

**Body Awareness and Movement for Students with Multiple Disabilities
Including Visual Impairments**

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Children who are congenitally blind have unique barriers when learning about body concepts and awareness, spatial awareness, and other orientation and mobility concepts. Professionals have proposed many techniques for teaching O&M to young children (Anthony, Lowry, Brown, & Hatton, 2004; Pogrund & Fazzi, 2002; Skellenger & Sapp, 2010). Music has recently gained a lot of attention in helping people learn or relearn speech (Gilberston, 2005). Purposeful movement is critical to learning orientation and mobility concepts (Skellenger, & Sapp, 2010). Structured routines have been used successfully to teach students communication and skills in daily living.

Purpose

This paper examines the potential benefit of creating a comprehensive app that combines the power of music and movement to support teaching the language and skills of orientation and mobility through the use of structured movement routines (SMRs) to students, including those who are blind.

Review of Literature

Repair Brain Damage

Melodic intonation therapy (MIT) is a therapeutic process used by speech pathologists to help patients with communication disorders like aphasia often caused by damage to the left side of the brain (Helm-Estabrook, 1998). This method uses a style of singing that is supposed to stimulate the intact right hemisphere in order to facilitate speech recovery. It is also known as the Kenny Rogers Effect, those who can no longer speak, due to left-side brain damage can often find they are able to sing words...then speak simple sentences with practice

Helps Kick Addictions

Music is relaxing and creates a distraction from withdrawal symptoms. If applied frequently, participants were able to feel positive emotions without the use of drugs (Baker, 2007).

The Mozart Effect

It appears that there is a connection between the human brain and piano music, specifically, Mozart. According to J.S. Jenkins (2001), participants mean spatial IQ scores increased by 8 or 9 points after listening to Mozart's sonata for 10 minutes. There is also evidence that Mozart's music can help decrease seizure activity in epileptic patients.

Dementia and Parkinson's

Noted neurologist and professor at Columbia University, Oliver Sacks (2007), believes that music triggers networks of neurons to translate the cadence into toe tapping movements. Slow rhythms can ease the muscle bursts and jerky motions of Parkinson's patients with involuntary tremors and old familiar songs can release memories long forgotten.

Motivating and FUN!

Music has been used to support learning in many ways. It is inherently fun and can therefore be

used as a reward. The activities is facilitates such as dancing, musical games, and singing, support learning social skills. In 2000, Coddington summarized of seven years of research and reports on the use of music and one outcome was its use as a prompt for spatial orientation, one of the key components of orientation and mobility.

Movement and Learning

According to Piaget the first stage of development, the sensorimotor stage, occurs from birth to 18 months. It is characterized by responding to the world almost entirely through sensory and motor schemas without intentions (Ferrell, 2000). Internal representations of objects or concepts have not yet been developed. At this stage, we obtain information about the world through all of our senses, including our proprioception and vestibular senses.

It is through moving within the environment and encountering objects that body awareness, spacial awareness, and orientation are learned. Structured movement routines create predictable experiences to encourage movement and reinforce learning through repetition. A routine is an activity containing a series of steps in the same sequence, with a recognizable cue to begin and end the routine.

Using structured routines for students who are blind

- Allow the student to anticipate each step
- Increases sensory motor functioning by providing proprioceptive and vestibular stimulation
- Facilitates sensory integration which will increase balance and muscle tone
- Stimulate as many senses as possible – olfactory, tactile, hearing, proprioception, vestibular
- Use the students means of communication whether it is picture symbols, tactile symbols, object symbols, or auditory
- Repetition, repetition, repetition
- Predictability
- Start with a few simple steps and do not add steps until those have been mastered
- Listen and look for cues that understanding has occurred

Is it possible to create an app that uses video modeling of movements, synchronized to music, in a structured order, that can be repeated easily?

Proposal: *Body Awareness through Movement and Music (BAMM) App based on Universal Design for Learning.*

Texas School for the Blind and Visually Impaired (TSBVI) staff have been using yoga routines have been supporting body awareness for students with visual impairments for many years.

Can a itinerant vision specialist implement a similar routine that is portable?

Vocabulary:

Act – one or more simple movements synchronized to music.

Playlist – Series of Acts selected for a particular student.

BAMMboo – our blue friend who will model the movements

Movements – simple motions that mimic movement made in the course of daily living. These are not exercises, not stressful, and not complicated.

Characteristics of Students With MIVI:

May or may not like socialization

May or may not have tactile defensiveness

May be attracted to certain colors

May engage in stimming behaviors

Respond to music

A variety mobility limitations

Have difficulty with change

Features in BAMM that Promote Learning

Video modeling for children with vision and/or the adults working with them

Bold blocks of color

Opportunities for visual, tactual, auditory choice making

With or without lyrics

Tempo adjustments

Sitting or standing versions

Integrate communication system

Lyrics that emphasize movements and body parts

Features in BAMM that Facilitate Teaching

Customizable student playlists with choice of images

Portable

Transferable

Object symbol images

Touch screen start/stop

With or without lyrics

Expandable

Projectable

Discussion

Research is currently being conducted to determine whether such an app can be successfully created and safely used (DePountis, in progress). Students with visual impairments often have additional disabilities with many who are medically fragile. It is critical that those working with these students consult the students' physical therapists, occupational therapists, and caretakers in order to understand if there is a limit to the range of motions in which the child can safely engage. Medical approval should be obtained before any exercise routine is started.

Many students learn best through structure and repetition and a tool that supports routines and their generalization to other environments has the potential to improve learning. Of course, these populations are individuals. A tool that can be customized to specific students, whether it's to

include only acts completed in the seated position or to add acts with more complicated movements will serve a greater variety of students. Students who have useful vision will be attracted to the character modeling the movements on the app. Research has shown that video modeling is a successful teaching tool for students with autism (Sigafoos et. al. 2007; Nikopoulos & Keenan, 2004). Members of the research team working on this app include an autism specialist, a music therapist, a teacher of students with visual impairments, a computer programmer, an orientation and mobility specialist, and an artist.

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