

## ***Embodied technology-assisted musical creativity and living with dementia***

Jennifer MacRitchie<sup>1</sup>, Justin Christensen<sup>1</sup>, Jonathan Pigrem<sup>1</sup>, Michael Neokleous<sup>1</sup>, Renee Timmers<sup>1</sup>, Andrew McPherson<sup>2</sup>, Luc DeWitte<sup>3</sup>

<sup>1</sup>*The University of Sheffield, Sheffield, United Kingdom.*

<sup>2</sup>*Imperial College, London, United Kingdom.*

<sup>3</sup>*The Hague University of Applied Sciences, The Hague, Netherlands*

### **Background**

Creative arts engagement has been shown to be related to maintaining wellbeing in older adulthood (Tymoszuk et al., 2019). For people living with dementia, music can be engaging and rewarding (Baird & Thompson, 2018), and is often presented as a therapeutic activity. It is theorised that music's capacity to effect change is due to its engaging, emotional, physical, personal, social and persuasive qualities (Brancatisano et al., 2020). However, music itself is a complex intervention (Loui, 2020) and the 'creative' in music activities in the small number of studies with people living with dementia is rarely described or critiqued (Creech et al., 2020). Music is often described as passive (receptive)/active to reflect different listening or playing activities. Only a few studies detail opportunities for people living with dementia to exercise creativity (e.g. Zeilig et al., 2019).

Technology to assist these musical interactions in dementia falls under distinct categories of listening to music, or playing music, with very little afforded in the way of agency, choice or control (MacRitchie et al., 2023). A few possible explanations could be: i) the musical activity is valued in terms of pre/post cognitive or social changes (Kontos & Grigorovich, 2018) i.e., the activity itself is not particularly critiqued, ii) creativity is assumed to be embedded in the activity and does not need to be enhanced or supported, iii) the locus of creativity is in cognitive processes occurring in the brain, so people living with dementia are often ascribed a passive role in creative musical interactions (Zeilig et al., 2019).

We propose a new way of thinking about musical interactions for people living with dementia, building from the enactive, embodied experience of music (Schiavio et al., 2022), and considering a more relational view. Leaving aside the framing where the person with dementia is limited in what creativity they can offer, we propose instead a framework of design where subtle acts of agency and (mini-C) creativity are afforded, supporting a myriad of musical interactions that sit between listening and performing.

### **Aims**

We aim to re-examine musical interaction for people living with dementia, leaving behind the receptive/active distinction of musical activities, and instead looking through an embodied and relational lens. We examine how agency and creativity are related, and how these can be supported to foster meaningful interaction for people living with dementia and their carers.

### **Main contribution**

The Music, Dementia, Technology team at The University of Sheffield continues to run consultation activities with representatives from local community, residential care, and people who are caring for, or themselves living with dementia. These activities have included discussion groups on broader conceptual work, and hands-on workshops where we collectively

explore and re-imagine pre-existing and specially developed musical devices. The SliderBox is a mixing-desk analogy, using faders to control the volume of pre-recorded stems of music (Pigrem et al., 2023). The ‘In C Box’ is an arcade machine analogy, using buttons to procedurally generate Terry Riley’s ‘In C’ (Pigrem et al., 2023). The Music Boxes use a turntable-type procedure to control playback of two streams of audio, designed for group music playing (Christensen et al., 2023). The HUG is a weighted sensory object designed to simulate a hug for the user, which has a music player installed inside (Treadaway et al., 2019).

We use these examples of technology-supported musical interactions to extend Kontos’ proposition of rethinking musicality for people living with dementia across a range of musical activities. Our design considerations include basing operation on pre-existing embodied knowledge of interacting with the world, e.g. through familiar and safe materials, promoting obvious interaction (Pigrem et al., 2023). For each device, we detail how choice, control and creativity are afforded, how the musical interaction is embodied and how this stimulates or maintains relationships with others.

### Discussion and conclusion

Through the examples of use-cases provided, we discuss how musical interaction is almost always creative, and almost always a relational act. By laying out musical interaction activities on sliding scales of participation, we can examine how the voice of creativity, however quiet it may be, can be included, helping us to better hear the voices of people living with dementia. The enactive embodied perspective can provide a new way of thinking about meaning-making and creativity in musical experiences for people living with dementia, and consequently how technologies can be designed to support these interactions.

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