

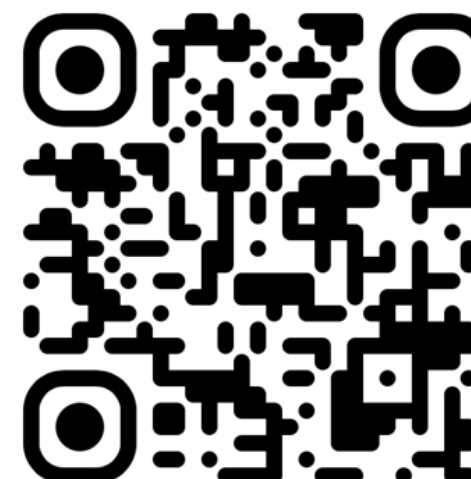
FROM PLAY TO COGNITION: Immersive Virtual Reality Training for People With Cognitive Impairment

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Immersive XR cognitive–motor training was highly acceptable among older adults with cognitive impairment, with 90% willing to use the technology again and 95% reporting a safe and natural experience. 100% of participants believed thatXR could benefit individuals with cognitive or physical difficulties.

INTRODUCTION	METHODS	RESULTS	REFERENCES																													
Digital and immersive technologies are increasingly explored as non-pharmacological interventions for people with cognitive impairment. However, evidence from real-world dementia care settings remains limited. The ELICT pilot study evaluated the feasibility, usability and acceptability of immersive extended reality (XR) cognitive–motor training delivered within Alzheimer’s Athens Day Care Centers. The study also explored whether different forms of therapist presence (video versus hologram) influenced user experience and perceived support.	Participants 👥 N = 20 👩 70% Women 🎂 Mean age = 73.6 years 🕶️ 85% XR naïve Design ▪ Counterbalanced design ▪ Video presence condition ▪ Hologram presence condition ▪ Balloons XR game ▪ Questionnaires + interview Balloons XR Game Participants interacted with virtual balloons using natural arm movements while receiving real-time support from a health professional through either video or holographic presence.	OVERALL USER EXPERIENCE WITH XR (N = 20) <table><tr><td>Would use XR again</td><td>90%</td></tr><tr><td>Would recommend to others</td><td>90%</td></tr><tr><td>Felt safe during the XR session</td><td>95%</td></tr><tr><td>Felt motivated and engaged</td><td>90%</td></tr><tr><td>Interaction felt natural and intuitive</td><td>95%</td></tr><tr><td>Felt strong immersion</td><td>85%</td></tr><tr><td>XR more effective than tablet-based training</td><td>60%</td></tr></table> Percentages represent the proportion of participants who agreed or strongly agreed with each statement. VIDEO vs HOLOGRAM EXPERIENCE <table><tr><th></th><th>VIDEO (n = 20)</th><th>HOLOGRAM (n = 20)</th></tr><tr><td>Same-space presence (felt in the same space as the professional)</td><td>85%</td><td>75%</td></tr><tr><td>Image clarity (clear and easily recognizable)</td><td>95%</td><td>45%</td></tr><tr><td>Felt safe</td><td>95%</td><td>85%</td></tr><tr><td>Felt motivated</td><td>90%</td><td>90%</td></tr></table> PARTICIPANT FEEDBACK (open-ended responses) 😊 "I felt like a child playing again." 👥 "It was more fun than the tablet." ✅ "It made me feel active and happy." ★ "Helps us stay alert and engaged." ❤️ "I would love to try it again!" 100% of participants believed XR could benefit individuals with cognitive or physical difficulties. CONCLUSIONS ▪ XR cognitive–motor training was feasible and highly acceptable. ▪ Participants reported high motivation, safety & engagement. ▪ Video presence provided greater visual clarity. ▪ Holographic presence showed promising levels of perceived co-presence. ▪ Further controlled studies are needed to evaluate cognitive and neuropsychiatric outcomes.	Would use XR again	90%	Would recommend to others	90%	Felt safe during the XR session	95%	Felt motivated and engaged	90%	Interaction felt natural and intuitive	95%	Felt strong immersion	85%	XR more effective than tablet-based training	60%		VIDEO (n = 20)	HOLOGRAM (n = 20)	Same-space presence (felt in the same space as the professional)	85%	75%	Image clarity (clear and easily recognizable)	95%	45%	Felt safe	95%	85%	Felt motivated	90%	90%	Kim et al., 2019. The effectiveness of virtual reality for people with mild cognitive impairment or dementia: A meta-analysis. <i>BMC Psychiatry</i>. Neal et al., 2025. Digital assistive technologies for community-dwelling people with dementia: A systematic review of systematic reviews by the INTERDEM AI & assistive technology taskforce. <i>Digital health</i>: 1–15. Sayma et al., 2020. Are we there yet? Immersive virtual reality to improve cognitive function in dementia and mild cognitive impairment. <i>The Gerontologist</i>. Zhu et al., 2022. Immersive Virtual Reality–Based Cognitive Intervention for the Improvement of Cognitive Function, Depression, and Perceived Stress in Older Adults With Mild Cognitive Impairment and Mild Dementia: Pilot Pre-Post Study. <i>JMIR Serious Games</i>.
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