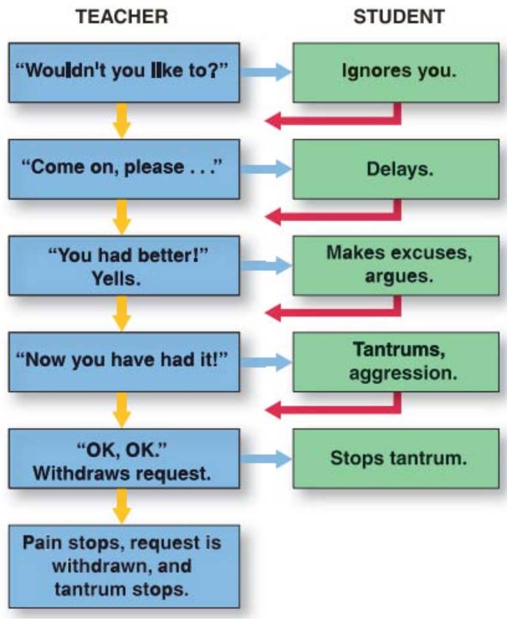


Figure 1. Coercive Pain Control.

6.2.5 Educational Approaches

Curriculum Goals

What should students with emotional or behavioral disorders be taught? An obvious but only partially correct answer is that students with externalizing problems should learn to control their antisocial behavior and that those with internalizing problems should learn to have fun and make friends. However, if programs serving children with emotional or behavioral disorders treat maladaptive behavior at the expense of academic instruction, students who already possess deficient academic skills fall even further behind their peers. Special education for students with emotional or behavioral disorders must include effective instruction in the personal, social, and academic skills required for success in school, community, and vocational settings.

Academic Skills

Systematic instruction in reading, writing, and arithmetic is as important to students with emotional or behavioral disorders as it is to any student who hopes to function successfully in school and society. With No Child Left Behind's emphasis on the academic achievement of all students, the academic course schedules of nearly all secondary students with emotional or behavior disorders closely resemble those of students in the general population. Nearly all secondary school youth with emotional or behavior disorders take language arts, math, and social studies in a given semester, and 84% take science. Only foreign language is taken at a markedly lower rate by youth with emotional or behavior disorders than by youth in the general population.

Until recently, relatively few studies on academic interventions with students with emotional or behavioral disorders appeared in the peer-reviewed research literature. The authors of one review found only 55 teacher-mediated academic interventions published over 30 years. However, increasing awareness of the crucial role effective instruction plays in the treatment of children with emotional and behavioral disorders is leading to more research on curriculum and instruction. Fortunately, this research shows that most students with emotional or behavioral disorders make excellent progress when provided with explicit, systematic instruction.

Good instruction is the foundation for effective behavior management in the classroom. Teachers must guard against the tendency to avoid noncompliance and disruptive outbursts by providing students with behavior problems with limited academic instruction in the form of easier tasks, fewer opportunities to respond, and lowered expectations

Social Skills

Social skills instruction is an important curriculum component for students with emotional or behavioral disorders. Many of these students have difficulty holding a conversation, expressing their feelings, participating in group activities, and responding to failure or criticism in positive and constructive ways. They often get into fights and altercations because they lack the social skills needed to handle or defuse provocative incidents. The slightest snub, bump, or misunderstood request—which would be laughed off or ignored by most children—can precipitate an aggressive attack by some students.

Learning the social and nonacademic skills that match teacher expectations for student behavior is especially important for children with emotional or behavioral disorders. A survey of 717 teachers across grade levels identified the following five skills as critical to success in general education classrooms.

- Controls temper in conflict situations with peers
- Controls temper in conflict situations with adults
- Follows/complies with directions
- Attends to teacher's instructions
- Easily makes transitions from one classroom activity to another

Many studies on teaching social skills to students with emotional or behavioral disorders have been published. A review by Gresham, Cook, Crews, and Kern (2004) concluded that social skills training is generally effective and is an essential component of a comprehensive program for students with emotional and behavior disorders. Based on his review of published research on teaching social skills, Maag (2006) recommended that schools make social skills training an integral and ongoing curriculum component for the benefit of all students.

Numerous social skills curricula and training programs have been published, such as the following:

- Taking Part: Introducing Social Skills to Children helps students in preschool classrooms through third grade learn social skills in six units: making conversation, communicating feelings, expressing oneself, cooperating with peers, playing with peers, and responding to aggression and conflict.
- The Prepare Curriculum: Teaching Prosocial Competencies is designed for students who are aggressive, withdrawn, or otherwise deficient in social competencies. Activities and materials for middle and high school students are provided in 10 areas, such as problem solving, anger control, stress management, and cooperation.
- The Walker Social Skills Curriculum includes ACCEPTS: A Curriculum for Children's Effective Peer and Teacher Skills, for children in grades K–6, and ACCESS: Adolescent Curriculum for Communication and Effective Social Skills, for students at the middle and high school levels.

Research-Based Instructional Practices

A four-phase review process to identify scientifically supported teaching methods for students with emotional or behavioral disorders revealed these four strategic approaches.

- teacher praise (reinforcement);
- high rates of active response by students;
- clear instructional strategies, including direct instruction; and
- positive behavior support, including schoolwide, functional assessment-based individual plans and self-management.

Schoolwide Positive Behavioral Support

Traditionally, discipline in the schools has focused on the use of punishment in an effort to control the misbehavior of specific students. Not only are such strategies generally ineffective in achieving long-term reductions in problem behavior or increases in overall school safety, but they also do not teach students desired, prosocial behaviors. The development of schoolwide positive behavior support (SWPBS) represents a tremendous advance in achieving student discipline and establishing positive school climate procedures. SWPBS is not a particular method or model but a strategic framework made up of organizational systems and research-based, scientifically validated intervention practices for establishing a positive school culture, and teaching and supporting appropriate behaviors that enable the academic and social behavior success of all students.

SWPBS is conceptualized and implemented from a prevention perspective, with a continuum of instructional interventions and behavioral supports that become more targeted and intensive as indicated by students' needs. Most implementations entail three tiers of supports, as illustrated in Figure 2.

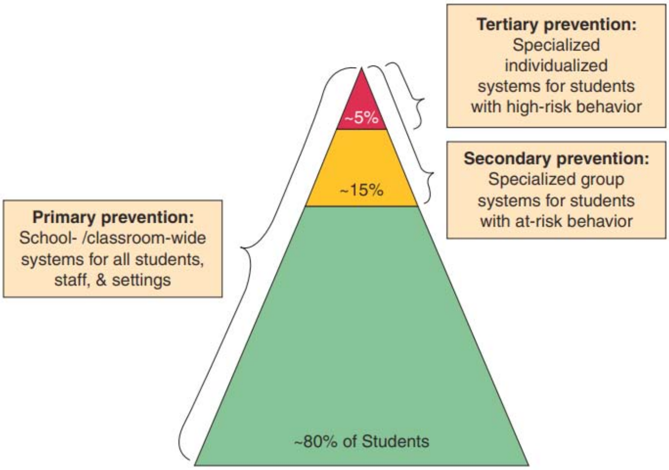


Figure 2. Continuum of Schoolwide Positive Behavioral Support.

Tier 1—Primary Prevention: Universal Supports for All Students. All teachers and school staff participate in a team effort to teach appropriate behavior to all students across all school settings within school.

- Behavioral expectations are stated and defined. A small number of behavioral expectations are clearly defined. These often are simple, positively framed rules such as "Be respectful of self, others, and surroundings"; "Be responsible"; and "Be safe." Specific examples are provided for behavioral expectations (e.g., "Being respectful in class means raising your hand when you want to speak or get help. During lunch or in the hall, being respectful means using a person's name when you talk to him or her.").
- Behavioral expectations are explicitly taught. The behavioral expectations are taught to all students in the building. Behavioral expectations are taught directly with a systematic format: the general rule is presented, the rationale for the rule is discussed, positive examples ("right way") are described and rehearsed, negative examples ("wrong way") are described and modeled, and students practice the "right way" until they demonstrate fluent performance.
- Appropriate behaviors are acknowledged and rewarded. Appropriate behaviors are acknowledged and rewarded on a regular basis. Some schools do this through formal systems (tickets, rewards); others do it through social events. Schools strive to establish a ratio of four positive adult interactions with students for every one that is negative.
- Behavioral errors are corrected. When students violate behavioral expectations, clear procedures are needed for showing them that their behavior was unacceptable and preventing unacceptable behavior from resulting in inadvertent rewards.

Tier 2—Secondary Prevention: Targeted Interventions for Students with At-Risk Behavior. In a typical school, about 15% of students will require more focused behavioral support due to chronic misbehavior and minor rule violations. Tier 2 supports are often delivered in a small-group format. Check in/check out (CICO) is an example of a tier 2 intervention. The basic components of CICO are (a) a brief meeting at the beginning of the day to set behavioral goals, (b) a point card on which teachers record points based on the student's meeting defined criteria and give the student feedback at different times during the day, (c) a brief meeting at the end of the day to review how the day went, and (d) rewards for earning a predetermined number of points (Crone, Horner, & Hawken, 2004). A number of studies have found that CICO effectively reduced problem behavior in the classroom and the number of office discipline referrals

Tier 3—Tertiary Prevention: Intensive, Individualized Interventions for Students with High-Risk Behavior. Students who exhibit serious problem behaviors such as major rule violations that put the student or others in danger or who are unresponsive to secondary-level interventions, or about 5% of students in most schools, require intensive, individualized interventions and ongoing behavioral supports, which may also include wraparound supports outside school to address quality-of-life issues. A team conducts a functional behavior assessment (described earlier) and creates an individualized behavior intervention plan (BIP). Dunlap and colleagues (2010) provide numerous tips and research-based strategies for creating and implementing BIPs within a SWPBS system.

Self-Management

Many children with emotional or behavioral disorders believe they have little control over their lives. Things just seem to happen to them, and being disruptive is their means of reacting to an inconsistent and frustrating world. These students can learn responsibility and achieve self-determination through self-management—making responses to increase or decrease the future frequency of a target behavior one wishes to change. Self-management is also an important tool for promoting the generalization and maintenance of treatment gains from one setting to another. Of the many forms of self-management, self-monitoring and self-evaluation are the most widely used and most researched. Self-monitoring is a relatively simple procedure in which a person observes his own behavior and records the occurrence or nonoccurrence of a specific target behavior. A person using self-evaluation compares his performance against a predetermined standard or goal. With both strategies, a selfor teacher-delivered reward may be contingent upon meeting performance criteria.

"Countoons" are self-management tools that remind young children not only what behavior to record but also what consequences will follow if they meet predetermined performance criteria. Daly and Ranalli (2003) created six-frame countoons that enable students to self-record an inappropriate behavior and an incompatible appropriate behavior. In the countoon shown in Figure 3, Frames 1 and 4 show the student doing her math work, appropriate behavior that is counted in Frame 5. The criterion number of math problems to meet the contingency, in this case 10, is also indicated in Frame 5. Frame 2 shows the student talking with a friend, the inappropriate behavior to be counted in Frame 3. The student must not chat more than six times to meet the contingency. The "What Happens" frame (F6) depicts the reward the student will earn by meeting both parts of the contingency.

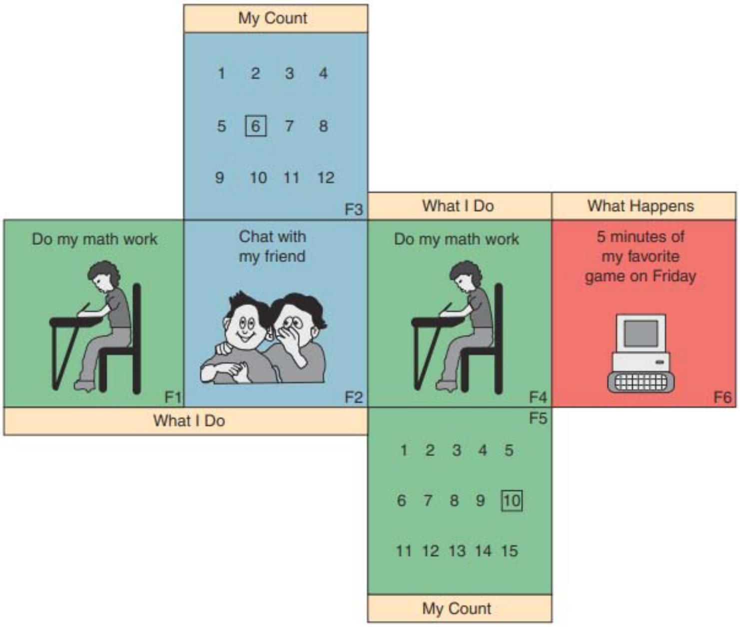


Figure 3. Example Of A Countoon That Can Be Taped To A Student's Desk As A Reminder Of Target Behaviors, The Need To Self-Record, And The Consequence For Meeting The Contingency.

Proactive, Positive Classroom Management

Teachers of students with emotional or behavior disorders must design and manage classroom environments that decrease antisocial behavior and increase the frequency of positive teacher–student interactions as a basis for building positive behavior and academic success. This is a very tall order. Fortunately, teachers can turn to a strong base of clearly defined, evidencebased practices for guidance on effective classroom management

Most classroom behavior problems can be prevented by the use of proactive behavior management. Proactive strategies are preplanned interventions that anticipate behavior problems and stop them before they occur. "It is much more difficult to remediate the problems caused by a Tough Kid than to prevent them. Once a teacher has lost the management tempo in a classroom and things are out of control, it is far more difficult to reestablish control".

Proactive strategies include the following: structuring the physical environment of the classroom (e.g., have the most difficult students sit nearest the teacher); establishing clear rules and expectations for appropriate behavior; planning lessons and managing transitions to minimize downtime; providing students with opportunities make choices; presenting instruction to students in ways that increase the probability of compliance; keeping students actively engaged during instruction; using praise and positive reinforcement to motivate desired behavior; and anticipating and addressing problem behaviors before they occur.

In addition to the strategies already mentioned, teachers must know when and how to use a large set of behavior change tactics and tools such as shaping, contingency contracting, extinction (ignoring disruptive behavior), differential reinforcement of alternative or incompatible behavior, response cost (a loss of reinforcers as a consequence for misbehavior, like a fine), time-out (restricting a student's access to reinforcement for a brief time following an inappropriate behavior), and overcorrection (requiring restitution beyond the damaging effects of the antisocial behavior,—e.g., when a child who takes another child's cookie must return it plus one of her own). These techniques should not be implemented as isolated events but incorporated into an overall instructional and classroom management plan that includes the previously mentioned proactive strategies and perhaps a token economy or level system in which students access greater independence and more privileges as they demonstrate increased behavioral control.

Peer Mediation and Support

The power of the peer group can be an effective means of producing positive changes in students with behavioral disorders. Strategies for teaching peers to help one another replace inappropriate behavior with positive alternative behavior include the following:

- Peer monitoring. A student is taught to observe and record a peer's behavior and provide the peer with feedback.
- Positive peer reporting. Students are taught, encouraged, and reinforced for reporting each other's positive behaviors.
- Peer tutoring. In serving as academic or social skills tutors for one another, students with emotional or behavioral disorders may also learn better social skills.
- Peer support and confrontation. Peers are trained to acknowledge one another's positive behaviors, and when inappropriate behavior occurs or is about to occur, peers are trained to explain why the behavior is a problem and to suggest or model an appropriate alternative response.

Implementing a peer support, or group process, model is much more complicated than bringing together a group of children and hoping they will benefit from positive peer influence. Most children with serious emotional or behavioral disorders have not been members of successfully functioning peer groups in which appropriate behavior is modeled and valued, nor have many such children learned to accept responsibility for their actions. The teacher's first and most formidable challenge is helping promote group cohesiveness.

Although group process treatment programs take many forms, most incorporate group meetings and grouporiented contingencies. Two types of group meetings are usually held daily. A planning meeting is held each morning in which the group reviews the daily schedule, each group member states a behavioral goal for the day, peers provide support and suggestions to one another for reaching their goals, and a group goal for the day is agreed on. An evaluation meeting is held at the end of each day to discuss how well the individual and group goals were met, and each group member must give and receive positive peer comments. Problem-solving meetings are held whenever any group member, including the teacher, feels the need to discuss a problem.

6.3 COMMUNICATION ASPECTS

Communication—the sending and receiving of information—is such a fundamental part of the human experience that we cannot stop communicating even when we want to. You may decide to say nothing, but sometimes saying nothing communicates a great deal. Still, imagine trying to go through an entire day without speaking. How would you make contact with other people? You would be frustrated when others did not understand your needs and feelings. By the end of the day, besides feeling exhausted from trying to make yourself understood, you might even start to question your ability to function adequately in the world.

Although relatively few people with communication disorders are completely unable to express themselves, an exercise like the one just described would increase your awareness of some of the problems and frustrations faced every day by children and adults who cannot communicate effectively. Children who cannot express their desires, thoughts, and feelings are virtually certain to encounter difficulties in their schools and communities. When communication disorders persist, it may be hard for children to learn and develop and to form satisfying relationships with other people.

Communication is the interactive exchange of information, ideas, feelings, needs, and desires. Each communication interaction includes three elements: (a) a message, (b) a sender who expresses the message, and (c) a receiver who responds to the message.

Although communication most often involves at least two participants, each playing the dual roles of speaker and listener, intraindividual communication occurs when the same person is both sender and receiver of the same message (e.g., when we talk to ourselves or write a note to remind ourselves to do something when we read it later). In addition to enabling some degree of control in a social environment, communication serves several important functions, particularly between teachers and children.

Narrating

Children need to be able to tell (and follow the telling of) a story—a sequence of related events connected in an orderly, clear, and interesting manner. Five year-old Cindy tells her teacher, "I had a birthday party. I wore a funny hat. Daddy made a cake, and Mommy took pictures." Fourteen-year-old Ian tells the class about the events leading up to Christopher Columbus's first voyage to America.

Explaining/Informing

Teachers expect children to interpret the explanations of others in speech and writing and to put what they understand into words so that their listeners or readers will be able to understand it, too. In a typical classroom, children must frequently respond to teachers' questions: "Which number is larger?" "How do you suppose the story will end?" "Why do you think George Washington was a great president?"

Requesting

Children are expected to communicate their wishes and desires to others in socially appropriate ways. A child who has learned to state requests clearly and politely is more likely to get what she wants and less likely to engage in inappropriate behavior to communicate her needs.

Expressing

It is important for children to express their personal feelings and opinions and to respond to the feelings of others. Speech and language can convey joy, fear, frustration, humor, sympathy, anger. A child writes, “I have just moved. And it is hard to find a friend because I am shy.” Another tells her classmates, “Guess what? I have a new baby brother!” Through such communicative interactions, children gradually develop a sense of self and an awareness of other people.

Although speech and language form the message system most often used in human communication, spoken or written words are not necessary for communication to occur. Both paralinguistic behaviors and nonlinguistic cues play major roles in human communication. Paralinguistic behaviors include speech modifications (e.g., variations in stress, pitch, intonation, rate of delivery, pauses) and nonlanguage sounds (e.g., “oohh,” laughter) that change the form and meaning of the message. Nonlinguistic cues include body posture, facial expressions, gestures, eye contact, head and body movement, and physical proximity. Some researchers estimate that two-thirds or more of the information in some face-to-face interactions may be communicated by nonspeech means

6.3.1 Language

A language is a formalized code used by a group of people to communicate with one another. All languages consist of a set of abstract symbols—sounds, letters, numbers, elements of sign language—and a system of rules for combining those symbols into larger units. Languages are not static; they grow and develop as tools for communication as the cultures and communities of which they are part change.

6.3.2 Speech

Speech is the oral production of language. Although speech is not the only vehicle for expressing language (e.g., gestures, manual signing, pictures, and written symbols are also used), it is the fastest, most efficient method of communication by language. Speech sounds are the product of four separate but related processes: respiration (breathing provides the power supply for speech); phonation (the production of sound when the vocal folds of the larynx are drawn together by the contraction of specific muscles, causing the air to vibrate); resonation (the sound quality of the vibrating air, shaped as it passes through the throat, mouth, and sometimes nasal cavities); and articulation (the formation of specific, recognizable speech sounds by the tongue, lips, teeth, and mouth). Figure 4 shows the organs used to produce speech sounds.

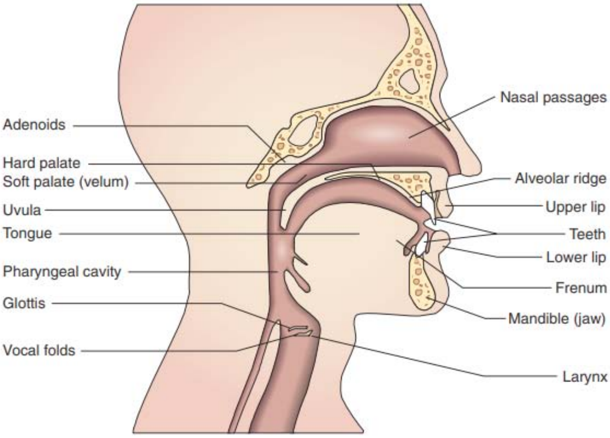


Figure 4. Speech Organs.

6.3.3 Communication Disorders Defined

The American Speech-Language-Hearing Association (ASHA) defines a communication disorder as "an impairment in the ability to receive, send, process, and comprehend concepts or verbal, nonverbal and graphic symbols systems. A communication disorder may be evident in the processes of hearing, language, and/or speech”.

To be eligible for special education services, a child’s communication disorder must have an adverse effect on learning. The Individuals with Disabilities Education Act (IDEA) defines speech or language impairment as “a communication disorder, such as stuttering, impaired articulation, a language impairment, or a voice impairment that adversely affects a child’s educational performance”.

Like all disabilities, communication disorders vary widely by degree of severity. Some children’s speech and language deviate from those of most children to such an extent that they have serious difficulties in learning and interpersonal relations. Children who cannot make themselves understood or who cannot comprehend ideas spoken to them by others experience a significant handicap in virtually all aspects of education and personal adjustment. A severe communication disorder may lead others—teachers, classmates, people in the community—to erroneously believe the child does not care about the world around him or simply has nothing to say.

Specialists in the field of communication disorders make a distinction between speech impairments and language impairments. A child may have a speech impairment, a language impairment, or both.

Speech Impairments

A widely used definition considers speech to be impaired “when it deviates so far from the speech of other people that it (a) calls attention to itself, (b) interferes with communication, or (c) provokes distress in the speaker or the listener”. Three basic types of speech impairments are articulation disorders (errors in the production of speech sounds), fluency disorders (difficulties with the flow or rhythm of speech), and voice disorders (problems with the quality or use of one’s voice).

It is important to keep the speaker's age, education, and cultural background in mind when determining whether speech is impaired. A 4-year-old girl who says, "Pwease weave the woom" would not be considered to have a speech impairment, but a 40-year-old woman would surely draw attention to herself with that pronunciation because it differs markedly from the speech of most adults. A traveler unable to articulate the /l/ sound would not be clearly understood when he tries to buy a bus ticket to Lake Charles, Louisiana. A male high school student with an extremely high pitched voice might be reluctant to speak in class for fear of being mimicked and ridiculed by his classmates.

Many children have mild to moderate speech impairments. Their speech can usually be understood, but they may mispronounce certain sounds or use immature speech, like that of younger children. These problems often disappear as a child matures. If a mild or moderate articulation problem does not improve over an extended period or if it has an adverse effect on the child's interaction with others, referral to a speech-language pathologist is indicated.

Language Impairments

A language disorder is "impaired comprehension and/or use of spoken, written, and/or other symbol systems. The disorder may involve (a) the form of language (phonology, morphology, and syntax), (b) the content of language (semantics), and/or (c) the function of language in communication (pragmatics) in any combination".

ome children have serious difficulties in understanding language or expressing themselves through language. A child with a receptive language disorder may struggle learning the days of the week in proper order or following a sequence of commands such as "Pick up the paint brushes, wash them in the sink, and then put them on a paper towel to dry." A child with an expressive language disorder may have a limited vocabulary for her age, say sounds or words in the wrong order (e.g., "hostipal," "aminal," "wipe shield winders"), and use tenses and plurals incorrectly (e.g., "Them throwed a balls"). Children with an expressive language disorder may or may not also have difficulty in receptive language. For instance, a child may be able to count out six pennies when asked and shown the symbol 6, but she may not be able to say "six" when shown the symbol. In that case, the child has an expressive difficulty, but her receptive language is adequate.

6.3.4 Speech-Sound Errors

Four basic kinds of speech-sound errors occur:

- Distortions. A speech sound is distorted when it sounds more like the intended phoneme than another speech sound but is conspicuously wrong. The /s/ sound, for example, is relatively difficult to produce; children may produce the word "sleep" as "schleep," "zleep," or "thleep." Some speakers have a lisp; others a whistling /s/. Distortions can cause misunderstanding, although parents and teachers often become accustomed to them.
- Substitutions. Children sometimes substitute one sound for another, as in saying "train" for "crane" or "doze" for "those." Children with this problem are often certain they have said the correct word and may resist correction. Substitution of sounds can cause considerable confusion for the listener.
- Omissions. Children may omit certain sounds, as in saying "cool" for "school." They may drop consonants from the ends of words, as in "pos" for "post." Most of us leave out sounds at times, but an extensive omission problem can make speech unintelligible.
- Additions. The addition of extra sounds makes comprehension difficult. For example, a child might say "buhrown" for "brown" or "hamber" for "hammer."

Traditionally, all speech-sound errors by children were identified as articulation problems and thought to be relatively simple to treat.

Articulation refers to the movement of muscles and speech organs necessary to produce various speech sounds. Research during the past two decades, however, has revealed that many speech-sound errors are not simply a function of faulty mechanical operation of the speech apparatus but are directly related to problems in recognizing or processing the sound components of language.

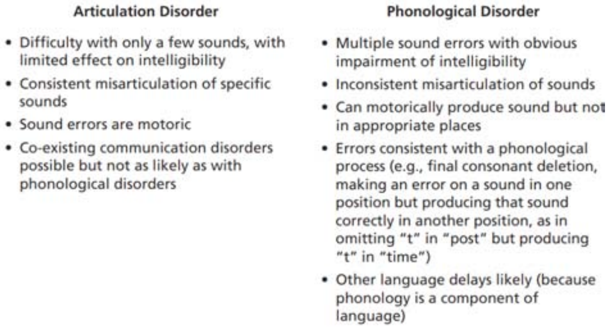
Articulation Disorders

An articulation disorder means that a child is at present not able to produce a given sound physically; the sound is not in his repertoire of sounds. A severe articulation disorder is present when a child pronounces many sounds so poorly that his speech is unintelligible most of the time; even the child's parents, teachers, and peers cannot easily understand him. The child with a severe articulation disorder may say, "Yeh me yuh a da wido," instead of "Let me look out the window," or perhaps "Do foop is dood" for "That soup is good." The fact that articulation disorders are prevalent does not mean that teachers, parents, and specialists should regard them as simple or unimportant.

Phonological Disorders

A child is said to have a phonological disorder if she has the ability to produce a given sound and does so correctly in some instances but does not produce the sound correctly at other times. Children with phonological disorders are apt to experience problems in academic areas, and they are especially at risk for difficulties in reading.

Determining whether a speech-sound error is primarily an articulation or a phonological disorder is important because the treatment goals and procedures differ. General indicators used by clinicians for differentiating between articulation disorders and phonological disorders are shown in Figure 5.



Articulation Disorder

- Difficulty with only a few sounds, with limited effect on intelligibility
- Consistent misarticulation of specific sounds
- Sound errors are motoric
- Co-existing communication disorders possible but not as likely as with phonological disorders

Phonological Disorder

- Multiple sound errors with obvious impairment of intelligibility
- Inconsistent misarticulation of sounds
- Can motorically produce sound but not in appropriate places
- Errors consistent with a phonological process (e.g., final consonant deletion, making an error on a sound in one position but producing that sound correctly in another position, as in omitting "t" in "post" but producing "t" in "time")
- Other language delays likely (because phonology is a component of language)

Figure 5. Distinguishing Articulation and Phonological Disorders.

6.3.5 Fluency Disorders

Typical speech makes use of rhythm and timing. Words and phrases flow easily, with certain variations in speed, stress, and appropriate pauses. A fluency disorder is an "interruption in the flow of speaking characterized by atypical rate, rhythm, and repetitions in sounds, syllables, words, and phrases. This may be accompanied by excessive tension, struggle behavior, and secondary mannerisms".

Stuttering

The best-known (and in some ways least understood) fluency disorder is stuttering, a condition marked by rapid-fire repetitions of consonant or vowel sounds, especially at the beginnings of words, prolongations, hesitations, interjections, and complete verbal blocks. Developmental stuttering is considered a disorder of childhood. Its onset is usually between the ages of 2 and 4, and rarely after age 12. It is believed that 4% of children stutter for 6 months or more and that 70% to 80% of children 2 to 5 years old who stutter recover spontaneously, some taking until age 8 to do so. Stuttering is far more common among males than females, and it occurs more frequently among twins. It is believed that approximately 3 million people in the United States stutter. The incidence of stuttering is about the same in all Western countries: regardless of what language is spoken, about 1% of the general population has a stuttering problem at any given time. The causes of stuttering remain unknown, although the condition has been studied extensively with some interesting results. A family member of a person who stutters is 3 to 4 times more likely to stutter than the family member of a person who does not stutter. It is not known whether this is the result of a genetic connection or an environment conducive to the development of the disorder, or a combination of hereditary and environmental factors.

6.3.6 Voice Disorders

Voice is the sound produced by the larynx. A voice disorder is characterized by "the abnormal production and/or absences of vocal quality, pitch, loudness, resonance, and/or duration, which is inappropriate for an individual's age and/or sex". A voice is considered normal when its pitch, loudness, and quality are adequate for communication and it suits a particular person. A voice—whether good, poor, or in between—is closely identified with the person who uses it.

Voice disorders are more common in adults than in children. Considering how often some children shout and yell without any apparent harm to their voices, it is evident that the vocal cords can withstand heavy use. In some cases, however, a child's voice may be difficult to understand or may be considered unpleasant. Dysphonia describes any condition of poor or unpleasant voice quality.

The two basic types of voice disorders involve phonation and resonance. A phonation disorder causes the voice to sound breathy, hoarse, husky, or strained most of the time. In severe cases, there is no voice at all. Phonation disorders can have organic causes, such as growths or irritations on the vocal cords; but hoarseness most frequently comes from chronic vocal abuse, such as yelling, imitating noises, or habitually talking while under tension. Misuse of the voice causes swelling of the vocal folds, which in turn can lead to growths known as vocal nodules, nodes, or polyps. A breathy voice is unpleasant because it is low in volume and fails to make adequate use of the vocal cords.

A voice with a resonance disorder is characterized by either too many sounds coming out through the air passages of the nose (hypernasality) or, conversely, not enough resonance of the nasal passages (hyponasality). The hypernasal speaker may be perceived as talking through her nose or having an unpleasant twang. A child with hyponasality (sometimes called denasality) may sound as though he constantly has a cold or a stuffed nose, even when he does not.

6.4 AUGMENTATIVE AND ALTERNATIVE COMMUNICATION

Communication devices, systems, strategies and tools that replace or support natural speech are known as augmentative and alternative communication (AAC). These tools support a person who has difficulties communicating using speech.

The first “A” in AAC stands for Augmentative Communication. When you augment something, you add to it or supplement. Augmentative communication is when you add something to your speech (eg. sign language, pictures, a letter board). This can make your message clearer to your listener.

The second “A” in AAC stands for Alternative Communication. This is when you are not able to speak. It is also when your speech is not understood by others. In this case, you need a different way to communicate.

Basically, AAC can be tools, systems, devices or strategies. These tools help a person communicate, when they cannot rely on speech. Perhaps your child has not started talking. Perhaps you have lost your ability to speak. Perhaps your speech comes and goes. Maybe speaking is harder than other ways to communicate.

Unaided and Aided AAC

Augmentative and alternative communication systems can be categorized into two sections as Unaided and Aided. Unaided AAC includes those we use, along with spoken language, that do not require any external tools, such as gestures and sign language. However, some research shows that these are not an appropriate intervention for children with autism, as they may be ineffective.

Another system is aided AAC. These systems use external tools and devices. Aided systems also divide into two categories as high and low tech systems. Low-tech systems have AAC strategies that involve the use of equipment that is not electronic. These tools are often paper-based and contain books and charts. Low tech AAC includes Communication Boards, Picture Exchange Communication System (PECS) and PIC. Electronic equipment allow the users to make use of pictures and letters to create messages. Some of the devices can be programmed to speak.

Picture Exchange Communication System (PECS)

This system is a form of AAC. Through it, a child can be taught to communicate by receiving picture cards. It is based around the idea that a child who has trouble with speech, can learn to communicate through pictures. PECS was first designed to help non-verbal children with autism speak, but today it can also be used by adults and younger individuals to deal with many communicative difficulties.

In high tech AAC, we can list all electronic communication devices. These can be simple message boards, speech generating devices (SGD) or complex computer-based communication systems. Today, high tech AAC can be found on mobile devices that we carry around every day. Otsimo AAC, for instance, can be found on both iOS and Android phones and tablets.

The Goal of Using AAC

Communication is a basic human right. Every individual should be able to independently express themselves. With the use of Augmentative and Alternative Communication, children with autism can overcome the difficulties they face in the classroom, work, and community by cracking the code of spoken language. The more expressive they become, the more comfortable they are with meeting the goals stated in their IEPs.

The aim is to get AAC users to be able to produce spontaneous, novel, functional communication. With a better-spoken language, they would exhibit positive behaviors towards their environments. There are so many opportunities missed due to speech difficulties, but with the use of AAC, a better communication mode can be utilized in a way to create a better future. It can be used in a way that benefits individuals with autism are very good with visuals and they thin visually as well. It can present language in a visual manner for them to remember.

Multimodal Communicators

Many people who cannot speak but use AAC are multimodal communicators. This means they have multiple ways to communicate their messages. As well as AAC, they might use vocalizations, word approximations, and maybe some gesture and sign language. Many people show photos from their camera roll to add to what they are saying. All different methods of communication should be valued and respected. Different communication still tells us something!

Even people with some spoken communication, may benefit from AAC. If speech is limited, AAC can help. It can give a person more words and language. They may communicate far more with AAC than they can with speech alone.

Benefits of AAC

Many people who cannot rely on speech, could benefit from AAC. And there are challenges when people do not have AAC.

People who use AAC describe benefits:

These include:

- stronger friendships and deeper relationships
- richer, more frequent social interactions
- deeper social roles: family member, friend, professional, student
- increased autonomy and decision-making power over their own life
- increased independence
- more respect from others
- greater participation in their family lives and communities
- improved information sharing with physicians
- improved personal safety in a variety of care settings, such as hospitals or long-term facilities
- more employment and volunteer opportunities
- improved physical and mental health

Challenges for people without AAC:

There are often difficulties without AAC, when someone cannot talk reliably.

People who use AAC say that, prior to having a communication system, they experienced:

- more social isolation and loneliness
- increased frustration and acting out with loved ones
- greater vulnerability, especially when alone in a care setting
- feeling shut out of important decisions over their own life
- inability to show what they know or can learn

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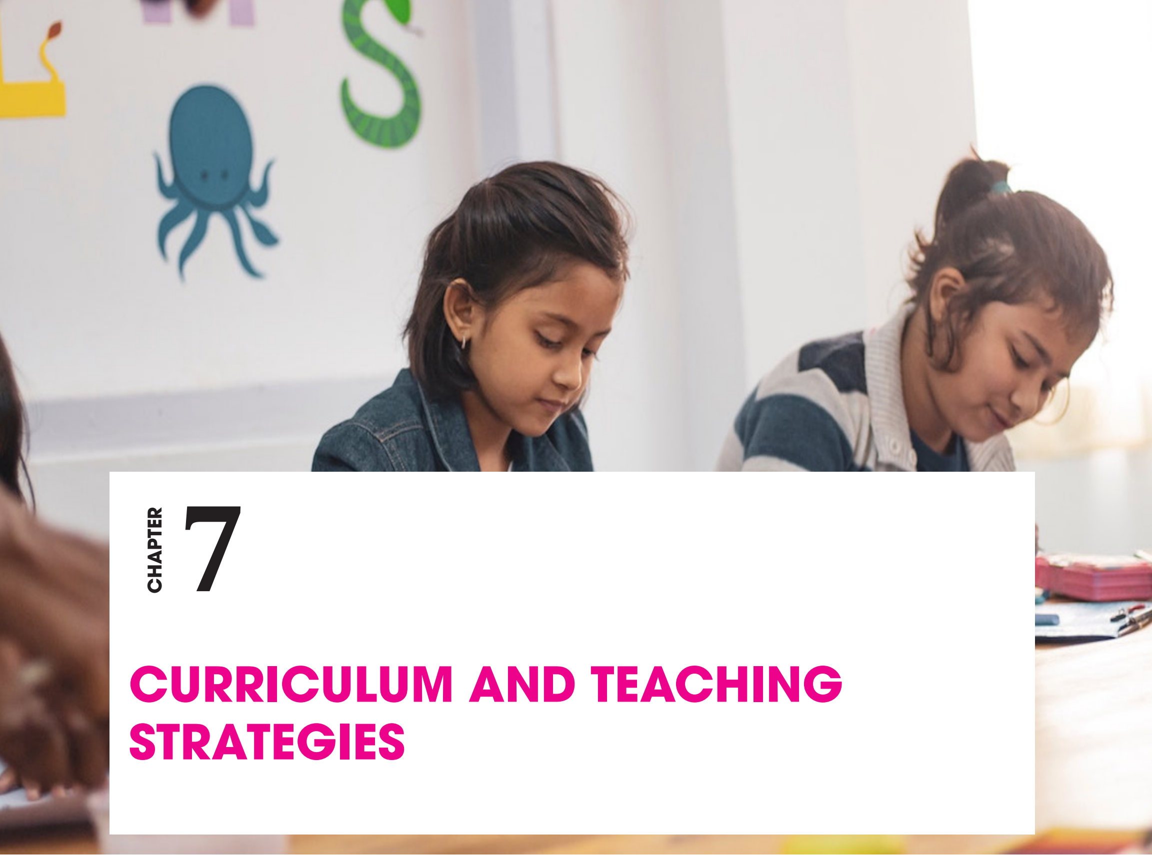


CHAPTER 7

CURRICULUM AND TEACHING STRATEGIES

INTRODUCTION

This issue brief, based on a meeting of a group of distinguished researchers, educators, and policymakers convened by the National Center for Children in Poverty (NCCP) explores lessons from research and practice about the role of an intentional curriculum and professional development and supports for teachers in closing the achievement gap for low-income preschool age children. The aim is to take stock of emerging knowledge about how to increase low-income children's achievement in early literacy and early math and to explore the implications for how administrators and policymakers can best integrate this knowledge into their decision-making. A special focus on curriculum and teaching strategies in preschool programs is important for two reasons. First, many low-income children in early learning settings fall behind early and remain very much behind their peers in reading and math. Second, we are learning that closing the achievement gap depends greatly on providing teachers with the professional development and supports that can help them more effectively promote early literacy and early math in the context of nurturing and emotionally supportive classrooms.

7.1 EFFECTIVE PRESCHOOL CURRICULA AND TEACHING STRATEGIES

This issue brief, based on a meeting of a group of distinguished researchers, educators, and policymakers convened by the National Center for Children in Poverty (NCCP) explores lessons from research and practice about the role of an intentional curriculum and professional development and supports for teachers in closing the achievement gap for low-income preschool age children. The aim is to take stock of emerging knowledge about how to increase low-income children's achievement in early literacy and early math and to explore the implications for how administrators and policymakers can best integrate this knowledge into their decision-making. A special focus on curriculum and teaching strategies in preschool programs is important for two reasons. First, many low-income children in early learning settings fall behind early and remain very much behind their peers in reading and math. Second, we are learning that closing the achievement gap depends greatly on providing teachers with the professional development and supports that can help them more effectively promote early literacy and early math in the context of nurturing and emotionally supportive classrooms.

7.1.1 Take-Home Messages

The research in this issue brief shows that low-income children make gains in early literacy and early math when high-quality preschool programs include an intentional curriculum and provide effective teacher professional development and supports.

The most important take-home messages from the issue brief include the following:

- The gap in achievement between low-income children and their middle-class peers is real and significant. An intentional curriculum is research-based, emphasizes teachers actively engaged with children, includes attention to social and regulatory skills, is responsive to cultural diversity and English language learners, is not teacher-proof, and requires new ways to measure classroom quality, teacher effectiveness, and student progress.
- Using an intentional curriculum is an important strategy to reduce the achievement gap, and since no curriculum is teacher-proof, strategies to help teachers effectively use the curriculum are equally important.
- Defining and assessing quality early learning has shifted to a focus on teacher-child interactions, child-focused teaching style, and content-driven classroom instruction in addition to issues such as child-staff ratios and group size.
- On average, the association between teacher education and child outcomes is small and there is still no final determination about how much education and training is needed and what is the best way for to offer this so teachers are more effective in the classroom.
- Overall, children achieve more when they have teachers with more education and training closely tied to knowledge about early childhood and child development.
- New and existing teachers who do not have advanced degrees or training can be effective in classrooms with high concentrations of low-income children if they have ongoing consultation, mentoring, and feedback that is directly tied to their classroom practice.
- Some research on state pre-k programs shows positive results, other research suggests there are significant program quality problems and implementation

challenges, and more rigorous research designs and methods would help determine how effective these programs are for increasing achievement, particularly with low-income children.

- There are examples of school districts using an intentional curriculum and teacher supports that have achieved powerful results with ethnically diverse and low-income children.

7.1.2 Implications and Recommendations

The research in this brief has implications for state and local policymakers, early learning administrators, teachers, families, community leaders, and researchers. Recommendations for each of these key stakeholders groups follow.

For State and Local Policymakers

- Ensure that requirements for obtaining more education are linked to requirements for training in early childhood development or a related field.
- Allocate resources for state and local training in instruction to ensure the translation of new knowledge about teaching, curriculum, and related practices actually reach teachers on the ground.
- Invest in training strategies that provide direct feedback on classroom practice through ongoing consultation, mentoring, or coaching.
- Ensure that state incentives for quality early childhood programs include teacher-child interactions, child-focused teaching, and content-driven classroom instruction.
- Invest in experimental research to determine the specific content, modules, and sequencing of curriculum that best predict increased achievement for low-income young children, including the most at risk, across all settings.

- For the most challenged families, build in supports that address family and community based barriers to learning, such as child and family health and mental health.

For Early Learning Administrators

Implement and sustain over time a whole school/center model of professional development involving principals, directors, supervisors, teachers, child care providers, and families.

Provide release time, substitute teachers, and subsidies so teachers can take advantage of professional development that helps them understand how young children learn and develop, and to help them implement curricula used by the district.

Align early learning curriculum and teaching strategies with kindergarten through grade 3 standards to sustain increased achievement.

For Teachers

- Participate in education and training that increases knowledge of the subject matter being taught and understanding of how to teach young children.
- Participate in education and training that focuses on how young children grow and learn.
- Participate in training that focuses on the cultural traditions and practices and language diversity of the growing number of immigrant and limited English proficient children.

For Families and Community Leaders

- Join together to determine how effective preschools are in teaching early literacy and early math to low-income preschoolers.

- Develop advocacy efforts to ensure that parents and community leaders have a voice in improving early learning outcomes and implementing an intentional curriculum and effective teaching strategies across all preschool settings.

For Researchers

- Conduct experimental studies to determine the specific content, modules, and sequencing of preschool curriculum that best predict increased achievement for low-income and the most at-risk preschoolers.
- Conduct experimental studies across all early learning settings to test what content and delivery methods of training best help teachers improve their classroom practice.
- Promote the development of new tools to measure classroom quality and predictors of increased achievement.
- Translate research findings so that parents, teachers, and community leaders can understand whether the differences identified are meaningful and make a difference in children's achievement.

7.2 CURRICULA AND INSTRUCTIONAL STRATEGIES

In order to help students perform to the best of their abilities in the classroom, general education teachers need to be familiar with how to implement curricula and instructional strategies. Through these strategies, students with disabilities can experience many, if not all, of classroom activities so that they can have a better opportunity to meet educational standards.

7.2.1 Major Issues and Areas of Discussion:

Some of the major issues that teachers may face when thinking about adapting curricula and instructional strategies in the inclusion classroom include devising a method of creating lesson plans that will benefit students with special needs in addition to the question of what some examples of these curricula and instructional strategies can look like. It is important for teachers to be aware of different methods that they may use to create lesson plans that allow them to adapt curricula and instructional strategies because having guidelines and examples will help teachers who may be unfamiliar with how to adapt programs in inclusion settings. In order to be effective general education teachers in inclusion settings, teachers must be aware of methods that they may use to create these programs, but they must also be aware of different examples of strategies that they may implement in the classroom. These strategies will be important specific examples that teachers can use to help modify their strategies to focus on how to help individuals with special needs in the classroom.

According to the **Council for Exceptional Children**, there are **nine steps that teachers in inclusion classrooms should consider** when adapting their curriculum and instruction to meet the needs of diverse learners (*Council for Exceptional Children*, 2011):

- Step 1. Create a Plan for Adapting Materials:

Effective adaptations require sustained development and support. They must be made within the framework of a larger plan that includes consideration of (a) basic and strategic skills instruction and (b) the roles of people involved in the adaptation process. Adaptations that can benefit an entire class or several classes are more likely to be supported and maintained.

- **Step 2. Identify and Evaluate the Demands that Students Are Not Meeting:** The purpose of this step is to define the problem to be addressed by the adaptation. Observe students' performance when they use typical instructional materials and evaluate the areas in which they may need assistance.

- **Step 3. Develop Goals for Teaching Strategies and Making Adaptations:** Some problems can be solved by adaptations; other problems may signal the need for intensive instruction in skills or strategies. Often, teachers may need to provide adaptations while simultaneously teaching the student the learning strategies he or she needs in order to perform the work individually.
- **Step 4. Determine Whether Content or Format Adaptations Are Needed:** Content adaptations may be made only when the student›s Individualized Educational Program (IEP) notes that the general curriculum is inappropriate for this student. When the curriculum is considered appropriate for the student, adaptations may focus on format rather than content.
- **Step 5. Identify the Features of the Materials that Need To Be Adapted:** Teachers adapting materials should examine each curricular unit for features that might cause a learning problem. For example, the content may be very abstract, complex, or poorly organized, or it might present too much information.
- **Step 6. Determine the Type of Adaptation That Will Enable the Student To Meet the Demand:** Once the materials have been evaluated and possible problem areas identified, the type of format adaptation must be selected. Format adaptations can be made by altering existing materials, mediating existing materials, or selecting alternate materials.
- **Step 7. Inform Students and Parents About the Adaptation:** Students should be taught explicit strategies to use any adaptation effectively and how to process the information received through the adaptation.
- **Step 8. Implement, Evaluate, and Adjust the Adaptation:** As the adaptation is implemented, the teacher should evaluate its effects to determine whether the desired outcomes are being achieved and modify accordingly if this is not the case.

- **Step 9. Fade the Adaptation When Possible:** Once the student has learned the necessary skills and strategies, the adaptation should be faded (when possible).

The **National Center on Accessible Instructional Materials** lists several **specific strategies** that the general education teacher can use to modify his or her curricula and instructional methods to benefit students with special needs (*Curriculum Access*, 2011):

- Incorporating **choices** in both assignments and the order in which the students complete the assignments (reduces off-task behavior).
- **Priming** or pre-practice, which is when the teacher previews the assignments or activities, will help increase attention.
- **Partial participation**, or multi-level instruction, allows students to participate in regular class activities with modified assignments.
- Giving **clear directions** will help students understand tasks.
- Giving **appropriate, immediate feedback** will help students be aware of what behaviors are and are not desirable.

7.3 CURRICULUM STRUCTURE: PRINCIPLES AND STRATEGY

Curriculum structure is an element of the core business of every dental school. Achieving the correct structure requires an investment in time, energy and expertize. This investment is important to maximize the educational experience for each student and to produce dentists who are able to practice effectively, efficiently and with compassion in a world that is experiencing ever more rapid changes in knowledge, technology and cultural mores. Establishing the curriculum is the first stage in a sustained process of evaluation and development which is essential to ensure that it remains fit for purpose. This report gathers together information from a range of disparate sources and presents a specifically dental approach to curriculum structure and development.

7.3.1 Theory and Principles of Curriculum Design

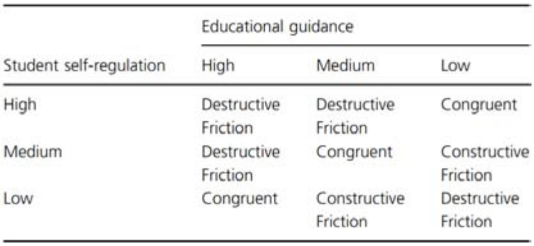
A curriculum has been defined as ‘a planned learning experience’ (1). Whilst the aim of education and training is to enable students to learn, teaching has to be considered as a series of activities that stimulate, facilitate and progressively guide the learning process, culminating in a graduate who has the skills to engage in lifelong, self-directed, reflective learning. All teaching activities should serve to enhance the learning and development of the student, i.e. they should be student centred. The principles have been described in several textbooks on learning and teaching (2–4), and have been refined and enumerated by Kersten (5):

- Learning is an activity of the brain that principally acts to best effect during self-study. l Sufficient relevant prior knowledge is a prerequisite to learning; finding the entry level to new knowledge is important.
- Students will learn more if the material is meaningful and relevant to them and their perceived role as a dentist, i.e. it is learning in context (the corollary of this is that learning out of context is more challenging; for example the teaching and learning of medical subjects when taught by physicians and or surgeons may be an area of difficulty).
- Students need to practice to learn and master knowledge and skills.
- Favourable learning conditions contribute to learning.
- Material presented in a logical order is easier to learn.

These principles should influence the structure of the curriculum and the teaching methods adopted. They represent the way a lecture or a workshop should be structured, the way a module should be shaped and, finally, how the different modules (units) should be arranged in a curriculum. In this way structuring not only determines the sequence in which subjects are presented, but also determines the method of teaching that fits a subject best and how the time available should be devoted to the different activities students need to master. As learning takes place principally during self-study, time for self-study is essential. Not only should there be sufficient time for self-study, but it must also be appreciated that the scheduling and guidance of self-study activities is important. Self-study must be followed by effective evaluation, otherwise excessive or poorly directed self-study may lead to inadequate or inappropriate learning. From a Dutch study it appeared that the number of self-study hours decreased as contact hours increased (6). Contact hours are necessary to encourage students to learn, as without interaction with teachers the average student will not study regularly. However, above a certain number of instructional hours per week (that depend on the subject), an increase in instruction time is counter-productive as the student may become over-stimulated or have ‘information fatigue’. Chambers, in a study on workload, came to comparable conclusions with respect to the relationship between the number of hours of study and performance (7). The greater the workload the more likely it is that students tend towards superficial learning. A workload that is correctly balanced and focused towards the post-qualification ‘world of work’ will benefit the student. It is commonly accepted that in the immediate post-qualification period the average student will spend his/her time learning more about what is required for the service he/she provides, including clinical, scientific or research activities. It follows that during undergraduate training students must be exposed to a range of activities, which must be properly evaluated or assessed.

A balance is necessary between the prescriptive elements of a curriculum and the desire to produce self-directed learners. These tensions have been represented diagrammatically by ten Cate (Table 1). Clearly, scheduling the time allocated during a year, a module and a week and even a day is an essential part of structuring. It also means that structuring a curriculum or a programme should not be driven principally by tradition or convenience, or by the preferences and wishes of individual teachers, or by the technocratic approach of managing a dental school. Unfortunately, the above may have a malign influence in the school, may be difficult to identify clearly, and can be a barrier to achievement of the intended educational aims and outcomes. The rich variety of students on dental degree programmes brings diversity in the way that students learn. The curriculum should recognize this diversity and attempt to cater for all types of learner. Current literature is confusing in the use of the terms learning styles and approaches and the two terms have been used synonymously. There is a major difference between the two in that the learning style is relatively fixed and part of the personality of a learner, whereas the learning approach is varied according to circumstance. To try and alter a student's style of learning may be highly disruptive to their learning (8). A learning style has been defined as a 'pre-disposition on the part of a student to adopt a particular learning strategy regardless of the specific demands of the learning task' (9). Alternatively, it could be stated as 'a description of the attitudes and behaviours which determine an individual's preferred way of learning'. This has been divided by Honey and Mumford (10) into four categories: (i) activist; (ii) reflector; (iii) theorist and (iv) pragmatist. They describe the activist as the student that responds best when they feel they are facing a new challenge and new experiences in their learning; the reflector is described as the student that responds well when given time to consider and reflect on a new learning experience; the theorist responds best when given clear aims and objectives to their studies and the pragmatist responds well to learning when it is perceived as relevant to their practice, and they can foresee a practical application for their learning.

Table 1. Creating constructive friction



	Educational guidance		
Student self-regulation	High	Medium	Low
High	Destructive Friction	Destructive Friction	Congruent
Medium	Destructive Friction	Congruent	Constructive Friction
Low	Congruent	Constructive Friction	Destructive Friction

A learning approach is a ‘pattern of information processing activities used in specific situations to prepare for an anticipated test of knowledge and skills’ (9). Marton and Saljo (11) first described two learning approaches, deep and surface. A further approach, that of a strategic learner, has been added (12, 13). Deep learning is considered to be an ideal approach as the information is well understood and retained for prolonged periods of time. Surface learning is reflected in poor understanding and poor retention. Obviously, a curriculum that promotes deep learning is preferred.

Those responsible for curriculum development should be aware of the European Credit Transfer Scheme (ECTS). Within Europe it will have an impact upon the format and structure of their course. ECTS anticipates that students will accumulate 60 credits per year, and that one credit represents 24–28 h of staff/ student contact time, self-study and assessment. Credits should be based upon the achievement of certain learning outcomes.

At graduation, students should be provided with a document that describes the context, nature, level and status of the studies pursued (for instance a Diploma Supplement in Europe). Such a document further promotes mobility for the individual and transparency of curricula and standards across countries (14). It is important to remember that teachers also need pedagogic education to be able to implement changes. Schools should organize a variety of ongoing training activities for teachers, e.g. short ‘survival guides’ that inform staff of the proposed/imminent changes, and more advanced activities that involve teachers in their own pedagogic development.

There are other factors that will influence the guiding principles of curriculum design, many of which are external factors beyond the control of the dental school. These can lead to a compromise between what the school may want and what may be possible. These have been represented diagrammatically by Luoto and Lappalainen (23) (Fig. 1). Here, the socioeconomic status of the country and the kind of dental treatment offered for the patients in such a country should be recognized (this means that treatment plans for patients in developed countries may be different from those in developing countries). The curriculum design must satisfy the oral and dental health needs of the local population.

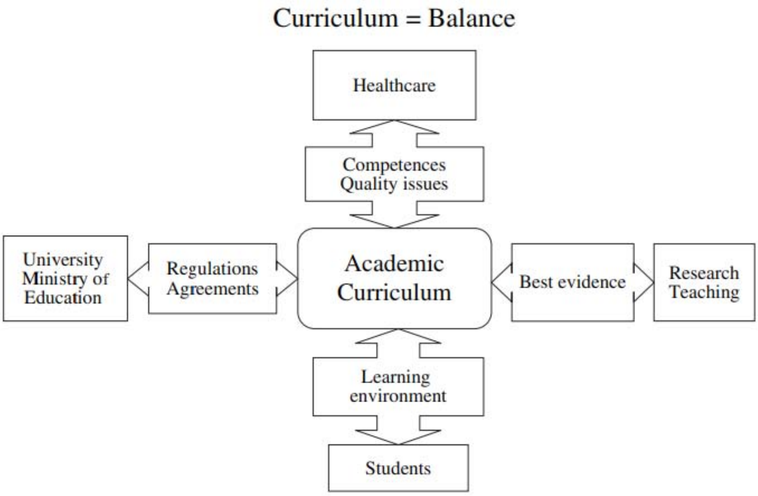


Figure 1: Influences on curriculum design. After Luoto and Lappalainen.

More specifically, motivators for change include:

- National regulating bodies for dentistry.
- Quality assurance agencies (e.g. European Association for Quality Assurance in Higher Education, ENQA).
- DentEd /ADEE/IFDEA and the new Global Network.
- National government.
- Changes in dental knowledge.
- Changes in oral and dental diseases and conditions.
- Changes in dental equipment and materials.
- Changes in delivery of oral care.
- Changes in society’s expectations of oral care.
- Changes in understanding of how adults learn.
- University policy and resources.
- School policy and resources.

- Staffing levels and expertize.
- Students and graduates.

7.3.2 The Process of Change

Curriculum structure is like the skeleton of a body: strong and in balance, giving direction and support to activities and determining the outline of what it represents. It needs careful consideration and planning. The characteristics of the ‘skeleton’ may be determined by the method of teaching, e.g. problembased learning. It may also be helpful to consider one theme of the curriculum, such as clinical dentistry, as the spine around which other themes are arranged. Prior to agreeing themes and arranging them, an overview of the entire transformation is required, including agreement over the theoretical educational framework, the goals and content. In addition, assessment in all its aspects is an essential element of learning and teaching for legal and regulatory reasons, for the benefit of the school and, not least, for the students themselves. Finally, there are a number of prerequisites when restructuring a curriculum that are essential in order to achieve the desired result, and various concurrent actions that either benefit the development of a new structure or can be used as spin-offs.

For instance, restructuring the curriculum in itself takes a substantial amount of time and, thus, resources. A new structure invariably leads to greater costs because modern educational tools are developed, different physical resources may be required, teaching may be intensified and teachers have to be trained to undertake new methods. For that reason the dental school (and hospital) should estimate the investments required in physical facilities, infrastructure and staff development that will be required. There should be a strategy and associated budget to support curriculum changes. The head of school should not underestimate the amount of time, resource and energy required to bring about change. The normal workload of the leader and/ or manager(s) should be adjusted accordingly, and managerial and secretarial support should be provided. One of the most beneficial spin-offs of curricular change is that it often creates teachers with a richer didactic armamentarium. When philosophies of approaches to teaching, methods, etc., are changed, teachers have to adapt. This adaptation calls for support in the form of educational training and professional development. In most parts of the world only a minority of academic teachers in dentistry voluntarily follow didactic pedagogic development courses. In changing a curriculum it is possible to create amongst teachers a self-determined need for pedagogic education and training that will be much more effective than when imposed by higher authorities. A second benefit of a new and innovative curriculum could be the positive impression it creates towards the university and external agencies. This can be helpful in negotiations over budgets, new buildings or new equipment. Therefore, it is essential to disseminate what has been achieved.

Creating a new curriculum structure is a challenge. It requires both leadership and management, with careful planning and a stepwise approach to ensure that the goals are achieved. There should be commitment to change by both the school and the university. Cohen (25) and Kotter and Cohen (26) provide valuable insights into the process of change, with Cohen (25), in particular, giving practical guidance on bringing about change. They show change as an eight-step process:

- Increase urgency.
- Build guiding teams.
- Get the vision right.
- Communicate for buy-in.
- Enable action.
- Create short-term wins.
- Do not let up.
- Make it stick.

The first stage in the process is 'creating a climate for change', which occupies the first three steps. The second stage (steps 4–6) is 'engaging and enabling the whole school'. This might include some significant external individuals or bodies, such as politicians or organizations responsible for the registration and regulation of the profession. Cohen (25) also provides helpful guidance on the management of barriers to change. The final two steps that make up stage 3 (implementing and sustaining the change) are critical; otherwise the natural entropy (lack of coherence) within a dental school can unravel previous achievements. Whilst these steps have been presented in a sequence, some steps may progress continuously and simultaneously with other steps. Furthermore, Cohen et al. suggest that the emotional argument for change is likely to be a more successful lever for change than the logical argument, despite the fact that the logical and analytical approach ought to appeal to a 'scientific' audience such as the staff of a dental school. This concept alone will be challenging for those with responsibility for leading the change, not least because people who believe strongly in their motivation and choices for change, cannot imagine that others do not feel the same way.

It is important not to forget students who are following the 'old' curriculum. They must not be allowed to feel their course is being devalued. Much useful feedback can be obtained by piloting appropriate proposed changes with these students and getting their feedback. Support for change from the student body will help win the argument with those less enthusiastic about innovation. Similarly it is important that the leading cohort of students following a revised curriculum is not made to feel as if they are 'experimental animals'. In addition, dayto-day matters such as timetables and assessment protocols must be issued well in advance, so that the leading cohort of students (and staff) are made aware of their commitments and responsibilities in a timely fashion. The lack of 'tradition' or senior students with advice and experiences to pass on to the leading cohort is particularly unsettling, and good lines of communication between the curriculum planners and the students are essential. Indeed, it is recommended that student feedback on the effect of change on curriculum structure is a formal component of the management of change, with opportunities for students to be informed of the school response to such feedback and to provide reassurance that their concerns and comments have been noted and acted upon where appropriate. Dental schools will determine their own strategies to take them through the three major stages of change, however, helpful examples of such strategies are:

Stage 1: Creating a climate for change

l Ask staff, students and graduates to evaluate the existing curriculum, reflecting on the needs of contemporary and future dental practice. Do not focus on change, focus on the appropriateness of what currently exists in terms of education, dental science, clinical practise, student culture and so on; let the need for change evolve from there.

- Ask the first employers of your graduates on the appropriateness of their employees' knowledge, skills and attitudes. Beware, however, that these employers will not realize just how inexperienced they were at a similar stage in their career!
- Use an external body to evaluate the existing curriculum (e.g. DentEd/ADEE site visit).
- Use the requirements of the Bologna Process
- Remember that emotion rather than logic will be a key factor – so collect information about the inappropriateness of the existing curriculum. Comments derived from examples 1 and 2 (above) will be useful.

Stage 2: Engaging and enabling the entire school (staff and students)

Use a Delphi approach to involve staff in the planning. The Delphi approach is a technique used for gathering opinion and reaching agreement from amongst a panel of experts e.g. Vice Chancellor or equivalent. Some schools will need to inform the quality committees within their institution that a new curriculum is being developed so that appropriate validation processes can be included in institutional quality procedures.

It is important to involve as many people as possible (see Stage 2, above) because people change more easily when they are involved in the process. One convenient way forward is to establish a number of small ‘task and finish’ groups, each with a clearly defined remit; the outcomes of which feed into a higher ‘curriculum change/development’ committee that has a strategic view of the entire process and can prepare material for the higher decision-making body of the school or faculty.

During the process of implementation, results should be monitored, evaluated (as in Stage 3 point 4, above) and confirmed as a good reason for adoption. This monitoring of outcomes should be reliable, valid and consistent and lead to an ongoing process of reflection and further development – an important aspect of quality assurance of the entire process.

Whilst it is not an excuse for poor planning, the leader and managers should not expect everything to progress smoothly in the first instance. There will need to be a process established for continued adjustment to the curriculum and this mechanism should be incorporated into the school’s ongoing quality assurance process. Leading and managing such change is beyond the normal expectations of the work of an academic, and there should be suitable recognition and reward.

7.3.3 Curriculum Design in Practice

Educational philosophy

In the stepwise approach, following agreement to change the next phase should be the educational context in which teaching and learning is to take place and agreement of the educational philosophy and principles. Examples of a variety of educational philosophy follow, however curriculum developers may pick and choose aspects of any philosophy that will suit their purpose

Student-centred	Teacher-centred
Problem-based	Information-oriented
Integrated/inter-professional	Subject-/discipline-based
Community-based	Hospital-based
Elective-driven	Uniform
Systematic	Opportunistic

In other words, the curriculum may be student-centred or teacher-centred, problem-based or information-oriented, etc. In reality there is no reason why a hybrid approach may not be adopted, which allows the most appropriate pedagogical method to be used under individual circumstances and at different times during the course. Whilst the choices in the lefthand column are considered contemporary good pedagogic practice, it should not be assumed without question that this medical model will always be appropriate for dental curricula.

For example, clinical practice should not be exclusively community based/led, and a hybrid approach of hospital and community is appropriate.

The PRISMS model

Product-focused	Practice-based wherever possible, acquiring basic science knowledge by solving real clinical problems
Relevant	Linking the curriculum to the needs of the learners and to the needs of the population they will serve. This is particularly relevant for those least developed countries
Inter-professional	Stressing collaboration and team-working for mutual respect and understanding

Shorter, smaller	This anticipates a growth of graduate entry programmes (i.e. students admitted with a degree in a relevant science subject, and pursuing a 4-year undergraduate dental course) with a shorter training period. The pedagogy will move towards teaching in small groups
Multi-site	Students will increasingly learn outside the dental school/hospital, where they will encounter and manage the common dental problems under supervision. Students can spend some time with supervisors in an area such as the fluoride-rich east African rift valley
Symbiotic	This emphasizes the partnership between learners, teachers, organizations and the communities they serve

7.3.4 Vertical and horizontal integration

Vertical integration means that a topic is revisited throughout the duration of the curriculum, with further information being added to the sum of knowledge year by year; a process termed concentric spiral learning. Horizontal integration means that a topic is taught by different groups of staff (perhaps departments or themes) without undue overlap of information, also called thematic teaching. This term might also include learning and teaching of topics between dental undergraduates and dental nurse, dental hygiene, dental therapy and/or dental technology students and would incorporate the concept of teamwork. Using teachers from either the dental school or from the dental nurse, hygiene, therapy or technology staff to deliver topics can lead to economy of resource. This also creates a positive orientation towards team working amongst these professions in their future career. Vertical and horizontal integration can be illustrated by consideration of the topic of fluoride. In the early stages of the course the use of fluoride in the home environment as a toothpaste may be learned, linked to the delivery of general oral health messages from, say, teachers of paediatric dentistry, and which would be common to dental hygiene and therapy students. The biochemical mode of action of fluoride may be delivered through the teachers of basic science. Practical experience of the prescription and clinical use of fluoride can be obtained from attendance in clinic, and include the pharmacology of fluoride supplements. This could be delivered by either teachers of paediatric dentistry or oral health, with support from teachers of pharmacology or dental hygiene/therapy. The epidemiology of the effects of fluoride on decayed, missing, filled (DMF) scores and the arguments for and against adjustment of fluoride in the water supply would complete the topic, and might be delivered by teachers of dental public health. This principle can be applied to all subjects across the curriculum.

A combination of vertical and horizontal integration has been described as a spiral curriculum (34, 35). The advantages of this approach are that topics are revisited more than once in the programme, there is increasing level of difficulty or complexity on each occasion, the new learning is linked to the previous learning and, as a consequence, the knowledge and skills of the learner increase until competence is achieved.

7.3.5 Competences and learning outcomes

The next step is the creation of, and agreement over, the profile of the graduate, i.e. planning commences by deciding what knowledge, skills and attitudes you would like your new graduate to possess. From this ‘profile’ the end terms or competences (depending on the educational philosophy) can be developed. Once agreed, a mission statement on the new curriculum may be formulated that should also relate to the mission of the university and school.

Chambers (36) has provided a useful definition of competence:

the behaviour expected of beginning independent practitioners. This behaviour incorporates understanding, skills, and values in an integrated response to the full range of circumstances encountered in general professional practice. This level of performance requires some degree of speed and accuracy consistent with patient well being but not performance at the highest level possible. It also requires an awareness of what constitutes acceptable performance under the circumstances and desire for self-improvement.

Beltra´n-Neira and Beltra´n-Aguilar (37) have attempted to classify competency statements from several sources from around the world. This is to assist those who are developing such statements for their institution or organization to rationalize the statements into a coherent and efficient document and hence educational process. Competences are broad statements, usually divided into a number of domains that outline the knowledge, skills and attitudes of the new graduate. This has been described in depth in The Profile and Competences of the European Dentist (38); they may be considered similar to aims. Competences may be supported by learning outcomes (39, 40). It is good pedagogic practice to review competences on a regular basis, to ensure that the curriculum and graduate are fit for purpose and practice respectively (41).

Assessment of 'competence' does not just relate to skill, it also requires appropriate knowledge and attitudes, including self-awareness (i.e. an ability to recognize personal strengths and weaknesses). It also recognizes that there is a continuum in the competency spectrum prior to and beyond the point of competence. The graduate should strive to progress along the spectrum from competent through proficient to expert.

Learning outcomes support the competences, are at a greater level of detail and form the basis of both learning and assessment. Properly constructed, competences and learning outcomes are precisely formulated to indicate what the students should know about, what the students should understand, and what the students should be able to do and how well, using language and context that indicates the level at which they will be assessed. It follows that the learning outcomes must be achievable and measurable or assessable.

The inner circle represents what the dentist is able to do (clinical information gathering, treatment planning, and treatment procedures), the middle circle represents how the dentist approaches their practice (application of basic science, clinical reasoning and judgment, communication, health promotion, professional behaviour and information handling). The outer circle represents the dentist as a professional (role within the profession and society, personal and professional development).

Learning outcomes should be grouped logically together into modules. A module is a defined (and sometimes self-contained) part of the course, at a specific level, and which attracts credits on successful completion (14). Modules may be composed of a number of units. A modular course structure is a challenge to the philosophy of integration. Dental schools have circumvented this difficulty by a variety of mechanisms.

The level of the degree will affect the vocabulary of the learning outcomes. Traditionally this level has been at Bachelor level, however, the descriptors associated with the different levels of higher education that have been derived from the Bologna Process suggest that the qualifying degree for dentistry could be easily matched to those at Master (second cycle) level.

The school will need to make an early decision on the graduating level, i.e. Bachelor or Master. ADEE have recommended that schools work towards a Master (second cycle) qualification as this better matches the level at which dental students /graduates are expected to operate.

7.4 EFFECTIVE TEACHING STRATEGIES FOR THE CLASSROOM

The classroom is a dynamic environment, bringing together students from different backgrounds with various abilities and personalities. Being an effective teacher therefore requires the implementation of creative and innovative teaching strategies in order to meet students' individual needs.

Whether you've been teaching two months or twenty years, it can be difficult to know which teaching strategies will work best with your students. As a teacher there is no 'one size fits all' solution, so here is a range of effective teaching strategies you can use to inspire your classroom practice.

1. Visualization

Bring dull academic concepts to life with visual and practical learning experiences, helping your students to understand how their schooling applies in the real-world.

Examples include using the interactive whiteboard to display photos, audio clips and videos, as well as encouraging your students to get out of their seats with classroom experiments and local field trips.

Cooperative learning

Encourage students of mixed abilities to work together by promoting small group or whole class activities.

Through verbally expressing their ideas and responding to others your students will develop their self-confidence, as well as enhance their communication and critical thinking skills which are vital throughout life.

Solving mathematical puzzles, conducting scientific experiments and acting out short drama sketches are just a few examples of how cooperative learning can be incorporated into classroom lessons.

3. Inquiry-based instruction

Pose thought-provoking questions which inspire your students to think for themselves and become more independent learners.

Encouraging students to ask questions and investigate their own ideas helps improve their problem-solving skills as well as gain a deeper understanding of academic concepts. Both of which are important life skills.

Inquiries can be **science or math-based** such as 'why does my shadow change size?' or 'is the sum of two odd numbers always an even number?'. However, they can also be **subjective** and encourage students to **express their unique views**, e.g. 'do poems have to rhyme?' or 'should all students wear uniform?'.

4. Differentiation

Differentiate your teaching by allocating tasks based on students' abilities, to ensure no one gets left behind.

Assigning classroom activities according to students' unique learning needs means individuals with higher academic capabilities are stretched and those who are struggling get the appropriate support.

This can involve handing out worksheets that vary in complexity to different groups of students, or setting up a range of work stations around the classroom which contain an assortment of tasks for students to choose from.

Moreover, using an educational tool such as Quizalize can save you hours of time because it automatically groups your students for you, so you can easily identify individual and whole class learning gaps.

5. Technology in the classroom

Incorporating technology into your teaching is a great way to actively engage your students, especially as digital media surrounds young people in the 21st century.

Interactive whiteboards or mobile devices can be used to display images and videos, which helps students visualize new academic concepts. Learning can become more interactive when technology is used as students can physically engage during lessons as well as instantly research their ideas, which develops autonomy.

Mobile devices, such as iPads and/or tablets, can be used in the classroom for students to record results, take photos/videos or simply as a behavior management technique. Plus, incorporating educational programmes such as Quizalize into your lesson plans is also a great way to make formative assessments fun and engaging.

6. Behavior management

Implementing an effective behavior management strategy is crucial to gain your students respect and ensure students have an equal chance of reaching their full potential.

Noisy, disruptive classrooms do no encourage a productive learning environment, therefore developing an atmosphere of mutual respect through a combination of discipline and reward can be beneficial for both you and your students.

Examples include fun and interactive reward charts for younger students, where individuals move up or down based on behavior with the top student receiving a prize at the end of the week. 'Golden time' can also work for students of all ages, with a choice of various activities such as games or no homework in reward for their hard work.

7. Professional development

Engaging in regular professional development programmers is a great way to enhance teaching and learning in your classroom. With educational policies constantly changing it is extremely useful to attend events where you can gain inspiration from other teachers and academics. It's also a great excuse to get out of the classroom and work alongside other teachers just like you!

Sessions can include learning about new educational technologies, online safety training, advice on how to use your teaching assistant(s) and much more.

Being an effective teacher is a challenge because every student is unique, however, by using a combination of teaching strategies you can address students' varying learning styles and academic capabilities as well as make your classroom a dynamic and motivational environment for students.

7.5 STRATEGIES FOR DEVELOPING YOUR OWN CURRICULUM AS A NEW TEACHER

Developing curriculum is a tough assignment for first year teachers. However, understanding what to expect and preparing ahead of time can be of great help. Here's a list of strategies for curriculum building from various teaching professionals.

Learning to Build Your Curriculum

If you're looking to develop your own curriculum as a new teacher then you may find yourself overloaded with curriculum building software, how-to articles, and numerous books. It's an overwhelming process whether you're planning for preschool or graduate school. However, there are general principles that you can use as a guideline for preparing your own curriculum. Here are seven principles to get you started.

Focus on the Students

When writing curriculum, it helps to remember that it's not about writing the best lesson plans or developing a perfect set of in-class projects and assignments. Instead, it›s about meeting the needs of the students in a way that ensures the material is understood, maintained, and applied in and out of the classroom.

English educator, Dr. Todd Blake Finley, PhD has prepared a free Unit Plan document to lead first-year teachers step by step through the curriculum-building process. In this downloadable PDF document he lays out eight stepping stones to building a solid curriculum focused on student needs at all learning levels.

- Describe your vision, focus, objectives, and student needs.
- Identify resources.
- Develop experiences that meet your objectives.
- Collect and devise materials.
- Lock down the specifics of your task.
- Develop plans, methods, and processes.
- Create your students' experience.
- Go!

Ask for Help

Seek out seasoned teachers and ask for their input regarding your curriculum. If you don't have a mentor think about asking a fellow teacher if he or she would be willing to walk alongside you during the first year. There's no need to reinvent the wheel. Ask your mentor what he or she did when it came to curriculum building during the first year. Professional teachers are a wealth of information and are often more than willing to share their knowledge with others.

Choose a Supportive Program or Software

Most teachers will tell you that they don't plan their lessons or build curriculum on their own. In fact, oftentimes supportive computer software, online programs, or basic planning maps are used as a guide.

Online programs are especially encouraged as they enable teachers to access curriculum anytime, and make modifications for future use. If you're on a budget, look for free resources online (i.e. Finley's Unit Plan) or ask fellow teachers for a curriculum sample to use as a guide.

Avoid Prepackaged Curriculum

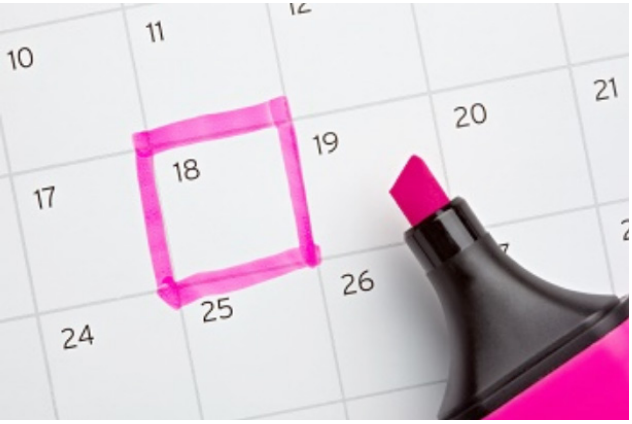
Packaged curriculum can be a great learning tool especially if you're looking for a hands-on sample to go by. However, it's not suggested that you use the curriculum as your set course of action. Boxed curriculum tends to be scripted and fit one type of student or learning level. What works for one teacher's students may not work for another teacher's students. In the end, you may find yourself re-writing and restructuring the curriculum so it will fit the learning levels and needs of your students.

Schedule Planning Time

Creating multiple lesson plans in order to build curriculum takes time. It's important to schedule in planning sessions and blocks of time to work on curriculum. Learning how to manage that time is also important. Teachers shouldn't get bogged down on curriculum development. Work on it in sections or by units. Set goals for yourself that fit in the allotted time and when time is up, step back and step away for a break. It's not a race. It's your students' entire year of learning so make sure to handle it with care.

Remember U-Turns are Allowed

As a first year teacher developing curriculum for the first time, it's important to realize that it's not going to be perfect the initial time around. It may not even be where you want it to be the fourth or fifth time around and that's OK. Even when the finished product is ready for launch, there still may be a few bugs to work out. That's why it's critical to put the curriculum into motion. Start teaching from it and see if it works. You won't really know if the assignments, class projects, or even guest speakers are a good fit for your class until they are presented. Be prepared because some things will work out perfectly while others will need an immediate facelift. This is all part of the process of curriculum development.



Plan for Feedback and Assessments

Don't forget to build in assessments and time for feedback when developing your curriculum. You will need to be able to measure how well students are doing. Set aside time to engage students in conversations about the day's lesson and assignments. Find out what they liked or did not like and what they might want to do differently. Encourage students to speak up if they didn't understand some of the material presented as well.

At the end of the day, it's not about the curriculum or plan itself. It's about the students and how well they understood the lessons presented. It's about the presentation of the material and the student's ability to understand, retain, and apply it.

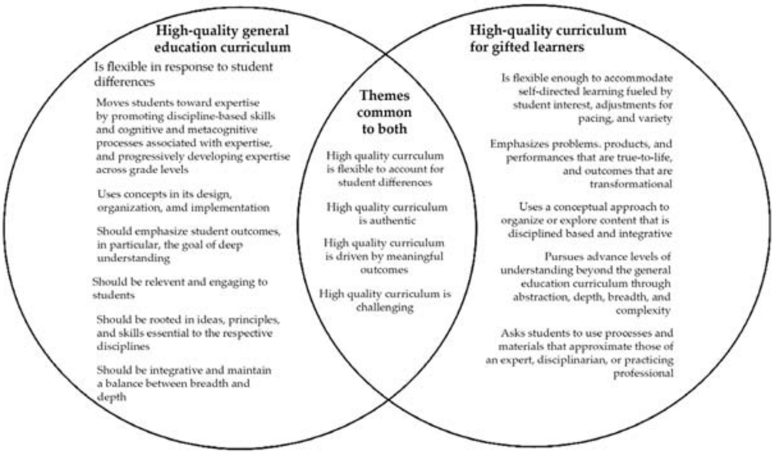
7.6 CURRICULUM DIFFERENTIATION & STRATEGIES

An introduction to curriculum differentiation for students with exceptional learning abilities, descriptions and examples of 30 strategies to differentiate learning experiences for them. A description of each strategy is followed by a list of behaviors that indicate it is needed. Examples and resources are also provided.

7.6.1 Differentiated Curriculum for All and For High Ability Learners

Although the notion of differentiation has appeared the education literature since the 1950s, it has gained greater significance and attention as the diversity of students in today's classrooms has increased.

Tomlinson defined curriculum differentiation for all students as "ensuring that what a student learns, how he/she learns, and how the student demonstrates what he/she has learned is a match for that student's readiness level, interests, and preferred mode of learning." This implies a commitment to accommodating individual learner characteristics. That commitment is also evident in the sets of principles of high quality curriculum for general and gifted education Hockett[4] derived from general and gifted education literature (see Figure 2). Flexibility "to account for student differences," a theme common to high quality curriculum in both general and gifted education, is operationalized in practice as curriculum differentiation.



High-quality general education curriculum

Is flexible in response to student differences

Moves students toward expertise by promoting discipline-based skills and cognitive and metacognitive processes associated with expertise, and progressively developing expertise across grade levels

Uses concepts in its design, organization, amd implementation

Should emphasize student outcomes, in particular, the goal of deep understanding

Should be relevent and engaging to students

Should be rooted in ideas, principles, and skills essential to the respective disciplines

Should be integrative and maintain a balance between breadth and depth

Themes common to both

High quality curreulum is flexible to account for student differences

High quality curriculum is authentic

High quality curriculum is driven by meaningful outcomes

High quality curriculum is challenging

High-quality curriculum for gifted learners

Is flexible enough to accommodate self-directed learning fueled by student interest, adjustments for pacing, and variety

Emphasizes problems. products, and performances that are true-to-life, and outcomes that are transformational

Uses a conceptual approach to organize or explore content that is disciplined based and integrative

Pursues advance levels of understanding beyond the general education curriculum through abstraction, depth, breadth, and complexity

Asks students to use processes and materials that approximate those of an expert, disciplinarian, or practicing professional

Figure 2: Principles of high-quality curriculum in general and gifted education, and themes they have in common.

The principles for general education (left circle in Figure 3) are appropriate for students identified as gifted, however, they need to be adjusted to respond to the capacities that distinguish the learning of students with high ability. Those capacities are evident in the "Brilliant Behaviours" they demonstrate: learning more quickly, greater depth and complexity of conceptual understanding, longer concentration on tasks, greater curiosity, a greater preference for solving more complex problems, motivation, advanced interests, communication skills, memory, insight, imagination, creativity, inquiry, reasoning, and humor. When these learner characteristics are accommodated, the principles are qualitatively different from those for learners in general education who do not share these characteristics. The results are apparent in the circle on the right, in the five principles of high-quality curriculum for gifted learners. The principles for gifted learners highlight features of curriculum that respond to the exceptional abilities of these individuals.

The commonalities among the principles for general and gifted education (overlapping area between circles) have contributed to confusion surrounding the distinctions between them. Isn't it all just "good education"? Aren't best practices for gifted students good for all students? The answer to these questions is, "It depends…" The principles do overlap however there are significant, qualitative differences between them. It is those differences that distinguish curricula differentiated for high ability learners from curriculum differentiated to respond to the needs of students with less ability. The differences in the practices reflect the differences in the students. This is not elitism; it is flexibility. It is responsiveness to the characteristics that distinguish these groups of learners.

Differences in ability result in differences in what and how much is learned from appropriately differentiated learning experiences. Differentiation should be a constant best practice in classrooms, not an occasional event. The learner characteristics that create a need for it are constants and so should be the response to them. The subjects in which an individual's abilities are strong (frequent, intense, consistent) will require on-going differentiation to ensure the differential benefits continue to accumulate. Motivation and attitudes Torward School, as well as academic achievement, may suffer when students with high ability are offered unchallenging curriculum. Boredom and challenging behaviors are likely outcomes.

Differentiation should also be systematic. The system that guides it should offer a rationale and research base for its recommendations. Both should be connected to learner characteristics. The system becomes a tool for communication with curious students, parents, teaching colleagues and administrators. A systematic approach also allows teachers to monitor successes and on-going challenges, tracking them for changes and reporting purposes.

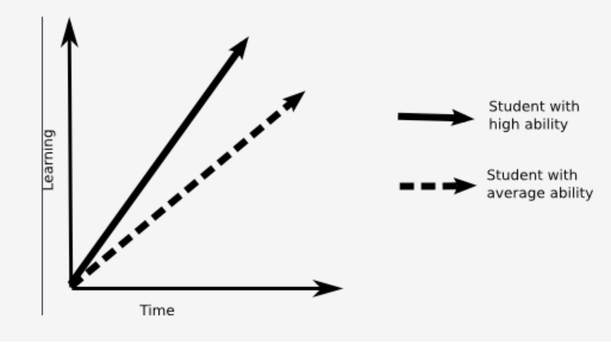


Figure 3: Differential benefits of differentiated curriculum

7.6.2 The Four Elements of Curriculum

Every learning activity in a curriculum is composed of four elements: content, process, product and learning environment.

Content: The content of curriculum is the new knowledge, skills, behaviors and attitudes to be learned in the activity. Content can be drawn from one discipline (subject) or it may be interdisciplinary. The content in any discipline may be in the form of facts, concepts, procedures, principles, generalizations, theories, strategies, heuristics, actions, meanings, emotions, etc.

Process: The process in curriculum is in the actions (thinking, feeling, physical, etc.) students use to develop their understanding of the content. Learning processes include the way students find and work with information and resources, as well as the ways they interact with others (peers, experts, teacher, etc.).

Product: Products of learning experiences communicate the substance of what has been learned. Bright and gifted students should be expected produce evidence in which they demonstrate their potential and their growth in understanding, not their age. Assessment criteria and procedures should clearly communicate this expectation.

Learning Environment: The environment in which students learn has physical and psychological features can be enhanced to increase the benefits of differentiating the contents, processes and products learning.

Each element can be modified to accommodate the characteristics of an individual or group of high ability learners. Figure 4 represents the relationship among the elements. The content, process and product take place in the learning environment. The overlapping regions indicate the elements are interdependent. This means that changes in one element are likely to have consequences for the others. For example, if the content is made more complex, students are likely to think about it differently; their thinking is likely to become more complex.

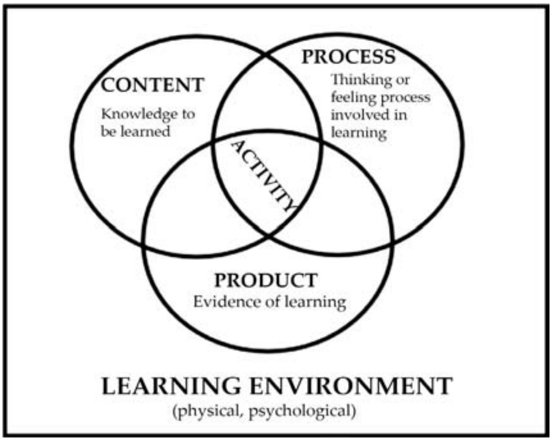


Figure 4: Interdependent elements of curriculum.

Strategies for differentiating the elements of curriculum for highly able learners

Maker and her colleagues proposed a system that includes 29 strategies or principles to guide efforts to differentiatecurriculum for highly able learners. They are organized in clusters addressing the four elements of curriculum.

Content
Abstractness
Complexity
Extracurricular topics
Lives & living
[Re-]Organization for learning value
Real-life topics
Self-selected content

Process
Complex thinking
Expert methods of inquiry
Individual pursuits
Inquiry-based learning
Open-ended experiences
Flexible pacing
Reflecting & debriefing
Self-selected process
Variety

Product
Authentic audiences
Feedback & evaluation
Self-selected products
Transformations
Variety

Learning Environment
Accepting
Complex
Flexible
High mobility
Independent
Learner-centered
Open
Flexible groupings

- The seven **content**-related strategies focus on “concepts, ideas, strategies, images and information” in curricula. They address abstractness, complexity, and variety, organization for learning value, the study of people and the study of methods.
- The nine process-oriented strategies focus on “the way educators teach and the ways students use information.” They include methods involving inductive teaching and learning, higher levels of thinking, open-endedness, discovery, and evidence of reasoning, choice, group interaction, pacing, and the variety of processes used.

- The five outcome-oriented principles address "the nature of products expected of students" when students demonstrate what they've learned. They recommend learning outcomes address real problems, problem finding, elements of communication, features of evaluation, and transformation of content from one form to another, variety of products developed, self-selection of product format and direction of students to real audiences.
- The eight principles related to the learning environment recommend that it is learner-centered (vs. teacher-centered), independent (vs. dependent), open (vs. closed), accepting (vs. judging), complex (vs. simple), flexible (vs. rigid); involves varied groupings (vs. similar groupings) and high student mobility (vs. low).

Each principle focuses on a feature of a learning activity that may be modified in particular ways to make the activity more appropriate for many highly able learners. In upcoming pages, each principle is described, and examples and resources will be provided. Maker and her colleagues have provided research evidence of their effectiveness in their publications. Maker's collection of principles should be viewed as comprehensive, but not exhaustive. New, effective forms of differentiation are constantly emerging.

7.7 STRATEGIES FOR CURRICULUM DEVELOPMENT: OF ETHICS AND EDUCATION

There have been continuing demands 1, 2 for the renewal of medical education such that the education of medical students will prepare them to meet the needs of the communities which they will serve. The central emphasis, apart from that of maintaining a standard of knowledge and skills sufficient for licensing medical practitioners, has been on the qualitative aspects of carers. In any new path that is proposed, it is the philosophical and social questions which gain prominence in the light of ever increasing technological development. These technological developments bring forth questions concerned with the quality of patients' lives, ethics and morality. The imminent and pressing problems of chronic disease, old age, handicap, and abortion, artificial nutrition, withdrawing medical support, organ transplantation, fertility and genetic engineering raise issues relevant for the clinician in everyday practice. Furthermore, the economic costs of medical care underlying the solutions to ethical dilemmas, and the costs of medical testing and intervention, must be included in clinical thinking and thereby included in any new curriculum. In some ways this is uncomfortable knowledge. The social sciences applied to medicine operate in a charged political arena where information often challenges established cliches and puts in question accepted solutions. Falling fertility in the Western world is occurring at a time when there is increasing longevity. This will shift the fiscal balance necessary for the support of health care, particularly in countries where the "new consumers" from other lands demand support from a budget to which they have not contributed in the immediate past. Social considerations in medicine demand a long term perspective on human relationships requiring knowledge about human nature, family culture, and social welfare. As the 1988 WHO declaration states ; "...the aim of medical education is to produce doctors who will promote the health of all people, and that aim is not being realized in many places, despite the enormous progress that has been made during this century in the biomedical sciences. The individual patient should be able to expect a doctor as an attentive listener, a careful observer, a sensitive communicator, and an effective clinician; but it is not enough to treat only some of the sick". Strong and heady stuff, and for many of us almost impossible to contemplate in its entirety and implement in practice. Such practice requires knowledge from varying disciplines concerning human behavior. Promoting the health of all people, as recommended, is a social and moral consideration. Attending the individual patient, the central focus of the clinical encounter, is an ethical consideration. While both hang together easily in the above quotation, in practice they are not so easily realized.

How can we then contemplate a curriculum for medical education when the breadth of knowledge is so great, and the increasing trend of practitioners is towards specialization? One way would be to educate health professionals to work together such that they can operate as a team to develop and share individual expertise. Some initiatives in medical education have attempted to promote such activity.

For the introduction of any change in a curriculum there are essential conditions for that change. First, it is important that all who are likely to be involved in implementing change are involved in discussions regarding that change. This initiative is essentially a political and relational process. Political, because one party attempts to influence the other by argument. Relational, because the process is dependent upon goodwill and trust between faculty and the students for whom they are responsible. Second, for new methods to be implemented then the teaching staff involved must not be defensive and protective about their own subjects. This second condition requires interdisciplinary and interdepartmental cooperation. The implementation of change is a management task for which few of us are prepared by training.

The strength of this approach is that it mirrors the consultation approach which stresses the activity of the patient. Patients, and sometimes their families, are expected to actively contribute to treatment decisions and identify goals for change. In areas of decision-making where ethical considerations play an important role, the negotiation of cooperation within a relationship of trust could be a vital skill for our students to learn. This skill would not entail an encyclopaedic knowledge, but the ability to seek relevant knowledge and apply it in context as the situation demands. Part of this assimilation of knowledge would be social; i.e. listening to what others have to say with a different world view.

Sukkar writes that in order to bring about change in a medical faculty it was important that the teachers were made aware of the educational processes involved and that that the teachers had expertise in planning the new educational strategy. To this end members of the teaching staff were asked to participate in a programme of 2-3 day workshops. Junior members of staff were also encouraged if they showed interest in educational activities. Specialized workshops also developed expertise in specific areas of educational activity; curriculum planning, instructional methods, the use of educational technology and other teaching media, and evaluation methods. Small working groups were also set up to implement particular aspects of curriculum development.

This teacher training programme emphasized the role of learners in setting learning objectives. Although integration between departments was encouraged the impact was minimal. The introduction of such change involved three main strategies:

- A fellowship strategy which involved and included the teachers.
- A political strategy which used power and influence to implement the necessary initial changes.
- An academic strategy of considering issues on their intellectual merit and the basis of information rather than the protection of territorial rights.

It is clear from the literature that there are no universal solutions to curriculum change, and each setting must generate its own particular programme, although the process of change with institutions has elements in common. What is evident from the practice of implementing change is that a tutor training programme is mandatory. Tutor skills are paramount in new approaches to medical education. The tutor must stimulate discussion, maintain attention to the problem being discussed and guide the learning of the group, by facilitating group dynamics. This entails the tutor having an overview of the territory of the subject while the students can explore individual features.

What we can learn from this is that although students are in individual control of their own learning, and deciding what they will learn; the faculty determines the methods by which the students will be taught. It is the faculty which remains constant over time and which must maintain the thread of education.

The student weaves that thread, according to his own particular pattern, into a garment which fits his or her own particular needs.

The central feature of any new approach is that it is based upon set objectives. These objectives are made clear between student and tutor relating to the personal needs of the student and inevitably to the requirements set by the state exam. In the end the faculty is responsible to the community that it will produce doctors of a particular standard fit to serve that community. While the standard itself may be questionable we can accept it as a basic which we can enhance, rather than a ceiling to which we must aspire. This tension will always exist between individual perspectives and state requirements, but it is not necessarily counterproductive regarding new teaching approaches.

Although in recent years a number of medical schools have adopted problem based learning, so far there is no evidence that problem-based learning is educationally superior to the conventional curriculum. Nor is it inferior, and students appear to like such methods. Output measures are insensitive in detecting the subtle differences that may occur using such methods; although as educators we assume that a problem-based approach may be creating an educational climate which enables students to learn in what seems to be a desirable manner.

Contract learning is also a form of learning by the setting of mutual objectives. The term “contract” itself is redundant as all learning situations are a contract between student and teacher, or student and faculty. What these methods have in common is that the contract is made explicit, rather than implicit, and given definite boundaries according to the personnel involved.

The assumed benefits of these methods are that learning occurs in a context similar to which the student will practice as a doctor where knowledge is shared and negotiated in a team; that their eventual work as a doctor will be improved because knowledge is understood in clinical and social context; and the conditions are set for life-long learning. Students are not only learning how to become doctors, they are also learning how to learn. That further learning, based upon critical thinking, does take place after qualification is open to question. Much practice is based upon eliminating variability and reducing the uncertainty of facts until they fit the familiar view such that a diagnosis can be made. This is the maintenance of medical belief, not the pursuit of scientific argument.

The major implication of this approach is that if we are to implement new methods, and wish to assess the efficacy of those new methods on the standard of medical education, then assessment must occur after graduation when the new doctor is in practice. Apart from this assessment of our teaching methods on the quality of the students we produce, it is clear from the literature that new teaching methods also have a vital component of evaluation during the career of the student at the medical school.

Current thinking in medical education emphasizes the idea that people learn best when they are helped to define their own problems, acknowledge and accept their own strengths and weakness, decide on a course of action, and evaluate the course of their decisions. (A situation which also sounds rather like the doctor-patient encounter). It does not mean using self-administered tests to determine knowledge and skills; what it does mean is helping people to judge their own performance. It is important for students to define their own learning objectives, and the educator's task is to facilitate that learning. While the student identifies what he or she wants, the trainer, or support group, also identify what the student needs to expand their learning objectives. The need of the student is a point which is often missed; it is not only what the student wants (which the student can determine) but what the student also needs (which his or her colleagues, and tutor must determine).

Any reform of the curriculum will then require a reappraisal of the principles and practices of the evaluation system. The norm-referenced test which is the primary method of evaluation was initially designed to rank students for the purpose of selection. Difficulties arise when it is used, as it currently is, for the assessment of competence. The norm referenced test "while it provides information regarding the relative strengths and weaknesses of students in comparison to their peers. does not provide an estimate of the absolute level of performance achieved".

As it is the principal responsibility of a medical school to produce competent physicians, and not to rank order them, it is more reasonable to compare student achievement to an external standard of performance or criterion. Criterion referenced testing is more suitable for the assessment of competence as it best meets the objectives of medical schools by emphasizing achievement of clearly established external standards and, thereby, ensuring a standard of performance. Evaluation in this sense guides both tutor and learner to the areas which must be developed. These methods are also valuable for those students who may require remedial help, and for encouraging a broad based platform for student education

New methods then also carry with them a component of assessment. Assessment practices are often the major barrier to developing increasing student responsibility: if students always look to others for judgements of their competence, how can they develop their ability to assess their own learning? Transactions between students and staff are critically affected by the balance of power: where is rests and how it is used determines the quality of learning. Assessment is the clearest example of this power in action. Collaborative forms of assessment are necessary to overcome the problem of authority while still meeting the need for a certificate of intellectual competence. An agreed criterion referenced test provides the neutral ground for such collaboration. Using peer reference will strengthen internal demands for consistency and respect for individual ways of learning. But, the demand of external licensing must be met and faculties cannot shirk the responsibility of meeting that demand and the authority of implementing expected criteria.

It is a very point where we have the dilemma of the current examination system. If we encourage students to develop their own way of learning, then surely we must encourage them to assess themselves as to their competence. However, as faculty we have responsibility to the wider community in issuing the necessary licenses of competence. While the student has the responsibility to learn, we have the responsibility to guide, and ultimately judge. To include the assessment of the student, and his or her peers, is essential in respecting their way of learning and implementing change in the curriculum. As to the criteria necessary for licensing, then it is the faculty of teachers who must conserve and maintain the curriculum such that it is coherent and recognizable to external scrutiny. If both parties are involved in the dialogue of change and conservation, within the context of a respectful and trusting relationship, then we can hope that the dilemma will be resolved satisfactorily.

In the end there is a distinction between the student who is there to learn, and the teacher who is there to guide. If the students knew already they would not be studying. It could well be that in our new methods we are asking the student to be both doctor and educator; this would not be so far from the modern demand made of the medical practitioner, and the old meaning of the word "doctor". However, to attain such a social standing requires validation from the community, of which the faculty is representative, that the student when graduated can both teach and heal.

A handicap to the introduction of new teaching methods can be the students themselves. It appears that the pressure of examinations dominate the curriculum no matter how well intentioned the design, or how educationally sensible the underlying philosophy. This can be overcome, but it is necessary to understand that these new study methods also introduce stress. First there is the stress of having little time for leisure activities. Introducing more areas of study, such as medical ethics, into the curriculum will further compound this problem. Second, any form of assessment, no matter how valuable to the student, is an additional stressor.

Time is an important factor for students. Learning takes time and we must be concerned that students have time to absorb knowledge. Presently there is talk of producing students efficiently, meaning that doctors can be produced in one year less than is currently possible. This is a dangerous trend and totally against the move towards a qualitatively better education. What are we educating our students to become as doctors and carers if we continually stress objectivity, work and production in the shortest time? Furthermore, we are assuming that all students will learn at the same rate. We can promote excellence in all our students, but not all can achieve excellence at the same rate. The way in which we teach is as important as what we teach.

To practice medicine is to solve ethical dilemmas. Medical consultation is a social act where one person intervenes to influence another person utilising clinical and non-clinical expertise. As Brock writes, "Shared decision-making does not imply a value-neutral role for physicians; it requires of them a more delicate balancing. They must advocate for their patient's health and well being, while also being prepared ultimately to respect patients' self determination, even when they agree with their patients' treatment choices". Such a statement could be translated substituting tutor for physician and student for patient. Medical or educational interventions are reached by consultation which demand a social understanding lacking in medical education. Learning to make shared decisions based on consultation will be the future of health care delivery. How we implement such an activity, and teach it to our students is a matter of debate and urgency and runs counter to the modern trend of specialisation. Ethics is concerned with the decisions individuals make about their own behaviour. Morality is the set of rules resident in the community which govern individual behaviour. The reconciliation of an individual ethic within the context of a social morality is at the heart of human decision making. Finding solutions to this dilemma is the stuff of education.

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Disabled Education: A Critical Analysis

Education is important for all children, but even more so for children with disabilities, whose social and economic opportunities may be limited. According to the World Health Organization's World Report on Disability, an estimated 95 million children (5.1%) aged 0–14 years have some form of disability. Common issues include Autism Spectrum Conditions, Developmental Delay, Behavioral Disorders and Learning Difficulties. In many countries, these children have rights to be included in mainstream school. For professionals who work with children this shift towards social and educational inclusion has meant that practices have had to evolve in tandem. Rehabilitation professionals now deliver a wide range of approaches to support early intervention and prevention for children with diverse needs. This includes school-based approaches alongside teachers and families to enable children's full and active participation in school

Students of all abilities and backgrounds want classrooms that are inclusive and convey respect. For those students with disabilities, the classroom setting may present certain challenges that need accommodation and consideration. The basic premise is that the school should meet the educational needs of all children irrespective of their disabilities or limitations. This book examines the possibilities of using technology and strategies in the education of the disabled. The special education system has given children with disabilities much greater access to public education, established an infrastructure for educating them, helped with the earlier identification of disabilities, and promoted greater inclusion of these children alongside their nondisabled peers. Despite these advances, many problems remain, including the over- and underidentification of certain subgroups of students, delays in identifying and serving students, and bureaucratic, regulatory, and financial barriers that complicate the program for everyone involved. The present book attempts to evaluate the effective teaching practice for children with special learning needs. This book dealt with the effective practices in inclusive and special needs education. Inclusive Education means that all students in a school, regardless of their strengths or weaknesses in any area, become part of the school community. To achieve a quality in Inclusive Education school plays vital role. All individuals are unique and 'special' with their strengths and weaknesses. As education binds us together, it has its root in the past and is meant to equip us for the future. It transfers knowledge, culture and values from one generation to the next. It promotes social mobility and ensures the creation of values and welfare for all. For the individual, education is to contribute to cultural and moral growth, mastering social skills and learning self-sufficiency. It passes on values and imparts knowledge and tools that allow everyone to make full use of their abilities and realise their talents. The book presents an analysis of key developments in educational policies and strategies in relation to the education of children with disabilities.

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