



BraArt: Repetition and return in an interdisciplinary study bridging art therapy and neuroscience

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Pain and discomfort are inevitable parts of the human experience. Throughout the life journey, everyone encounters emotional and physical pain to varying degrees. How do we cope with these difficult experiences, and how can art therapy help us to navigate them?

BraArt is an interdisciplinary research project investigating the therapeutic mechanisms of different art materials and tasks, and how art therapy modulates the experience of pain. It combines a range of quantitative and qualitative research methods, including neuroscientific (EEG and fNIRS), physiological (cardiovascular and hormonal) and psychometric (questionnaire-based) tools, along with simulated-recall interviews based on video recordings, to measure neural, physiological, and psychological changes during and after art therapy. The goal is to explore the link between creative expression and pain relief, and to strengthen the understanding of art therapeutic mechanisms and the evidence base for art therapy in pain treatment.

This presentation sheds light on the first part of the study and on the challenging journey of creating an experimental research setting that enables controlled repetition of tasks and multimethod measuring of art therapeutic mechanisms. We describe the study design and the preliminary findings from the initial series of experiments, in which the participants completed a repeating cycle of art therapy tasks in a laboratory setting. We discuss how qualitative and artistic findings from the interviews can be combined with quantitative results from questionnaires and physiological measurements. What kind of differences can be experienced or measured between working with clay and oil pastels? How is expressing painful experiences different from soothing them? How do the physiological signals and participant's subjective experiences correspond to each other? While discussing the insights from this first study phase, we reflect on how to find the right path forward on our BraArt journey over the next two years of the project.



Biography

Agata Zelechowska, PhD, is a researcher, artist and facilitator, who holds a PhD in music psychology from the University of Oslo and a master's degree in psychology from the University of Warsaw. Her research oscillates around themes of embodiment, sensory perception, and the impact of art on human beings. As part of her current master studies in art therapy at Oslo Metropolitan University, she runs workshops based on art therapy methods for students and researchers in academic settings, and works in the 'BraArt: Measuring the Therapeutic Mechanisms and Effects of Art research project.

Shokoufeh Moezzi is a PhD candidate at Oslo Metropolitan University, working on the BraArt project, which studies the therapeutic mechanisms and effects of art therapy on pain. She holds both a master's and a bachelor's degree in Biomedical Engineering from Islamic Azad University, Mashhad. Her previous research focused on improving attention using transcranial direct current stimulation (tDCS). Her research focuses on cognitive function, brain rhythms and their interactions, signal processing, feature extraction and feature selection. Her current work combines neuroscience and art therapy approaches, integrating EEG, fNIRS, and other physiological measurements to explore how creative expression modulates pain and emotion.

Mimmu Rankanen, PhD, is the Professor of Art Therapy at the Oslo Metropolitan University. She is the Chair of the Research Committee of European Federation of Art Therapy and a member of The International Art Therapy Neuroscience Collective. She has extensive experience in educating art therapy, and of research presentations at international conferences. She has published multiple scientific articles, book chapters and co-authored a book about principles of art therapy. She is a state authorized psychotherapist, psychotherapy educator and supervisor, who has education both in cognitive analytic psychotherapy and art therapy. She is continuing her clinical practice in Finland.



Recent Publications

Zelechowska, A., Gonzalez Sanchez, V.E., Laeng, B., Vuoskoski, J.K., & Jensenius, A.R. (2020). **Who moves to music? Empathic concern predicts spontaneous movement responses to rhythm and music.** *Music & Science*, 3, 2059204320974216.

Moezzi, S., Ghoshuni, M., & Amiri, M. (2023). **Transcranial direct current stimulation**

(tDCS) effects on attention enhancement: A preliminary event related potential (ERP) study. *Current Psychology*, 42(11), 8798-8804.

Rankanen, M., Leinikka, M., Groth, C., Seitamaa-Hakkarainen, P., Mäkelä, M., & Huotilainen, M. (2022). **Physiological Measurements and Emotional Experiences of Drawing and Clay Forming.** *The Arts in Psychotherapy*, 79, 101899.

Stanoeva, A. & Rankanen, M. (2024). **A review of doctoral research in art therapy across Europe: a project of European Federation of Art Therapy's (EFAT's) Research Committee to create a European database for doctoral theses.** *GMS Journal of Arts Therapies - Journal of Art-, Music-, Dance-, Drama- and Poetry-Therapy*.

Rankanen, M. (2025). **Images of body-mind – the process of making and observing art within a therapeutic relationship.** Keynote, *The Body in Arts Therapies and Psychotherapies Conference, Finland*.