



COGNITIVE TRAINING IN VIRTUAL REALITY

Close to everyday life. Playful. Scientific.

WHAT IS TEORA[®] MIND?

teora[®] mind is a therapeutic software used to treat cognitive deficits. With the help of virtual reality (VR), users can practice activities of daily living (ADLs) in a safe and controlled environment. This allows users to practice tasks that are difficult to replicate in real life in a playful and tangible way.

In various scenarios, users can practice tasks such as making coffee, cleaning out the fridge, or gardening. The focus on everyday life facilitates the learning transfer. To prevent users from becoming overwhelmed, the difficulty level can be adjusted in all exercises.

The accompanying documents for teora[®] mind are available online at: <https://teora-xr.de/eifu/>



Medical Device Certification

teora[®] mind is a CE-certified Class 2a medical device. It was certified in accordance with the new Medical Device Regulation (MDR) and is valid throughout Europe. This means that the product was developed in accordance with strict quality standards and complies with current scientific standards.





ACTIVATION GAMES

- ✓ Warming up doesn't have to be boring! Users get to know the VR environments through mini-games
- ✓ By catching ice cream balls, smashing objects with a rolling pin, or throwing pizzas, users get to know the game in a playful way
- ✓ The session begins with warm-up exercises in a familiar setting, using simple games

THE VIRTUAL KITCHEN

- ✓ In the kitchen, users practice making coffee, unpacking groceries, preparing a fruit salad, or organizing the refrigerator
- ✓ You can select individual trainings and adjust the difficulty levels
- ✓ Users can see the consequences of their decisions without any risk





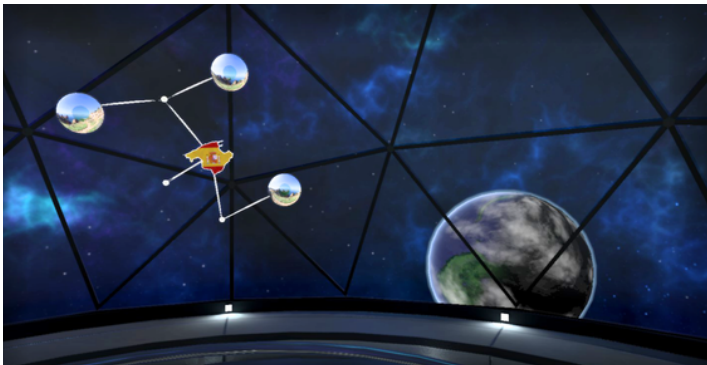
THE VIRTUAL GARDEN

- ✔ In the gardening scenario, users can plant seeds, tend to the plants, and eventually harvest their fruits
- ✔ Adjust the level of difficulty to increase the number of steps required
- ✔ In the virtual garden, action planning skills are developed through playful gardening activities

THE VIRTUAL ICE CREAM PARLOR

- ✓ The ice cream parlor sells lemonade and sundaes topped with sprinkles
- ✓ In this environment, users learn how to handle cash and do mental arithmetic
- ✓ Increase the difficulty level if you feel like you've improved and can handle more





RELAXATION ROOM

- ✔ The relaxation room allows users to be transported to different places and feel as though they are, for example, standing by the sea
- ✔ Here, users can relax and catch their breath after a challenging training session
- ✔ Virtual reality allows users to explore new places

THE BEST PART: BE THERE AS LIVE SUPPORT!



Patients can be guided through the virtual world using a tablet provided with the system



This way, patients receive additional guidance and support during the exercises



Healthcare providers can have patients repeat specific exercises while they watch



INDICATIONS

teora® mind is used for people whose independence, self-determination, or ability to manage daily life is significantly limited due to **cognitive deficits**.

These cognitive limitations are associated with **conditions that affect the nervous system**. These may include, for example, **strokes, Parkinson's disease, mild cognitive impairment, or traumatic brain injuries**.



Contraindications

teora® mind is not suitable for people with the following symptoms:

- Acute migraines
- Balance problems
- Epileptic seizures triggered by visual stimuli

Motion sickness (dizziness, headache, nausea) may occur during the first few uses. In this case, the use should be interrupted and resumed only after the symptoms have subsided. If the symptoms persist, a doctor should be consulted.

VIRTUAL REALITY IN MEDICINE

Virtual reality offers numerous benefits for cognitive training. Above all, VR creates an immersive therapeutic environment. Users of teora® mind immerse themselves in a realistic virtual world where they can practice everyday scenarios such as sorting groceries. The steps involved must not only be recalled theoretically but also actively performed. This form of training facilitates a greater learning transfer into everyday life. Numerous studies have already demonstrated the potential of immersive VR applications¹, particularly with regard to cognitive training for pre-dementia symptoms², mild cognitive impairment^{3 4}, or post-stroke recovery⁵. With teora® mind, patients and caregivers now have access to an innovative, sophisticated VR therapy system.

VR and seniors don't seem to go together?

Cognitive impairments often affect older adults, who tend to be less tech-savvy. For this reason, we conducted a user experience study. In it, we examined how stroke patients respond to teora® mind and how they cope with the technology. The study showed that treatment with teora® mind is well received by older adults without cognitive impairments from the control group as well as by stroke patients, regardless of prior experience with VR⁶. The oldest teora® mind user to date was 96 years old.

¹⁻⁶ The footnotes are resolved on the last few pages

EVIDENCE

teora® mind has already been tested for efficacy in a clinical trial. In the randomized controlled trial (RCT), 21 stroke patients were treated with teora® mind, while 21 others received standard therapy. The standard therapy consists of abstract exercises performed on a computer. In these training sessions, for example, fish carrying a pearl are identified and clicked on, or the steps for building a snowman are put in the correct order.

Spread over several weeks, both groups received an average of 18.7 treatment sessions lasting 30–45 minutes each. The group of stroke patients treated with teora® mind achieved significantly better results than the control group. The most significant improvements were observed in the areas of planning and problem-solving⁷.

The results indicate that therapy with teora® mind is a safe and effective treatment.



“teora® mind provides us with a completely new tool for neurorehabilitation. Our patients remain actively engaged and motivated throughout their treatment, especially when it comes to complex treatments [...]”

Stephanie Spohn
Neuropsychologist, RKU (RKU – University and
Rehabilitation Clinics Ulm)



“Patients who use teora® mind with us describe the training as enriching, challenging, or an adventure, but also as a source of relaxation and a place of well-being.”

Susanne Bednarz
Neuropsychologist, Rotenburg Cardiovascular Center

BENEFITS FOR HEALTHCARE PROVIDERS

- ✔ Use of an evidence-based therapy
- ✔ Training that addresses real-life problems which are difficult to replicate in reality, potentially dangerous, overwhelming, or hard to control
- ✔ Greater willingness to undergo treatment and increased patient motivation due to the playful nature of the therapy
- ✔ More efficient use of staff by enabling the simultaneous treatment of multiple patients

BENEFITS FOR USERS

- ✔ Targeted training in activities of daily living (ADLs) facilitates the learning transfer
- ✔ Playful therapy increases motivation
- ✔ Higher treatment frequency
- ✔ Flexible guidance and support from healthcare providers



FREQUENTLY ASKED QUESTIONS

What is Virtual Reality?

Virtual Reality (VR) is a computer-generated environment that can be experienced through visuals and, often, sound.

What minimum cognitive requirements should users meet?

To use teora® mind, users must be able to read and have intact language comprehension. Additionally, the application is intended for individuals with a score of >20 on the Mini-Mental State Examination or >12 on the MoCA.

What minimum physical requirements must users meet?

At least one arm and one hand must be mobile in order to use the software.

For the current exercises, this also includes the ability to voluntarily bend and straighten the index, middle, and ring fingers. The head must be able to turn approximately 60° to the right and left. Use with visual aids is possible without any problems; however, vision and perception in both eyes are essential. In addition, intact speech comprehension and reading ability are required.

What technical requirements must be met?

You don't need any additional technical equipment. All you need is a stable, password-protected Wi-Fi network.

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