



## <sup>1</sup>Sue Hawksley: Dance Artist

*Technological mediation can open up amazing possibilities to augment and extend how this basic material is experienced.*

Sue Hawksley is a dance artist and practitioner researcher currently based in Adelaide<sup>2</sup>. She trained at the Royal Ballet School in London and has performed with Rambert Dance Company, Mantis, Scottish Ballet and others. She has worked with choreographers Merce Cunningham, Trisha Brown, Siobhan Davies, Richard Alston, Ashley Page and Michael Clark, among others. She is artistic director of *articulate animal*—a platform for her critical and creative inquiry into embodiment, movement and environment, often within the context of interdisciplinary and collaborative practices. Sue holds a practice-led PhD from the University of Edinburgh<sup>3</sup>. She combines her dance practice with research investigations into the nature of felt experience and what it reveals about embodied knowledge. Sue’s research employs choreographic and somatic practices that are mediated through performance and technology. As a trained dancer and choreographer, she views her movement capability as a research tool that, in combination with the mediation of digital technology, affords new insights into the process. The amplification to her practice that this brings allows her to better understand the embodied experience of dance, both as a choreographer and a performer. Underlying her thinking is the idea that the body can inform creative cognition and that her choreographic practice can be used as a mode of enquiry to explore and reveal different kinds of embodiment. She believes that the movement awareness practices she has identified through her research have the potential not only to contribute to embodied understanding, but also to enrich everyday life through heightened reflective capability.

Sue’s research provides an example of how a reflective practice approach, what she refers to as “dancing to understand”, offers fascinating insights into the richness of embodied practice. Sue’s methodology is based on a body (somatic) process of repeated and changing movements that provide the vehicle for elucidating questions about the thinking and action that takes place. Her research through practice prompted reflections that led to insights and questions which, in turn, create actions and new practices. For example, questions about the role of gesture in thinking emerged from a performance work (danced process #1: talking-while-dancing): when her hands were following dance phrases<sup>4</sup> at the same time as she was speaking, her inability to gesticulate made it harder to think. Conversely, hands that gestured during speech could not follow the dance phrases. This led her to look further into research knowledge about gesture and where her approach to enquiry did not conform to the conventions of the field.

There is considerable impact on dancers working in complex interactive performance environments. To address the problem of heavy demand on their cognitive and embodied capacities, she developed what she calls an ‘attention gym’ to prepare performers for working in technologically mediated environments. In this way, her work in embodied practice and research involves creating solutions to some of the impacts that occur, not just identifying questions and problems. In this way, an iterative cycle of moving-reflecting-moving again (differently) generates insights that prompt further research and importantly, strategies and support for amplifying the dancer’s experience of the interactive performance environment. In a certain sense, this process is akin to action research methodology which involves introducing a new way of doing something into a situation, observing and reflecting on the result of that intervention, from which new practices are devised to address the changed situation.

*Crosstalk* is an interactive collaborative performance work<sup>5</sup>. The participants can be either expert or not: in an art gallery, people on short visits can interact through the system with each other and the visual and sound elements. The performance begins with two dancers speaking descriptions of each other, and then setting up a score for operating as part of the system. Using voice-recognition software their words are written and projected onto a screen, and existing as virtual 3-D text-objects in the interactive virtual space. When the performers collide with the virtual text-objects this causes them to move<sup>6</sup>. As the texts collide with one another, new texts and sounds are created by an interpretative and generative grammar engine that shapes the interaction between all participating elements<sup>7</sup>. The software was developed at Edinburgh University and Arizona State University and the first improvised performances were developed in collaboration with Lucy Boyes, as part of an artist residency at Bundanon Trust NSW and with Angel Crissman and Michaela Konzal at Arizona State University<sup>8</sup>.



**Crosstalk, 2014. Performance photo, 2014: Arizona State University Art Museum, Tempe, USA.**

**Photo: Simon Biggs. Dancers: Sue Hawksley and Angel Crissman**

Sue's work is discussed in Part 5 in relation to technology for amplified mediated creative practice. An interview follows in which she talks about her dance practice and research in embodied cognition. Her written responses to my questions were preceded by a conversation at her studio in Cherryville in the Adelaide Hills.

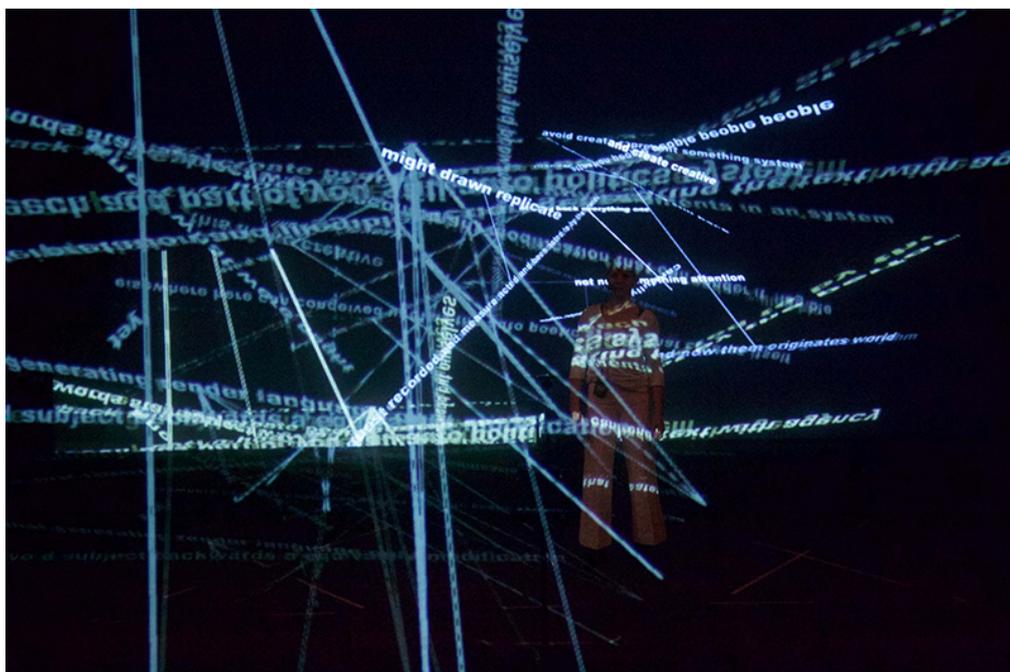
*Q: How would you describe the new forms of knowledge identified in your PhD research?*

S: I think novel methods. My approach was heuristic, iterative and itinerative<sup>9</sup>. The aim was to 'follow the materials' as Ingold puts it, with the primary materials being movement, dance and the body, and a concern to apprehend notions of embodied cognition and knowledge through embodied creative practice - doing to understand. The particular methodologies for addressing each new question that arose in the course of the research evolved out of the creative practice, and it is unlikely I could have designed them at the start of the project. I was particularly concerned to give validity to embodied thinking and knowing, which tend to be classed more as 'experience' according to traditional academic definitions of Knowledge.

*Q: Can you give an example of a novel contribution?*

S: These questions about gesture were exciting and unexpected, revealed to me through my engagement with the creative task of talking-while-dancing. Much current research argues

that the activity of gesturing and gesticulation plays a role in our thinking while speaking. This seemed to be reinforced in my work when the hands were taken up with following dance phrases and therefore not available to gesticulate, it became harder to think, or vice versa, hands getting drawn into gesture couldn't follow the dance logic. At the time, I knew little of the field of gesture research and subsequent reading in this area indicates that mine was a very lateral approach, which could potentially be used to positively trouble some of the classic methods, although there are clear difficulties for designing a quantitative methodology! Importantly I see these kinds of questions as affirming the value of creative inquiry.



**Image 2: Crosstalk, 2014. Performance photo, 2016: Hartley Playhouse, University of South Australia, Adelaide, Australia. Photo: Simon Biggs. Dancer: Sue Hawksley**

The interactive performance environments of works such as *InTensions* and *Bodytext* involve lots of multi-tasking and demand high levels of attention. I developed practices to help performers train up their attentional skills to cope in such complex environments, a sort of ‘attention gym’. These practices are valuable for preparing to work in technologically mediated environments if (as is often the case) access to the technology is only possible for limited time.

*Q: Can you say more about what the technology mediation comprises from the practitioner-performer perspective, as distinct from how a system developer would characterise it?*

S: I would say (and this is a major generalisation!) that a systems developer tends to make a system as a tool for people to use, something separate or external from them that mediates how they feel or experience themselves or the world, for example, by them using or inhabiting it. As a practitioner, I am really interested in how the assemblage of people plus technology (low or hi-tech) alters how we sense, feel and act. Mediation affording agency rather than imposing objectification. As a performer, I am interested in how mediation allows an audience to gain a different perspective and insight on their or the performer's experience. Dance in its most basic form, is a very straightforward medium - bodies in movement in gravity. Technological mediation can open up amazing possibilities to augment and extend how this basic material is experienced. I can give two examples, one where I feel I characterised ‘the

system' as extrinsic to me, and one where I feel I had agency throughout the making and performing of the work - I was intrinsic to the system.

In an early collaboration with visual artist Simon Biggs, *I am, I was, a dying swan* (2001) I approached him with a choreographic idea for a version of Pavlova's famous solo, for which I wanted a visual environment to create a decay effect. He set up a system with three video projectors and three video cameras in a linear series, using digital delay to create temporal and visual degradation. Each camera was filming the projection of the previous one. I had very little experience at that time of working with technological mediation, so I approached it as a system separate from myself. I immersed myself in the system throughout the choreographic process and allowed the resultant dance work to be shaped by the tight constraints. For example, to be visible on a particular screen requires precise placing and timing of my actions, which creates huge tension in the resultant dance work. If I had developed my choreographic ideas outwith the system, I doubt I would have chosen such tension levels.

Through subsequent projects working with technology I've become more interested in the question of the relationship between mediation and agency. In a work such as *Crosstalk* (2014) Simon Biggs, composer Garth Paine and I collaborated to create a system in which humans (whether the authors or interactors) are as much part of 'the system' as the hardware and software. When we started making *Crosstalk*, Simon and Garth were asking for movement and speech to develop their software. This presented a problem to me in that of course I could do or say lots of things, but I needed to find reasons to do or say any particular things. The other dancer (Lucy Boyes) and I undertook extensive research around the notions of presence, stillness and silence until we found a logic for moving and speaking that was integral to the system. We then spent a long time working with Garth and Simon to establish how much movement might be needed to be perceived by the tracking software and drive sound algorithms, how long the text sentences could be to function effectively within the physics engine, and so on. The text for the performance work contains descriptive material about the particular performers, explanations about how to 'work' the system, and theoretical material about why the piece exists.

*Q: Does the mediation allow the performer sufficient creative agency?*

S: The constraints in a work such as *Crosstalk* are very tight: the camera angles determine the size (small!) and shape of the interactive area, and the positions of the performers relative to each other so they do not occlude on another. The speech-to-text software requires clear articulation of words, etc. It can be frustrating and feel like a loss of freedom. But I would argue that accepting the constraints affords different possibilities that can only occur because of the mediation, so it's a case of weighing up whether it's a price worth paying. I know a lot of dancers who feel oppressed by technology, but often it's because it is new and unfamiliar. They are usually so used to dealing with other constraints, such as stage dimensions, the tempo of the music, the demands of a choreographer's movement style, awkward set and costumes etc., that these become invisible to them. I personally like to set constraints in all my work, such as delimiting and then systematically reducing the performance space or defining specific improvisation tasks but leaving lots of choice about how they are employed. Within these boundaries, I'm interested in how people solve the problems created by them, in witnessing their creative agency at play.

*Crosstalk* is not only intended to be a performance work but is also an installation where audiences can interact freely with the work. However, because the performers have worked within the system for extended periods of time, they know its qualities and constraints and are better able to reveal aspects of the system and produce enhanced performances. The system elements include the interactors as well as hardware/software, all treated as equivalent in status, but not as being all the same. Each element has attributes that another does not. The humans do seem to be the only elements that are aware of their agency and of the intentions

they form (Simon Biggs's latest work, *Double Agent*, incorporates AI, putting that into question!)<sup>10</sup>

*Q: How do the randomised responses of the system affect the performance? For example, do randomised responses cause doubt about agency?*

In a work like *Bodytext* this was definitely the case. At the first performance, there were so many new, unexpected and random responses that I was left feeling very unsure about where 'I' fitted in. But once I'd got beyond the feeling of doubt, I recognised that his performance revealed the extent of the contingent relationships between every element of the system, and in particular, opened up the idea that all elements hold equivalent status in terms of agency. To help performers cope with randomised responses, I included options in the score to choose to follow or to ignore elements of the emergent work. In *Crosstalk*, there is a choreographic direction to "make rogue movements just because you feel like it", so if an interactor feels overwhelmed by too many choices of what they could respond to, s/he can just do something random of their own. This helps them re-establish a sense of agency.

## Notes

---

1 Photograph by Maria Falconer

2 <http://www.articulateanimal.org/sueh.htm>

3 Hawksley, S. (2012). Dancing to an understanding of embodiment. PhD Thesis, Edinburgh College of Art: The University of Edinburgh.

4 A choreographer designs a series of actions which linked by transitional movements to create a dance phrase, the basic unit of choreographed movement. Sequences of phrases are arranged to form a dance.

5 Simon Biggs, Sue Hawksley and Garth Paine (2014).

6 A dictionary of words is included in the software, based on a general English vocabulary combined with the words created by the collaborating artists.

7 Biggs, S., Hawksley, S. & Paine, G. (2014) *Crosstalk: making people in interactive spaces*.

Proceedings of the 2014 International Workshop on Movement and Computing. ACM, New York, NY.

8 Bundanon Trust Artist's Residency Programme, New South Wales, Australia,

<https://www.bundanon.com.au>

Arizona State University, School of Arts Media and Engineering, Tempe, Arizona, USA.

Edinburgh College of Art, University of Edinburgh, UK.

9 'Iterative' - 'Itinerative' - A distinction between "iterative" (exact replications) and "itinerative" (similar but variable) movements in making.: Ingold (2010) p 97.

10 *Double Agent*: <http://littlepig.org.uk/installations/doubleagent/index.htm>

*Double Agent* is an interactive augmented environment, commissioned by the Museum of Discovery (MOD), Adelaide (premiered as part of the MOD.ify exhibition, May 10, 2018). People physically interact with two projected virtual 'agents' within a large-scale three-dimensional projection. The agents are composed from hundreds of small elements that are both drawn to and repelled by the movement of human bodies in the installation space, visualised as complex tensile and fluid structures. One agent (the lower) interacts directly with people in the installation space. The other agent (the higher) interacts with a simulated human which has learned how to dance. Employing many hours of dance data, acquired through the motion capture of dancer's improvising within *Double Agent*, the agent has, through the use of machine-learning algorithms (a Long Short-Term Memory Recurrent Neural Network), developed the ability to improvise its own dance movements, responding to the presence of viewers who co-habit the installation space. Artist: Simon Biggs Choreography: Articulate Animal - Sue Hawksley and Tammy Arjona; Machine-Learning: Samya Bagchi; Scientific Advisor: Professor Mark McDonnell

*Double Agent*: <https://mod.org.au/exhibits/double-agent/>

One algorithm wants to dance with you, the other wants to learn from you. The first algorithm copies your own moves, the other "watches" and learns from you, as well as previous dance partners, and improvises new moves of its own. Created by South Australian artist and academic, Simon Biggs, in collaboration with a computer scientist and choreographer, *Double Agent* uses an evolutionary process of deep learning to explore the relationship between technological and human evolution.