

Driving to Learn™ in a powered wheelchair – a method for people with cognitive disabilities

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Project period: 1993 to 2006
45 children and adults with profound cognitive disabilities
64 with other degrees of cognitive disabilities
17 typically developing infants 3-12 months

THE DRIVING TO LEARN RESEARCH PROJECT



Comparisons with infants

- Typical development of mobility
- Infants with typical development testing a powered wheelchair
- For a child or an adult with physical or cognitive limitations it is even more important to develop sense of self, drive to explore, learn tool use and explore the world



Outcomes of the project

- Development of a special powered wheelchair
TIRO – the learning tool
- Identification of an eight-phase learning process
- Emergence of a tool for assessment of joystick-use
- Facilitating strategies



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The tool use learning process

Eight phases

- significantly distinguishable

Performance

- single acts – multi-tasking
- attention single channelled – multi-channelled
- unawareness – relaxed performance
- low level of attention – comfortable vigilance

The ALP – Assessment of Learning Powered mobility use

PHASES	Activity & Movement	Understanding of tool use	Expressions & Emotions	Interaction & Communication	STAGE
8 Expert	Occupation, composed of two activities	Integrated tool use	Dependent on the doing of "other"	Multi-level integrated interaction	EASY STAGE relaxed performance
7 Proficient	Activities Occupation for its own sake	Fluent precise use of tool	Response satisfaction	Concurrent interactions	
6 Competent	Activity	Competent use of tool	Serious Content Laugh Focused	Consecutive interactions	
5 Sophisticated beginner	Sequences of acts	Idea of competent use is born	Frustrated Smile Serious Frustration	Reciprocal interaction Triadic interaction	DIFFICULT transition requires reorganizing
4 Advanced beginner	Chains of acts	Exploration of extended use	Serious Smile Sometimes laugh	Mutual interaction	
3 Beginner	Act	Basic use	Serious Contentful Smile	Initiates interaction	INTERMEDIATE STAGE focused function
2 Curious novice	Pre-act	Idea of basic use is born	Contented Curious Anxious Awfully	Responds to interaction	
1 Novice	Excited Non-act Anger/aston	No or vague idea of use	Open Hesitant Anxious	No response Avoidance	

Durkin & Nilsson (2010) ICPM, Glasgow, Scotland



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Assessment of powered mobility-use

Material:

- A written description of the characteristics of the eight phases
- The simplified assessment scheme (ALP)

Procedure:

- Video-record the session
- Assess most prominent phase
- Fill in a scheme with a marking pen
- Make notes about the session



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Facilitating strategies

Mutual interaction

Dialogue

Responsiveness

Adaptation

General strategies

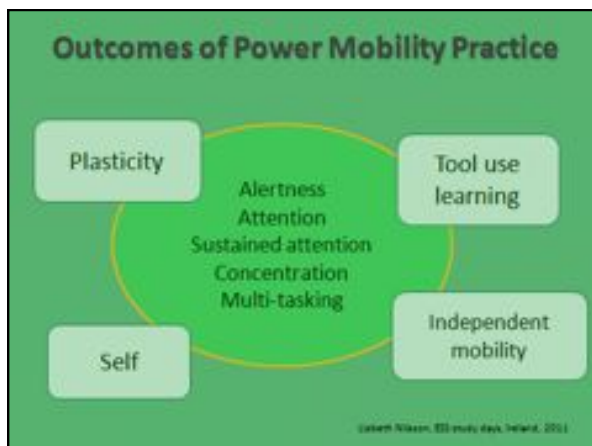
Strategies for each stage and each phase



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Development of TIRO – the learning tool

- Cognitive disability – need for good learning properties
- One-for-all-seating unit
- Not for individual provision – use it before
- As safe as possible without losing the experience of motion
- Special programming of electronics
- Good seating position



Implementation

- Sweden – Norrbotten and Skane
- Tested in England at Chailey Heritage

Just started up implementation at a residential home for older people in the community of Jokkmokk in Norrbotten

Research on new model for implementation



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