

The role of sensory training in the adaptive responses of individuals with blindness

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Funded by the Centro de Rehabilitación para Adultos Ciegos (CRAC)



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«Occupation is shaped by the way individuals experience and interpret their environment.»»

Gary Kielhofner

Modelo de Ocupación Humana (MOHO)

Kielhofner, G. (2008). Model of Human Occupation: Theory and Application.

PROBLEM AND APPROACH

Does sensory-perceptual training elicit adaptive responses, or does it only improve discrimination of sensory stimuli?

- Sensory training typically focuses on the reception and discrimination of stimuli.
- The need to analyze the functional impact of sensory training.
- An approach grounded in occupational therapy experience and practice.



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OBJECTIVES

- **To analyze the relationship between sensory-perceptual training and the emergence of adaptive responses in individuals with blindness.**
 - To characterize the phases of sensory-perceptual training as a process of sensory and adaptive learning, moving beyond sensory stimulation.
 - To understand the impact of sensory-perceptual training on the rehabilitation of individuals with blindness.
 - To identify differences and similarities in the process of evoking functional adaptive responses based on the origin of blindness.



Methods / Approach

Analysis of the therapeutic experience in visual rehabilitation processes

- Retrospective analysis of clinical records.
- Direct observation.
- Interviews with treating professionals.

54

Total number of
participants



18

Congenital
blindness

36

Acquired
blindness

Results

	Registration and Discrimination	Integration and Interpretation	Adaptive Response
Congenital Blindness	Non-visual sensory discrimination occurs spontaneously and functionally.	Sensory information integrates directly with the body schema and action.	The adaptive response consolidates progressively through experience, repetition, and guidance in meaningful contexts.
Acquired blindness	Non-visual sensory discrimination requires progressive adjustment and greater conscious effort.	Sensory integration is constructed gradually based on new perceptual references.	The adaptive response emerges consciously and becomes automated through practice.

Sensory Registration and Discrimination



Sensory Integration and Interpretation



Adaptive Response



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Sensory Registration and Discrimination



Sensory Integration and Interpretation



Adaptive Response

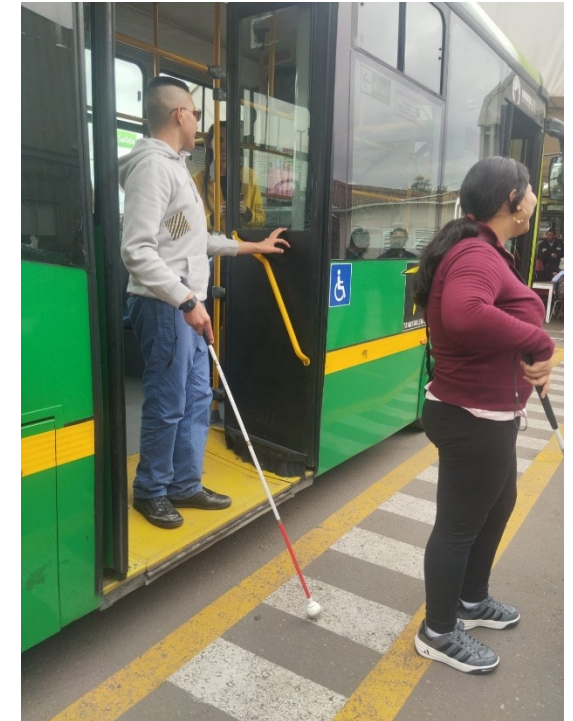


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Cross-cutting and emergents findings

- The presence of comorbidities may modulate both the pace and the manner of adaptation.
- Previous experiences of environmental exploration and participation in activities of daily living (ADLs) are decisive factors in the sensory learning process.
- Motivation and adherence to the therapeutic process significantly impact the achievement of successful outcomes.



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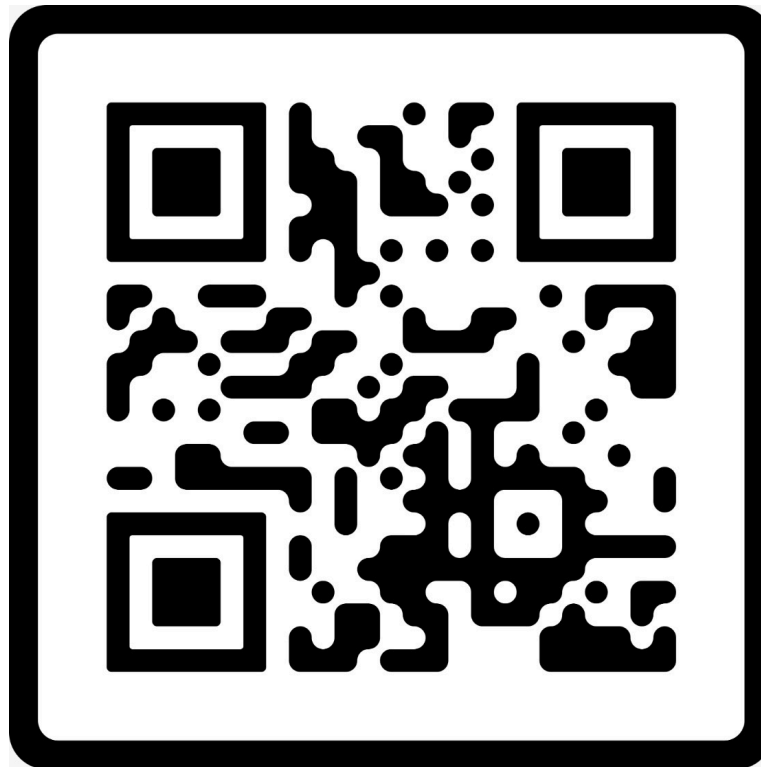
CONCLUSIONS AND RECOMMENDATIONS

- Presumably, perception alone is not sufficient: the adaptive response emerges by linking sensory experience with meaningful activities
- Sensory training likely guides neuroplasticity by providing direction and functional meaning through its articulation with occupation.
- Although differences exist in the evocation of adaptive responses based on the origin of blindness, training enhances sensory reorganization in both groups.
- Sensory training should always be embedded in everyday activities and contexts.
- Safe exploration and participation should be promoted from early ages or from the onset of blindness, with an emphasis on family guidance.
- Develop studies with more rigorous methodologies, such as cohort or case-control designs.

Wherever we are in the world, **occupational therapists** go beyond training senses or functions and adapting environments; we transform experience into action, and action into meaningful opportunities for **participation and living.**



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References



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