

Children/students needing ongoing, or, continual and specific intervention-a safeguarding of human and habilitation/education needs as it pertains to Developmental Orientation/Mobility

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Kia ora/welcome from Aotearoa/New Zealand, South Pacific.

In essence this presentation is “traveling towards a destination” called “**carrying a mindset of vision disability**” under the headings of **need, principle** and **underlying value**.

Need will be consider rapport, and, instruction/teaching and learning.

Instruction/teaching. Learning will consider vestibular and proprioceptive systems, haptic system, vision, movement, environment and behaviour.

Infants/children with a vision disability are more likely to avoid prone positioning which, combined with low postural tone, underdeveloped arches of feet and hands and limited upper extremity weight bearing needs to be considered in terms of anticipating the future as a young adult traveler using a long cane.

Introduction

The main purpose of this presentation is to make explicit the overriding needs of children/students with a vision disability needing ongoing or continual specific intervention -from a Developmental Orientation/Mobility Instructor’s perspective.

What is a working definition of Orientation and Mobility for children/students needing ongoing or continual and specific intervention?

Orientation could be described as awareness and understanding of the position of **one's body part(s) in relation to each other**, other people, and toys, activities, furniture and objects within a location, room and/or environment. It involves receiving and interpreting information about one's body in relation to itself and in relation to a social and physical context.

Mobility could refer to being moved and/or moving **a part of one's body in relation to another part** and/or one's body from one location, room or environment to another. This includes a child/student being carried, in a pushchair, bottom scootering, crawling and use of a wheelchair as a passive or active user.

Developmental Orientation/Mobility is an **human and habilitation/educational right** for children and students who use wheelchairs also.

The essence of Developmental Orientation/Mobility pertains to **greater access to and control over the environment**.

I envisage that some of the content of this presentation could be re-written as an appendix to a publication such as the "Joint Education Policy Statement", (2003, ICEVI and WBU) so that the implementation of the statements are made more explicit and practical.

Before we "promote the establishment of programmes and services for blind and visually impaired children and youth with additional disabilities", let us get clearer on what are their needs as they relate to Developmental Orientation/Mobility.

"Impact of Vision Loss On Motor Development" by Chris Strickling, Texas School for the Blind and Visually Impaired (1998) is a readable and key resource booklet that has allowed me to understand and communicate in a more informed way with especially physiotherapists and occupational therapists.

Labelling

With this conference being international in nature, I am curious about the use of words such as a "developing country", and, correspondingly, the use of the words that refer to a child/student as having a "multiple disability".

What does a "developing" country look like? Do they perceive themselves as a "developing" country?

What are they developing, and, in what areas are they already developed –can that be so!?

What is a developed country still developing?

Correspondingly, what does a child/student with a “multiple disability” look like? Does the child/student, and Parents, perceive themselves as having a “multiple disability”?

Do such words evolve from an **ablist society and privileged nations**?

What purpose do they serve for the child and student, and Parents, and society as a whole?

Is it a society’s way of perpetuating a myth around sameness instead of meeting the challenge and **embracing difference and diversity for children and students with and without disability**?

Let us look a little closer at the words we use to label children and students with a disability and the organizations that provide services to them.

Literature from neurolinguistic programming (NLP) suggests that **language is the interface between society and experience**.

Some of these words are nouns, some are adjectives and some are phrases with words that contradict each other! Words pertaining to children/students include “~~special~~” needs, “~~complex interrelated~~” needs, “~~developmental delayed~~” and “~~multiple~~” disability, while words for organizations include “foundation of the blind”, “special education,” “group special education” and “visual resource center”.

I continue to wonder if the words used say more about a society’s and an organisation’s ability to incorporate difference/diversity.

Let’s get clearer on the purpose for the words we use -is it a perpetuation of separation or inclusion, denial or affirmation?

We all have needs, why are some considered special while others are not?

For the purposes of this presentation I am suggesting that the use of the phrases “**children/students needing ongoing, or, continual and specific intervention**” may be useful.

Table 1: Children/Students Needing Ongoing, or, Continual Specific Intervention – Needs, Principles, Underlying Values

NEED

Rapport

PRINCIPLES

Be aware of the child's/student's **personal space** in terms of their body and for those who use a wheelchair

Safeguard for **consistency** of key people and their context over time

Use a **personal identifier** eg. perfume, bracelet, song and

Team build with the key people

Identify the **key toys, activities and events** and their contexts in terms of motivators. interests

Observe what the child/student is offering eg. breathing, sound, vocalization, word

Acknowledge what is being offered by "**meta commenting**" (confirming verbally) eg. "Daniel's foot", extend to "kicks" and then expand on that to "Daniel's foot kicks the ball" –a progression from body part to spatial organisation to the environment.

Underlying VALUES

*A **wheelchair** needs to be perceived as an **extension of a child's/student's body**

***Consistency of people and their context over time** allows for the building of a more effective relationship with the child/student and Parents

*Because vision can be described as a distance sense, it is important for adults to be **aware of moving through space prior to being in physical proximity** to a child/student

*The **priority is the child/student and the Parents** and **learning** from each other as an opportunity

*The **Parents are the only person with a life long responsibility/commitment**

to the child/student

*Toys, activities and events need to be **contextualised** by person, location, time of day, what precedes/follows

***Start with where the child/student is “at”**

*If 80% of communication is non verbal, the child/student needs **continuous verbal feedback or interpretation** of their behaviours and/or the environment

Table 2: Children/Students Needing Ongoing, or, Continual Specific Intervention – Instruction/Teaching and Learning, Principles, Underlying Values

INSTRUCTION/TEACHING and LEARNING

Vestibular and Proprioceptive Systems

1. Children/students need **more experience in use of proprioceptive information** because the information is processed by the central nervous system (CNS) in conjunction with the vestibular and visual systems.

2. (a) Children/students need **more vestibular input** which contributes to and affects muscle tone, bilateral integration and midline orientation.

(b) Children/students need **more gross motor experience** as they are more likely to present with postural differences because of deficits in vestibular and proprioceptive processing and early movement experiences:

(i) trunk, pelvis: weak abdominal muscles, leaning to one side, diminished stature and dynamic balance, limited trunk rotation;

(ii) gait: wide base, shoulder elevation and less arm swing, excessive movement through trunk demonstrated by exaggerated weight shift and high guard position with hands;

(iii) head, neck: head deviation to one side, head “stacked” forwards or backwards, head use in quadruped position and non-purposeful head;

(iv) shoulders, arms, hands: unstable shoulder girdles, “winged” at scapulae, weakness of arm muscles and intrinsic hand muscles, decreased functional grasp strength, diminished forearm supination and pronation, poorly developed arches of hands and poor established midline interaction of hands;

(v) legs and feet: legs externally rotated from hip, widened base of support with exaggerated external rotation, hypermobility of knees and hips, pronation at mid foot, toe walking and feet used as extra source of sensory information.

Haptic System (tactile, tactual; pressure; temperature)

1. Children/students are more likely to **need motor programmes with explicit content targeted** because they present with low tone in combination with tactile deficits in terms of ability to access, interpret and use touch information resulting in “tactile selectiveness” (tactile defensiveness) because of lack of integration of early protective touch (protopathic) which affects later discriminative touch (epicritic and stereognosis).

2. Children/students are more likely to need motor programmes because they avoid prone positioning which, combined with low postural tone, underdeveloped arches of feet and hands, limited upper extremity weight bearing and vision disability contributes to functional disabilities – mouthing, fisting of hands and poor pincer grip.

3. Children/students **need to have toys, activities and objects that are stored in a user friendly way** so as to recall the location of the object, together with chin as a stabilizer as they are more likely to mouth.

4. Children/students **need greater opportunity to explore and manipulate real objects** with visual and tactile aspects as they are more likely to display limited rotatory motion of wrist as this is primarily a visual reinforced ability.

Movement

1. Children/students **need more gross motor activity** because they are more likely to present with:

(a) low postural tone

at shoulders, hips due to decreased spinal extension and reduced shoulder/arm strength;

(b) difficulty with fluid, gradual upper body extremity movement;

(c) diminished awareness of arm position in space (proprioception);

(d) reduced stability and mobility at wrist;

(e) less fully developed arches of hands.

2. Children/students **need greater gross motor experience** as they are more likely to present with reduced

–optical righting reflex for vertical alignment and graded movements of head/neck;

- labyrinthine righting for head/neck position in relation to gravity and equilibrium responses are influenced and thereby affect co-ordinated head and trunk movement resulting in less weight shifting through trunk and upper body.

3. Children/students **need greater strength and endurance activities** as they are more likely to present with low postural tone which in turn reduces the effectiveness of sensory feedback from proprioceptors in ligaments, joints and muscles and also impacts on vestibular function.

4. Children/students **need greater experience of everyday materials and equipment** as they are more likely to have insufficient motor development to access the environment for exploration.

5. Children/students **need to experience and practise more through repetition the transitional movements** and therefore meaningfulness and co-ordination of movement through space.

Vision

1. Children/students **respond, learn and interpret experiences differently** because vision integrates experience in a wholistic way and thereby incidentally.

2. Children/students **use a higher level of cognition in terms of understanding and interpretation of tactile content, movement and other sensory information.**

3. Children/students are more likely to **need controlled, supportive positioning of trunk** so as to assist stabilising or co-ordinating of vision functioning when using arms and hands to explore objects.

Environment

1. Children/students **rely more on tactile and auditory cues** to respond to the environment while at the same time lack the visual stimulation to motivate.

2. Children/students **need to experience greater contextualisation of objects** in terms of a consistent location within a room or house.

3. Children/students **need to experience greater predictability** because they rely on:

(a) position of furniture, toys, activities

(b) cues of floor and ground surfaces

(c) position in relation to objects and space and for consequences of movement.

Behaviour

1. Children/students are **more likely to present with whole body stimulation** – swaying, rocking from one foot to another, bouncing on toes and only moving upper body and arms.

2. Children/students are **more likely to present with eye poking or flicking** depending on the organic cause/site proximity to the brain.

PRINCIPLES

Incorporate the transitional movements, as they are the start of moving through space, when facilitating a change from one position to another position eg. long sitting to side sitting to standing

Incorporate the use of a **stopping/starting strategy** when providing vestibular activities of up/down, forwards/backwards, sideways, turn left/right

VALUES

*Interventions pertain to **the present in anticipation of, and in preparation for the future** as an adolescent, young adult

*Hold the mindset of **SCMMAC**–

safety,

consistency (tactile/thermal/pressure, visual, auditory, olfactory information)

meaningfulness

motivation,

access to, and

control over the environment

All of the above contribute to greater attention, memory, anticipation, recall, coactive cooperation

***Mobility routes** (travel pathways)/**locations/contexts** **need to be consciously chosen in relation to each other and maintained over time** ie. landmarks, cues, clues, and; Visibility factors ie. contrast(red/white; figure/ground, spatial positioning between objects) whether being carried, sitting in a pushchair, crawling, bottom scooting, using sit-on toys or walking

***“Ritualisation”** –experiences, activities and instruction sessions need to have a beginning and an end (closure)

***Strategic use of the vestibular system** ie. stopping (pausing) then re-starting, so as to establish greater cognitive alertness when needing to bring awareness to changes in the environment

*Conscious awareness of which **sensory systems** (visual, tactual/tactile/thermal, auditory, olfactory, kinaesthetic and proprioceptive) are being used at any one time, together with the sequence, linkages and how many sensory modes/areas of the brain are being stimulated at any one time so as to safeguard against

perceptual rivalry

Refer to developmental, cognitive **hierarchy of response, function**—central nervous system, sensory systems, sensory-motor development, perceptual-motor development, cognition, intellect

Vestibular System

For children/students needing ongoing, or, continual specific intervention, strategic use of the vestibular system has a positive effect in most cases.

Why is this so?

“The vestibular nerve is the first fiber tract in the brain to begin myelinating, about the last week of the first trimester and by five months has reached its full size and shape – myelination continues through to puberty. After touch, vestibular sensitivity is the next most precocious sensory skill” for an embryo, (1999, Eliot).

Vestibular stimulation at four months of age can contribute to milestones such as head control and sitting, and, generally vestibular stimulation is more effective for soothing than just physical contact and contributes to greater visual alertness. Literature suggests that pre-term babies thrive better with vestibular stimulation.

The key factor to consider is the fact that the early maturity of this sense provides a fast track into the developing brain.

The importance of this information pertains to the strategic use of such for children/students with a need for ongoing, or, continual and specific intervention.

By using a pause (stop) then re-start of the vestibular sense in combination with changes in the environment, kinaesthetically and visually, while travelling in a wheelchair, will result in greater alertness and responsiveness. The same applies for when travelling using human guide or the use of a long cane co-actively. To say it another way, continual stimulation is less effective than the use of a pause/re-start approach.

In summary, Developmental Orientation/Mobility Instructors need to emphasise to team members the importance for ***motor programmes in anticipation of the future, because infants/children with a vision disability avoid prone positioning, which, combined with low postural tone, underdeveloped arches of feet and hands and limited upper extremity weight being affect the degree of competence for long cane travel -competence in terms of posture, body alignment and straight line travel.***

Bibliography

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Strickling, C. 1998, *Impact of Vision Loss on Motor Development, Information for Occupational and Physical Therapists Working with Students with Visual Impairments*, Texas School for the Blind and Visually Impaired