

Advanced Clinical Practice: Visual Training in Occupational Therapy

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BACKGROUND

- One in ten children in the U.S. possesses a visual deficit that will affect his/her academic performance (College of Optometrists in Vision Development [COVD], 2018).
- School-based vision screenings can fail to detect up to half of these cases (COVD, 2018).
- Approximately 80% of learning occurs through processing visual information (COVD, n.d.)
- Vision is a complex network of processes that goes beyond visual acuity, which is the primary focus in typical vision examinations (COVD, 2018).
- Other visual skills include visual fixation, tracking, accommodation, vergence, visual perceptual skills, and visual motor integration (Scheiman, 2011).
- These visual skills are required to perform daily childhood occupations, such as educational participation, play exploration and participation, social participation, and activities of daily living (Nadkarni, S., & Ashok, 2012).
- Visual skill issues can impact a child's development of fine motor skills, eye-hand coordination, handwriting skills, reading skills, self-care abilities, and gross motor skills (Finn & Van Lew, 2011).
- Because vision is a primary sensory system found to affect children's occupational performance, it is a priority area for occupational therapists to address in practice.
- Occupational therapists should have a comprehensive understanding of the complexities of vision as well as experience in providing interventions focused on addressing vision skills when working with children with vision issues.

PURPOSE

- Gain advanced clinical knowledge and skills in vision skill training
- Examine the role of occupational therapy in vision-based settings

METHODS

- Completed first two months of the capstone experience with an optometrist in northwest Iowa at a private practice learning optometric procedures and vision therapy techniques
- Completed second two months of the capstone experience with an occupational therapist in a private vision development clinic learning sensory-based approaches to vision training and reflex integration therapy
- Participated in an advocacy speaking event to elementary school educators to discuss the relationship between vision, fine motor skills, and reflex integration
- Educated occupational therapy students about the visual system and vision skill training through lecture and lab activities
- Completed training in whole-body movement-based approach through introductory Brain Gym course
- Established and implemented reflex testing procedures for the optometry practice
- Developed a comprehensive toolkit of capstone materials to be used in future practice

THEORETICAL FOUNDATION

Dynamic Interactional Approach

- This approach is based on the understanding of information processing through receiving and analyzing visual information (Toglia, 1989; Toglia, 1991).
- The principals were applied to understand vision, learning, and skill acquisition as an evolving process through a complex system (person, activity, and context) (Toglia, 1989)

Skeffington's Model of Vision

- This model is a behavioral optometry theory that describes overlapping functions needed to develop vision (Cook, 2016).
- The constructs were applied to understand visual skill development and the interactions between visual functions that are needed to elicit change (Cook, 2016).

Ayres' Sensory Integration

- The concepts were used to understand visual information processing and visual skill development through a multi-sensory approach (Ayres, 1972).

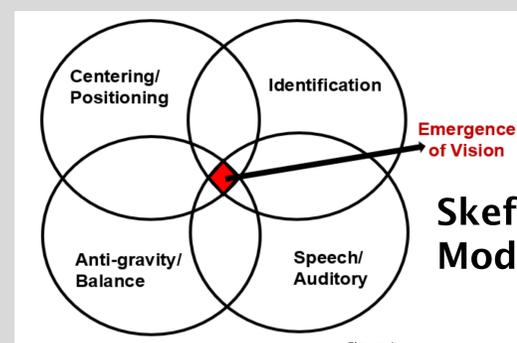


Figure 1

Skeffington's Model of Vision

RESULTS & CONCLUSIONS

Two cases were analyzed and compared between the two capstone sites in order to understand the difference in vision-based practices with the inclusion of an occupational therapist.

Case 1: Lily, a fifth grade girl with reading difficulties, was diagnosed with amblyopia following a comprehensive vision exam by the optometrist. Treatment was provided by a vision therapist bimonthly for 1-hour sessions and aimed at addressing visual issues by improving higher-level visual functions to elicit change. Intervention methods involved oculomotor exercises, suppression prevention activities, central/peripheral system integration, prism lens activities, and balance and binocular exercises. Lily achieved improved reading scores at school and increased near visual acuity and depth perception as a result of treatment.

Case 2: Penelope, an 8-year-old girl with an eye turn and coordination issues, was diagnosed with esotropic strabismus and retained primitive reflexes from a behavioral optometrist and occupational therapist, respectively. Treatment was provided by the occupational therapist weekly for 45-minute sessions and was aimed at improving lower level functions before addressing higher level functions of vision. Intervention methods involved a developmental, whole-body approach to improve bilateral coordination, body awareness, balance, perceptual skills, postural control, reflex integration, and sensory integration in order to develop visual skills. As a result, Penelope had improved scores on the reflex protocol and improved bilateral coordination, perception of the affected eye, and ability to move her eyes together. Reading, spelling, math, and sports skills also improved.

Conclusions: Although the outcomes for each case were positive, there were significant differences in the methods implemented. An occupational therapist has the opportunity to incorporate occupation, sensory integration, reflexive therapy, and holistic approaches into vision training sessions in order to facilitate functional outcomes in relation to vision.

IMPLICATIONS FOR OCCUPATIONAL THERAPY

- A proposed revision to the optometric vision model would be to include the construct of occupation in order to unite professions and provide a foundation for the use of vision in relation to occupational performance.
- There is a need for further collaborative practice between occupational therapists and optometrists in providing optimal vision-based care.
- Occupational therapists should develop an understanding of both the optometric scope of practice and the similarities and differences between disciplines.
- Occupational therapists should continue to attain advanced clinical knowledge regarding vision skill training in order to benefit children with vision skill issues.

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