

Somatosensory perception through body-worn technology and digital touch

Katherine, S. M. Rees*

University for the Creative Arts, katie.rees@uca.ac.uk

CCS CONCEPTS • **Human-centered computing** ∩ Interaction design; • **Human-centered computing** ∩ Human computer interaction (HCI); *Interaction techniques*; *Interaction paradigms*

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1 CONTEXT

Sensory participation and tool use in the creative process has been widely discussed across different fields. Tim Ingold [1], in his anthropological discussion of skilled tool use, considers ongoing low-level attention and acknowledgement of affordances in creative making rather than automatic and unconscious movement. Lambros Malafouris and his theory of Material Engagement [2] in cognitive archaeology consider the flow between material, maker and the thinking process. In his recent journal article with Koukouti [3], they define this as ‘haptic attentive unity’, further theorising the interaction between maker and material and the process of creative decision-making in the moment. In the design process, the work of Wilde [4] and Nunez- Pacheco and Loke [5] considers the somatic register of the body and multisensorial experience in design ideation. From a technological perspective, the use of tools and their involvement in the mutual shaping of behaviour [6]. Within the literature on dance and technology, there is a growing body of work that considers the interaction between dancer and material enables multiple states of presence [7] and that the senses integrate or are reordered through the multisensorial and multimodal experiences of using technology in choreography [8].

2 EXISTING WORK

My existing research involves body-worn technology and passive digital touch. In creating three prototypes and studying their use in two projects, I investigated somatsense in the creative process of making dance (predominantly improvised movement in generating dance material). Looped patterns of vibration or pressure produced by the prototypes enhanced or heightened dancers'/choreographers' bodily awareness. Participants did not necessarily perceive the experience as influencing the action choice but the ‘how’ or qualitative dynamics of the movement. In the article

* Place the footnote text for the author (if applicable) here.

‘Improvising with digital touch’ [9] I discuss the marked pre-reflective experience of using the prototypes in a facilitated choreographic workshop. This line of inquiry develops in the forthcoming article [10] where I use philosopher Maxine Sheets Johnstone’s thoughts on sensation as being “temporally punctual and spatially pointillist” [11]. I argue that with the repetition of the loop and its marking of specific points in space and time, the prototype enables a heightened awareness of the moving body. The second project in my research enabled longer timeframes of prototype use, and consequently, different working relationships evolved and provided evidence for Hayles’s [12] theory of working with/through/against and alongside technology. Furthermore, the article considers Tuuri and Eerola’s [13] theory of ‘listening’ and ‘hearing’ and discusses this concerning the comprehension of digital touch whilst simultaneously dancing, leading to selective entrainment with technology.

3 PROPOSAL FOR WORKSHOP

It would be interesting to use two prototypes (bracelets with patterns of looped vibration and pressure from inflatable silicone waistbands) with non-dancers in a guided improvisation within the workshop ‘Body x Materials’. Regarding discussion points, I would like to discuss the fluidity between interoception and exteroception through engaging the somatosense [14] and the ethics of technologies involved with body-based multisensory experiences.

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