

## **Abstract for symposium at Nordic Meeting in Neuropsychology 2024**

**Responsible Nordic Society:** The Finnish Neuropsychological Society

**Title of the symposium:** “Extending neuropsychological evaluations and rehabilitation with virtual reality and web-based programs”

**Chair:** Sari Levänen, PhD, Brain Center/Neurocenter, Neuropsychology/Phoniatrics, Helsinki University Hospital, University of Helsinki, President of the Finnish Neuropsychological Society

### **Presentation 1:**

Title: Assessing goal-directed behavior in virtual reality

Presenter: Erik Seesjärvi, neuropsychologist, PhD, Department of Child Neurology, Helsinki University Hospital, University of Helsinki

### **Presentation 2:**

Title: Feasibility of web-based neuropsychological rehabilitation after acquired brain injury

Presenter: Outi Vuori, MA, PhD student, Brain Center/Neurocenter, Neuropsychology, Helsinki University Hospital, University of Helsinki

### **Presentation 3:**

Title: Web-based neuropsychological rehabilitation of learning problems in adolescents

Presenter: Samuel Hannukkala, MA, PhD student, Department of Child Neurology, Helsinki University Hospital, University of Helsinki

### **Brief description of symposium:**

This symposium presents ongoing PhD studies related to a virtual reality task designed for assessing goal-directed behavior and two web-based neuropsychological rehabilitation programs.

Unlike traditional pen and paper methods, EPELI (Executive Performance in Everyday Living) offers a more realistic environment with a virtual reality based task designed to quantify cognitive processes of goal-directed behavior, including executive functions and prospective memory, using ecologically more valid, stimulus-rich, and open-ended everyday life scenarios. Furthermore, EPELI allows measurement of other behavioral aspects, such as ADHD symptoms. EPELI is available both for children and adults, in different languages (e.g., English, Finnish, French, Swedish), and it can be performed remotely.

The two digital rehabilitation programs presented in this symposium were developed at Helsinki University Hospital within a national project called the Health Village (HealthVillage.fi) providing digital health care services for several medical specialties. IRENE (Internet-mediated REhabilitation of NEuropsychological impairments) Digital Pathway is a structured neuropsychological rehabilitation program for adults with acquired brain injury utilizing psychoeducative information and self-evaluation questionnaires for attentional, memory and executive disorders with feedback. The program provides training for internal and external memory and other cognitive strategies. BEATLE (BEtter AT LEarning) Digital Pathway is a structured neuropsychological rehabilitation program providing meta-skills and tools for learning to adolescents with

learning problems due to developmental language disorder, dyslexia, or other developmental issues. If proven feasible, these web-based cognitive interventions may broaden the variety of neuropsychological interventions and have the potential to equalize regional differences, make rehabilitation more cost-effective, and reduce waiting times for rehabilitation services.