

**Artistic Research Lab: 'On the Notion of Practice' V4**

**Dansehallerne, Copenhagen 9th-10th of May 2019**

**Contributor: Jeannette Ginslov**

**10 May 2019 15:00-16:00**

**14-15 Pages**

**4,500 – 5000 words**

## **TITLE**

***“tentacular worlding”***

**an assemblage of dance, technology and lived experience through embodied relational biofeedback and materials of the human and non-humankind.**

I am a practice as research final third year PhD Creative Technologies Candidate at London South Bank University with Full Scholarship from the Applied Science and Arts & Media Departments. Currently I'm collaborating with Dr Daniel Spikol from Malmö University, to develop a biotechnological prototype or a multi-modal analytics system to reveal my Heart Rate Variability in real-time whilst I'm performing *Deep Flow* – a somatic dance practice that I am also currently developing.

For this Artistic Research Lab, I aim to reveal the PaR journey I undertook over four Pilot Studies that actively helped me construct a *tentacular worlding*, using an intertwinement of movement, the pre-reflective, ideokinesis and an embodiment of technology. As I am both the subject and object of this investigation the research is self-reflexive and auto-ethnographic.

## **Structure of my presentation**

- 1) Introduction: a bit about me and how I got here**
- 2) Rationale**
- 3) Conceptual Framework**
- 4) Methodology - Practice as Research & Case Studies**
- 5) Key Theories**

6) **Methods: Pilots 01-04**

7) **Pilot 04**

8) **Pilot 04 Demo**

9) **Conclusion**

10) **Q&A**

## **Introduction: a bit about myself and how I got 'here'**

I am a Danish/South Africa media artist, born in South Africa, having lived in Copenhagen and now currently residing in Dundee Scotland. My research arises from many years of experience as a dancer, artistic director, choreographer, curator, a somatic, digital dance and screendance practitioner, as well as researcher, exploring the crossover of somatic dance, lived experience and digital technologies that centre around affect, the moving body, and its digital materiality. My live performance and media dance career transitioned from the Classical to the digital to the interactive and augmented, revealing ways that digital technologies have not only advanced my digital dance praxis but also my sense of embodiment, becoming embedded or even merging with the world.

## **Rationale**

My research will attempt to interrogate how dancers may embody biosensor technologies by *worlding* meditative myofascial release dance, *Deep Flow*, with biosensor technologies whereby the technology reports reflectively the contextual or lived experience of the dancer's experience of *Deep Flow*. By measuring the dancer's heart rate and heart rate variability using an ECG<sup>1</sup> I will get closer to understanding how the ANS<sup>2</sup> and connective tissue are related to the experience of *Deep Flow*. This *worlding*, one of the inner experiences of being in *Deep Flow* and the other being reflected back at the dancer through the embodiment of technology, may deepen her experience of *Deep Flow* and the production of materials with which to work creatively. This may become a prototype for

---

<sup>1</sup> ECG - Electrocardiogram

<sup>2</sup> ANS - Autonomic Nervous System

further development but for now challenges the production of knowledge through self-flexive somatic practice and reflective embodied technologies.

It is to this end that I'm researching an entanglement of philosophy, namely phenomenology, somatic dance practice and reflective technologies, like the heart rate monitor, to investigate *tentacular worlding*: a relational assemblage of dance, technology and lived experience. It is my hope that through an embodiment of technologies and biofeedback, new materials of the human and non-humankind may be produced. These could be used creatively, develop self-awareness or for Health and Well Being purposes. Above all this research is about deepening intimate felt experiences, exploring and finding new materials, giving sensory attentiveness to forces and materials forces operating, be they human or non-human, whilst performing *Deep Flow* with these embodied biosensor technologies.

## Conceptual Framework

*"tentacular worlding"*

**an assemblage of dance, technology and lived experience through embodied relational biofeedback and materials of the human and non-humankind.**

## Methodology: Practice as Research or PaR

The methodology of this research is iterative, self-reflexive and auto-ethnographic as I am the researcher in the *worlding* of the project as well as the performer in the Pilot Studies. It is inspired by Robin Nelson (2013) in *Practice as Research in the Arts*, Alvesson and Skoldberg's *Reflexive Methodologies* (2009) and Tim Ingold in *Being Alive* (2011).

Robin Nelson (2013) maintains PaR is a learning through doing or praxis or a "doing-knowing", that this is attainable by identifying a research inquiry which can only be articulated through a practice. He makes a clear distinction between "documentation (by way of translation) of a practice and documentation of a research inquiry based *in practice*" (Nelson 2013 p.6). The former is more about processing, analysing and recording findings after doing fieldwork whereas the latter requires the researcher finding new knowledge whilst *doing* the practice.

It invites the researcher practitioner to engage in research that may be aligned with but also separate to the traditional qualitative and quantitative research methods (ibid. p. 22).

Linda Candy, a researcher exploring creativity in art and science, states that “(i)f a creative artefact is the basis of the contribution to knowledge, the research is practice-based” (Candy 2016 p.1). Furthermore, she states that “whilst the significance and context of the claims are described in words, a full understanding can only be obtained with direct reference to the outcomes. (Candy 2106 p.1)

Three types of knowledge sets are involved in the practice as research methodology according to Nelson, seen in the above Dynamic Model for PaR.

- i) “knowing that” is academic knowledge based on previous research to locate the researcher in a lineage to create a conceptual framework, thereby grounding the researcher’s knowledge in foundational knowledge that will provide a clear conceptual framework from which to research and do the practice
- ii) “knowing how” that is based on the practitioner’s embodied, tacit and performer knowledge that is phenomenological and from a first-person perspective
- iii) “knowing what” is the knowledge gained whilst performing or during Pilot Studies capturing and revealing the knowledge through explicit in actions and finally critically reflecting on these findings against knowing that and how, stating how these may be new forms of knowledge only found through the practice

Both Nelson and Candy stress the importance of the researcher utilising all three types of knowledge sets whilst thinking and doing their practice. It is not about thinking through a problem but rather a way of doing their practice to a resolution. It is practical knowledge that is demonstrated in practice. The process of doing, reflecting, reading, articulating, doing is repeated many times, through the three knowledge sets. Using this combination of actions, through the practice, the practitioner works with, discovers and reveals new knowledge perhaps beyond the written word, that may be semi- conscious, tacit or unconscious or embodied knowledge, that cannot be described in words. With a PaR inquiry, the practice becomes theory generating that is manifested in an outcome as well as some writing.

The practice and outcome/s are usually multimodal and interdisciplinary requiring the researcher to have a broad range of skills, more than is usually required for more traditional research processes. PaR involves “a research project in which practice is a key method of inquiry and where, in respect of the arts, a practice (creative writing, dance, musical score/performance, theatre/performance, visual exhibition, film or other cultural practice) is submitted as substantial evidence of a research inquiry” (Nelson 2013 p.9). The documentation of the practice provides one kind of evidence of the research.

PaR also involves an iterative, dialogic engagement of doing – thinking, reflecting, writing before and after experiments or Pilot Studies, documenting the process whilst performing it, experimenting, testing, reworking research questions and revisiting experiments with new knowledge about tools or conceptual knowledges that she has been learning in the background. This sharpens the practitioner’s enquiry, processes, modes of articulation and provides a means to take the research to another level, which again enhances the articulations of the activity or enquiry. This reflects a more “postmodern, relational and rhizomatic model” (Nelson 2013 p.14).. It opens the field, liberates tacit knowledge that exists in the practice and is revealed during the moment of praxis. Here the challenge may be to make the tacit explicit. More scientific methods and methodologies lead to the resolution or answering of a hypothesis. Nelson is not against science and its established methods of observation, data- gathering, testability and falsifiability. He is against the notion that ‘the scientific method’ is the only valid knowledge producing methodology. He maintains that “the arts and their modes of knowing enrich lives in ways without which they would not be liveable”. (ibid. p.51)

PaR is attempting to make other kinds of intelligence visible, learned within the practice, or that is located in an embodied knowing such as dance for example: You can only learn to dance by dancing. Ingold advocates that art practices develop new ways of “doing” a research area through the practical exploration of materials, forms and actions.

My PaR is also self-reflexive and presents an auto-ethnographic study allowing for “complex relationships between processes of knowledge production and the various contexts of such

processes, as well as the involvement of the knowledge producer” - myself. (Alvesson and Sköldbberg 2009 p8).

## **Case Studies**

Case fall under the “knowing how” category of knowledge making and reveal artists’ works that using different artistic strategies, technologies and theories informed by science, humanities and philosophies. They helped me construct my conceptual and theoretical framework.

### **Margrét Sara Guðjónsdóttir- Dropping into the Body**

Choreographer Margrét Sara Guðjónsdóttir’s work “is grounded in a practice that brings together the physiological and psychological states of the body with a focus on working and exploring pathologies of the social-political body within our own bodies” In the practice she guides you using her voice to *drop into the body* as a metaphor of letting go your conscious control of your body. “Through the meditation you get in touch with all things and experiences available and possible to us as human beings” (Guðjónsdóttir, 2017). These are therapy tools which focus on healing and important for the dancer to go deeper into their own perceptual and emotional states. It became the backbone of my *Deep Flow* practice.

This instigated my exploring a sense of *flow* that Positivist Psychologist Mihaly Csikszentmihalyi, developed where a person is completely involved in an activity for its own sake, losing one’s sense of time and space. So I have connected this whilst moving, connecting it to meditation, moving, breathing techniques, fascia release and visualisations, expanding on Csikszentmihalyi’s notion of the mental state of flow, and bringing it into the body whilst in motion: *Deep Flow*.

### **Susan Kozel – Closer to technologies**

In collaborations with other media artists explores a wide range of sensing and interactive technologies including motion capture, telematics, motion capture, responsive architectures, wearable computing, AR, VR and MR. She presents a distinctly body-centered approach to

the use of technologies and integrates philosophical questioning with the process of creation across technologies and bodies. In *Closer* (2007) she maintains that performance “can act as a catalyst for understanding wider social and cultural uses of digital technology. Taking this one step further, performative acts of sharing the body through our digital devices foster a collaborative construction of new physical states, levels of conscious awareness, and even ethics. We reencounter ourselves and others through our interactive computer systems” (Kozel 2007 Foreword).

### **Kasia Molga: Body as Sensor**

**Kasia Molga** is a media artist, designer, environmentalist and creative coder who works on the intersection of art, science, design and technology. In her work *Human Sensors* (2016), breathing with biosensors becomes an interface between the environment and the body, highlighting how our own bodies with may become sensors for diagnosing the condition of the air and thus the health of our surroundings. The performance can be described as “a story of the air written by our breath, translated by these wearable costumes worn by people whose health is affected by climate change”. (Molga, 2016, p.)

### **Lorna Moore (2017), Body as Video Player**

Lorna Moore (2017), independent video performance artist and educator, explores digital and corporeal “bodyworks” using heart rate monitors to affect digital images and visualise human experience. She is concerned with suspending the corporeality of participants within a digital Other to create a digital aesthetic. Moore puts forward a metaphor of “the bleed” (Moore, 2017, p.31) to describe how bodies, heart rate monitors and digital video technologies may be absorbed in each other through audience participation. With a weaving of bodies and technologies, she sets out a phenomenological framework wherein human agency and subjectivity are explored self reflexively, engaged in interactive video performances.

## Key Theories

In unravelling the complex title to my complex conceptual framework, I have needed to cross over the theories and disciplines of dance, philosophy and technology, more specifically somatic dance, phenomenology and biosensor technologies. I will start with Somatics, then move onto the philosophical that stretches from the Classical to Post Phenomenology, to post-humanism, to new posthuman and finally new feminist post humanism. In my thesis have also included literature reviews on the Biological systems such as the Autonomic Nervous System or ANS, the Parasympathetic Nervous System or PSNS, Fascia or connective tissue, Heart Rate Variability and biosensor technology. For the purposes of this presentation and the limitations of time I shall not be presenting the former but focus more on the philosophical strand, a key part of this research.

### 1. Somatic Dance Strand

Here I have drawn from the key theories of Moshe Feldenkrais, Rudolph von Laban, Matthias Alexander, Irene Dowd, Lulu Sweigaard, Mabel Todd, Irmgard Bartenieff, Bonnie Bainbridge Cohen as well as Contact Improvisation, Release Technique, Myofascial Release and Meditation used in the *Body Drop* by Margrét Sara Guðjónsdóttir. These reveal the core issue of somatics “namely the body as perceived from within by first-person perception”

### 2. Philosophy Strand

The theoretical Literature Review starts with a review of German philosopher Edmund Husserl (1889), the founder of phenomenology, who proposed phenomenology, a study of consciousness and the way we experience this from a first-person perspective or subjective consciousness. This starts in the objective physical body or *Körper*, a body with sense organs, bodily sensations and felt experiences, however each person, with a *Körper*, subjectively experiences the surrounding world or environment, through the *lived body* or *Leib*. I call this Body 1.

I then turned to Martin Heidegger’s two-fold analysis of *techne* and technology in *The Question Concerning Technology* (1977), then Merleau-Ponty’s poetic *chiasmic* approach of visual and haptic perception, entwining the self and body with the world in *Eye and Mind*



chapter, from *Primacy of Perception* (1964), as well as his notion of the body blurring with what he calls “the flesh of the world” (Merleau-Ponty, 1964) as in his incomplete book *The Visible and the Invisible* (1964) published posthumously. Here he relies less on anatomical and proprioceptive accounts of perception and more on artistic and poetic ones (Kozel, 2018, p.2). This is the place for living experience in which the dualistic Cartesian subject - object relation blurs. Susan Kozel’s phenomenological interpretation of technologies as extensions in mediadance performance described in *Closer* (2007), Don Ihde’s (1993, 2002 and 2010) post phenomenological views on embodiment relations whilst wearing self-monitoring technologies, Tim Ingold’s reminder in *Being Alive* (2011) that is being open to the world through sentient participation, Beth Dempster’s concept of *Sympoiesis* (2000), that best describes the *posthuman sympoietic system*.

In further unravelling the title I have had to look to current feminist cultural perspectives and of being posthuman within a technological world, as they recognise a radical shift of power dynamics between self and the “other” to include relations between humans, environments, technology and all living and non-living matter. To accommodate this my theoretical frame has needed to shift from old binary relations between *man and machine, self and other* or of the *Cyborg*, that inculcated humans in relation with technologies, at first postulated by Donna Haraway in the *Cyborg Manifesto* (1985). This shift echoes Rosi Braidotti’s description of the posthuman situated within relational “multiple ecologies of belonging” found in *The Posthuman* (2013), as well as in Haraway’s latest ideas on *Speculative Feminism* where she presents *Tentacular Thinking* and the *Cthulucene* in *Staying with the Trouble* (2016). Both include descriptions of humans and the non-human in relational compositions, ecologies, or systems of living, pointing to an openness of relations between all creatures, held together by a system of knots, networks and lines. Jane Bennett in *Vibrant Matter* (2010) deepens this metaphor by highlighting the vitality of vibrating matter, fields of forces of *shi* being the agency or *actants* within assemblages or ecologies of matter and being, keeping things vital and connected. This approach will shift the ontology of my research away from the *Anthropocentric and Capitalocentric*, that Haraway (2016) describes as increasingly becoming “unthinkable in the best sciences, whether natural or social” and being created by “human exceptionalism and bounded individualism, those old saws of Western philosophy

and political economics” (Haraway (a) 2016 p.30). She calls upon the *Cthulucene* that embraces the *cthonice* and all other non and living matter or “critters” as she calls them. The idea that subjectivity is dead is challenged after in the light of Haraway’s progressive New Feminism and criticism of the post human in Fabrizio Terranova's new *Donna Haraway: Story Telling for Earthly Survival* (2016). Haraway’s new posthumanism makes us aware of the prevailing legacy and failure left by the Anthropocentric and Capitocentric in terms of the exploitation of natural resources and humanity as a whole. She calls for a return of the Cthulucene in an attempt to acknowledge the Earth and the Earth within us, our humanity to rectify the current cultural, political and societal imbalances of justice and power. With this approach one may then view the digital dancer as not a *cyborg* reflecting a machinic dualistic relationship with technology but as an organic being within social, technological, cultural, political and earthly matter. The New Feminist perspectives of Haraway and Colebrook even take into account a technological or digital tool’s cultural and historical manufacturing processes, to include the digging of raw materials by many “hands” belonging to people working in developing and post-colonial countries, probably working for minimal wages and in deplorable conditions.

This is the New Posthuman subject who is aware of human and nonhuman agents or materials having an influence on our behaviour, culture and society. Clare Colebrook in *Posthumanism is dead* (2014) has suggested that the posthuman is indeed dead and new approaches to being post human need to take place if we are to survive Climate Change that is bringing drought, starvation and mass migration.

In response to this I have turned to the writing of Heidi Rae Cooley’s *HABIT-CHANGE IN THE MOBILE PRESENT* (2012) and *Finding Augusta – Habits of Mobility and Governance in the Digital Era* (2014), Yoni Van Den Eede in *Tracing the Tracker* in *Post-Phenomenological Investigations* edited by Rosenberger and Verbeek (2015), Martin Berg in *Making sense with sensors: self-tracking and the temporalities of well-being* (2017) and *Metric Culture: Quantified Self and beyond* (2017) with Btihaj Ajana who has also published *The Biopolitics of Biometrics* (2014)

In summary, Van Den Eede portrays the use of self-tracking devices as means to provide a “second sight” translating into the visible, phenomena that lie beyond literal vision. They construct visual representations and visuality of the embodiment of technology, a visual materiality of the crossing over of arts and science. The tools are self-reflexive, isomorphic to the body they are representing, the micro and macro perceptions of our embodied relations with technology becoming intertwined. These notions feed positively into my methodology and methods for the Pilot Study 04. Cooley, Berg and Ajana have all investigated inherent biopolitical issues and tensions surrounding the use self-tracking and smart mobile devices. Despite them being seen as benefitting late modernism’s contemporary individual in an accelerated society, each writer has expressed concerns about how they are used as means to control, manipulate, manage and track our behaviour by controlling and mass data harvesting forces outside ourselves.

## **Methods: Pilot Studies 01-04**

As “knowledge cannot be separated from the knower” (Alvesson and Skoldberg 2009 p1), my methods are aligned and have emerged from a self-reflexive methodology. My main units of analysis are created through the generation of qualitative and quantitative data sets, that are mainly analogue and digital. They arise through the performance of my dancing body, embodying technology within a *worlding*, which a doing, a verb, rather than a noun. *Worlding* is performative through a performance site of self-reflexion and experience.

With my methods I shall be producing new knowledge to evaluate my engagement with the technological, knowledge processes and contexts within the *worlding* of human and non-human elements. My body and tools will write its own “narrative” in the performance of embodied relations within a *tentacular* and variable system. This is the place for narrating, reflecting and interpreting my experience, not only through biosensor and digital and digital dance technologies but also through metaphorical texts, data and drawings after each performance connecting my dance practice within a philosophical and self-reflexive methodological framework. The qualitative data sets will not be assessed through aesthetic criteria but accepted as they are. The quantitative data may however be measured against external scientific ‘truths’ but the tension between these two elements and my personal

narrated experiences are likely to enrich the interpretations of the data and the future application of the produced knowledge and future use of the tool set or *worlding*.

The generated quantitative and qualitative data sets infused with theory and the phenomenological, will allow for several interpretations. These materials may expand knowledge sets rather than close them off and could mirror 'reality' as 'reality', not made up of one single reflection or explanation but of many 'realities' or phenomena. The data is not there to prove or solve a problem. It is there to "function generatively as a springboard for (future) interpretations" by researcher, dancer, computer scientist, future dancers (Alvesson and Skoldberg 2009 p305).

### **Pilot 01**

This was tested in the **Pilot Study 01** at The Space in Dundee, 22 May to 21 June 2017. Here I attempted a multi-modal methodology to record quantitative and qualitative feedback using self-reflexivity. The methods included performing, recording and measuring dance sequences of one-minute exploring:

- a) Laban's Eight Basic Effort Actions: flick, dab, float, press, punch, glide, slash, wring and with a varying use of weight space, time and flow
- b) Yoga balancing positions
- c) Dance Professor Andrea Olsen's dance scores to create one-minute somatic movement sequences such as "salamander tail", "sensitive feet", "active feet", "peripheral to focused vision" and "open arms, head and ears"
- d) I also explored choreographer Margret Sara Gudjonsdottir's ideas for the creation of movement such as "plasticity, flow, fascia release, the spaces in between, shifting energy, not fighting with the way things are, stopping with dualistic thinking and experience versus performance." These ideas were gathered during a brief meeting with her in Copenhagen during a mini residency at Malmö University 16-21 May 2017 whilst working on media for the screendance and augmented reality collaboration *AffeXity: Passages and Tunnels*.

For the documentation of **Pilot Study 01** I used:

- a) Self-reflexive digital feedback: a video camera to record each dance sequence and my verbal descriptions of the experience of performing the scores, before and after each session.
- b) Self-reflexive qualitative data sets: I wrote lists of words to capture my experiences
- c) Analogue drawings: I used Nancy Stark Smith's method of drawing a hieroglyph immediately after each sequence, to record responses to the experiential using both my right and left hand, lying down with eyes closed. I also attached an iPhone on my hand whilst drawing a hieroglyph to capture biometric data of my hand's responses to my performance of the score. I exported this experience on a Padlet which I shared with all supervisors: [https://padlet.com/jeannette\\_ginslov/tSz04xeumvvn](https://padlet.com/jeannette_ginslov/tSz04xeumvvn)
- d) Biometric data: this was captured by the accelerometer apps Vib Sensor and Sensor Kinect, on two iPhones attached with elastic bands to my core and wrist or ankle.

In hindsight **Pilot Study 01** was a crude trial in using biometric and analogue tools to record quantitative and qualitative data sets. I encountered problems using the iPhones as tools of measurement, as they proved to be clumsy and cumbersome, falling off many times, stopping before I had finished, accidentally being switched off whilst I was still performing or not even going on at all without my noticing. I was left feeling unsure of the recorded data, that I could neither decode nor connect to the experience of somatic states.

The problematic iPhones also interfered with my performance of scores based on Gudjonsdottir's descriptions of her work and I found myself slipping in and out of the experience of the performance of the score as I was worried if the apps were still working or the phones were slipping off. I also found that I favoured the *VibSensor* instead of the *SensorKinect* app that Seeley advocated, as the former produced graphics that were more "readable". I could interpret the biometric differences between the actions of "punch" and "float" for example. However, I had no skill in creating excel charts to translate the csv files that I exported from both apps.

Conceptually both apps use x,y and z co-ordinates and are mere indicators of the actions of my body in relation to the experience of the scores. These sets of data by no means reflect the experiential or perception of movement whereas the hieroglyphs, list of words and verbal descriptions, despite being recorded after the event, reflected back at me what I had

felt or experienced. However, they were created after the dance performances and became “field reports” and not live feedback of my engagement with the dance, somatic experience and biosensor tools. I needed to engage phenomenologically with all the tools whilst performing.

## Pilot 02

This led to **Pilot Study 02** that was conducted at London South Bank University 10 to 12 July 2017 to explore *knowing how* to use motion capture with PhD student Bruno Straiotto and the AX3, a wearable accelerometer and data logger by *Axivity*, with Prof Seeley. I very quickly realised however that motion capture only captures movement in key frames and I not the experiential nor the phenomenological.

## Pilot 03

Set out to test Merleau-Ponty’s theory of chiasmic relationships that we experience with the world and confirmed the value of my literature review of Classical Phenomenology (Husserl, Heidegger, Merleau-Ponty), embodiment (Varela) and affordances (Gibson). Initially I included the ideas put forward by American pragmatist philosopher Richard Shusterman on *Someaesthetics*, but subsequently this was dropped as it did not resonate with the phenomenological leaning of my conceptual framework.

**Pilot Study 03** *2minsx10locations* in Dundee: For the **Pilot Study 03** I choreographed, set and performed two-minute dance sequences, as well as improvised two-minute dance sequences using Gudjonsdottir’s meditation and fascia release method, the *Full Drop*, over ten days, in ten different locations, in the city of Dundee during December 2017. These performances were recorded using a multi modal method:

- a) a video camera controlled by an assistant to capture my sequences objectively
- b) a GoPro camera on my forehead to capture my subjective point of view
- c) two self-made accelerometers on my lower back and left hand
- d) two miniature microphones under my nose to capture my breathing
- e) hieroglyphs drawn immediately after each performance

- f) self-reflexive verbal feedback to camera in response to twenty questions about the performances
- g) transcriptions of this feedback
- h) drawings in response to the experiences of performing in these locations
- i) paintings in response to the experiences of performing in these locations

This resulted in a paper:

**CHIASMIC TECHNÉ/TECHNOLOGIES**

***a sympoiesis of in/extrusions, körper and leib during a meditation dance practice and states of flow, the Full Drop.***

In unravelling the complex title to this paper, I was indebted to: Martin Heidegger's two-fold analysis of *techne* and technology in *The Question Concerning Technology* (1977), Merleau-Ponty's poetic *chiasmic* approach of visual and haptic perception, entwining the self and body with the world in *Eye and Mind* chapter, from *Primacy of Perception* (1964), Susan Kozel's phenomenological interpretation of technologies as extensions in mediadance performance described in *Closer* (2007), Don Ihde's (1993, 2002 and 2010) post phenomenological views on embodiment relations whilst wearing self-monitoring technologies, Tim Ingold's reminder in *Being Alive* (2011), that is being open to the world through sentient participation and Lorna Anne Moore's metaphor of the "bleed" (2017), illustrative of the cross-over between bodies and technology.

In further unravelling the title I have had to look to current feminist cultural perspectives and of being posthuman within a technological world, as they recognise a radical shift of power dynamics between self and the "other" to include relations between humans, environments, technology and all living and non-living matter. This provides me with an open philosophical terrain in which to explore seemingly oppositional tensions in philosophies that support my mediadance practice through which I investigate the meditation dance the *Full Drop*. To accommodate this my theoretical frame has needed to shift from old binary relations between *man and machine, self and other* or of the *Cyborg*, that inculcated humans in relation with technologies, at first postulated by Donna Haraway in the *Cyborg Manifesto* (1985). This shift echoes Rosi Braidotti's description of the posthuman situated within relational "multiple

ecologies of belonging” found in *The Posthuman* (2013), as well as in Haraway’s latest ideas on *Speculative Feminism* where she presents *Tentacular Thinking* and the *Cthulucene* in *Staying with the Trouble* (2016). Both include descriptions of humans and the non-human in relational compositions, ecologies, or systems of living, pointing to an openness of relations between all creatures, held together by a system of knots, networks and lines. Jane Bennett in *Vibrant Matter* (2010) deepens this metaphor by highlighting the vitality of vibrating matter, fields of forces of *shi* being the agency or *actants* within assemblages or ecologies of matter and being, keeping things vital and connected.

However, it is Beth Dempster’s concept of *Sympoiesis* (2000), that best describes the *posthuman sympoietic system* that I have designed for my PaR to accommodate, the post phenomenological and the *Full Drop* as being new materialist, with biosensor intrusions and extrusions as a bridge between the two philosophical fields within the system. Organizationally, it is open, unpredictable and adaptive, unlike autopoietic systems that have self-defined boundaries and are organizationally closed, predictable and efficient.

I relied heavily on the theory of Don Ihde, a post phenomenological materialist who originated post phenomenology, a modified hybrid phenomenology, blending analytical and continental philosophy, with the phenomenological ancestry of Husserl, Heidegger and Merleau-Ponty. He proposes a pragmatic experimental philosophy that is nontranscendental, nonfoundational and non-metaphysical that yields variational theory, re-embodiment rather than a subjectivity and the multidimensional sense of body and lifeworld. Through this he analyses perception and embodiment that is extended with the use contemporary technologies, media, imaging, digital computer processing and instrumentation. He presents a philosophy of technology, through the experiential and phenomenological use of technological or instrumental mediation where we can acknowledge and augment our experiential horizons (Misi and Pimental 2016 p 565). Ihde proposes that through the experiential and variational use new technologies, as already mentioned, we can access and reveal our sense of embodiment “beyond the capabilities of our “naked” body’s sense” (Misi and Pimental 2016 p 566). These new technologies mediate the experiential previously unregistered or invisible. They thereby extend our sense of embodiment or in other words



we re-embody our sensory and fleshy experience of the world in altered and multidimensional ways.

Acknowledging the fact that we live in an era of the “posts”, Ihde proposes that the sense of self is more fluid and multi-dimensional. With the intimate use of an embodied technologies, the stability of subjectivity is replaced by a perceptual-bodily referentiality: a non-subjective phenomenology (Ihde 1995 p 6). Post phenomenology is an understanding of the postmodern “existential” lived body that increasingly uses technologies or technoscience to expand our views and reveal a world that, in a phenomenological frame, is both “a microworld and macroworld which could not be experienced except through the mediations of instruments” (Ihde 1995 p3). Ihde refers to these instruments as extensions of bodily and perceptual intentionality. The embodied and experiential use of technologies makes the microperceptual “readable” or textual, changing the way we see or read our embodied and perceptual selves (Ihde 1995).

## Pilot Study 04

For Pilot 04, from the *sympoietic system* I also developed the idea of *extrusion* rather than mediation which I am now using in Pilot Study 04. *Extrusion* is derived from the Latin *extrusio* meaning to thrust, push, press, squeeze (Online Etymology Dictionary, 2010) In science, extrusion is the movement or emission of lava through a volcanic crater onto the earth’s crust. Trusions are the rocks, such as pumice, formed after the lava cools. It is the forcing of heated aluminium through a die or precast form, transforming it into a specified shape or “the process of making a shaped object, such as a rod or tube, by forcing a material into a mold” (American Heritage Science Dictionary 2018).

The prefixes *in* and *ex* seem to indicate a boundary between two places, as described above. However, I am adopting the *in* and *ex* trusions as being *tentacular* between two ontologies, two ways of thinking about the *worlding* of this research or system. The one is new materialist and the other post phenomenological. At present we need the post phenomenological with

instrumentation to create shareable information, such as data and visual materials for example for it to be “read”. If all matter is vibrating, then can one not accept that the instruments form part of the new materialist worlding and the exported data as vibrating. The post phenomenological is required to delineate as process of making sense of these different and variable vibrational states.

The *intrusions* and *extrusions* are used metaphorically in this research to describe the *tentacular* action of back and forth sensing and interpreting information or biodata through a biosensitive device and a meditation dance. I don’t see them as capturing or enframing data and experiences, locking and imprisoning life forces into binary code. I see it as a process of *osmosis*. The definition of osmosis is where particles or molecules of high concentration move through a semi-permeable membrane to a place of low concentration. The biosensor here is the gateway, siphoning states, sampling and extruding that which can only be metaphorically represented by means of the heart rate monitor or by artistic processes. What is extruded or sampled are responses to vibrant matter or “vital materialities that flow through and around us” whilst in the *Full Drop* (Bennett 2010 pX).

If the whole body is a sense making entity immersed “tentacularly” in a world then surely, we need a tool that acknowledges that, or becomes part of the tool wearer’s world. The dancer becomes *with* the wearable tool and it becomes part of the *worlding* of the dancer. The action that the tool takes then is not just extending one’s subjectivity. The tool is immersed in us and it invades or intrudes our world just as much as it extrudes data or information about this *worlding*.

Ihde (1993) suggests that embodiment relations with technology extends our perception of ourselves, by revealing tacit or invisible yet felt changes in ourselves whilst doing an activity. When this occurs, the embodied technologies transform our understanding of the process or the connection of our HRV to states of flow when in a meditative state. If we practice this more often it then becomes more beneficial to our lives. I could then suggest that whilst performing then meditation dance, with the *intrusions* and *extrusions*, I could watch a live stream of my performance. The extruded data would be a stream of data reporting on my heart rate variability or breathing rate. In addition, indicators such as a light or resonating

board under my feet could inform me when I am in a meditation state, when my heart rate variability is high and my breathing is low. I could then alter my performance to keep the indicators on, implying that I'm still "in" the meditative state. Another idea is to use a sonified 3D printed hieroglyph of my *Full Drop* experience, that I touch whilst I am in the *Full Drop*. In this way the sites of *extrusion* are extended into an arts practice, reflecting Lewis-King's *Pulse Project* (2011-) where an *extrusion* of an interior experience is sonified in sounds waves thereby loosening the reigns of logic associated with frames or visual representation.

The notion of an extrusion or intrusion present an idea of there being boundaries between singular entities, paradoxical to a new materialist and posthuman approach. These ontologies consider affective intensities or dynamic forces as making up the world that infuse our bodies and technologies, fused with one another, thereby crumbling the notion of inside or outside. I have had to acknowledge this paradox whilst working through this paper and proposal of a system through which to measure personal experiential states. So far, we may only measure, through instrumentation, the *körper's* responses to the meditative states of flow and so this sets up an unwanted binary between experience and recordings of such experiences. Science has yet to create a system that has the ability to measure a new materialist state and consciousness,

I argue that such methods, support systems based on the power of the visual and the technological over the body. These systems are generally used to project outwardly the body schema in motion, with a few like Kozel using it phenomenologically but mainly they are used as tools to create visual or aural effects, engaging the dancer or viewer, relocating experience outside of the dancer's *worlding*. Secondly the phenomenological experiential world of the dancer's lived body is not fully integrated in the visualisations, as the tools used are made to compute input-output data flows. Movement is captured in key frames or converted into measurable data made rigidly concrete, whilst simultaneously *representing* classifiable experience (Schiphorst & Calvert 2015). The subjective inner world of the dancer is left out of the interaction and the experiential is lost in the translation of analogue movement into digital formats and the digital choreographic processes that articulate them (Ibid p. 243). Furthermore, academic James Charlton (2015) claims that the digital is applied to digital art practice in order to assert its technical superiority and as a "discrete

representation in opposition to the analogue (body), which is seen as a continuous representation” (Charlton, 2015, p.83). He suggests that the digital should be relocated in a dynamic non-representational space between artist and the materials they produce, to establish relationships between the corporeal and the non-corporeal, in co-constitution with the digital, remaining human whilst engaging with the digital. Alternatively strategies could be used to “develop a post-anthropocentric theory of subjectivity” (Mondloch, 2018, p.7), to not illustrate experience but through a *worlding* of the human and non-human, develop interpretations and materials through technologies and embodied experience challenging “the traditional humanist notion of an emotionally or physically self-contained subject by creatively” manifesting the co-mingling, interpenetration and merging of human and nonhuman things (Ibid. p. 107).

My research will attempt interrogate how dancer’s may embody biosensor technologies within a worlding of a meditative myofascial release dance, *Deep Flow*, whereby the technology reports reflectively the contextual or lived experience of the dancer’s experience of *Deep Flow*. By measuring the dancer’s heart rate and heart rate variability using an ECG<sup>3</sup> I will get closer to understanding how the ANS<sup>4</sup> and connective tissue are related to the experience of *Deep Flow*. This then is Body 1 within the *worlding*, one of the inner experiences of being in *Deep Flow* and the other being reflected back at the dancer through the embodiment of technology, which in turn may deepen her experience of *Deep Flow* and the production of materials with which to work creatively. This may become a prototype for further development but for now challenges the production of knowledge through self-flexive somatic practice and reflective embodied technologies.

This reflects Haraway’s (2016) the *tentacular* or being interlaced in processes, immersed in a *worlding* comprised of all human and non-human entities. Tentacular comes from the Latin word *tenaculum* meaning “feeler” or *tentare* meaning “to feel” or to try (Haraway 2016 p 31). For her the world is comprised of linked metabolisms, histories, human and non-human “critters”, “relentlessly relational, sympoietic, and consequential. “They are terran, not

---

<sup>3</sup> ECG - Electrocardiogram

<sup>4</sup> ANS - Autonomic Nervous System

cosmic or blissed, or cursed into outer space” (Ibid p 49). The *tentacular* maintains communication within structures and systems without boundaries with a vitalism that flows through each element of the assemblage.

). This instigated my exploring a sense of *flow*<sup>5</sup> whilst moving, connecting it to meditation, breathing techniques, fascia release and visualisations, expanding on Csikszentmihalyi’s notion of the mental state of flow, and bringing it into the body whilst in motion: *Deep Flow*<sup>6</sup>.

## Pilot 04

For me however the analogy of these technologies being extensions of the body are problematic as they merely extend one’s subjectivity into the world. Extension sounds more to me as added on, such as a plaster, extending the outer periphery of the body or skin. Politically this could be an autopoietic system with subjectivity driving the relation between self and world. It seems less chiasmic despite Merleau Ponty and Heidegger’s valued descriptions of walking sticks and feathers extending the wearer’s actual body and perception embracing the *chthonic* and a *tentaclular* system or *worlding* that includes all other non and living matter of the body whilst dancing (Haraway 2016). If the whole body is a sense making entity immersed “tentacularly” in a world then surely, we need a tool that acknowledges that, or becomes part of the tool wearer’s world. The dancer becomes *with* the wearable tool and it becomes part of the *worlding* of the dancer. The action that the tool takes then is not just extending one’s subjectivity. The tool is immersed in us and it invades or intrudes our world just as much as it extrudes data or information about this dance *worlding*.

**Body 1** = Real Life body, analogue tech as extension of body Hammer Cane Feather (Heidegger to Merleau-Ponty) - visuality. Modernist - Post Modernist

---

<sup>5</sup> Positivist Psychologist Mihaly Csikszentmihalyi, in the 1970’s developed the notion of being in a state of flow, a mental and psychological state, where a person is *in the zone*, where a person is completely involved in an activity for its own sake, losing one’s sense of time and space.

<sup>6</sup> *Deep Flow* innovated by Jeannette Ginslov 2019.

**Body 02** = Bodies socially constructed in relation with others interactively with others and materials, Body as extension, Cyborg and actants - visualising and interactive tech ie. email, gaming tech, VR, MR. - extending visibility to virtuality. Post Modernist to Post humanist. Chiasmus/Blurring Merleau Ponty, Haraway, Bennet, Braidotti

**Body 03** = Bodies in the world constructed by instrumental vision of things we cannot see, like Heart Rate or HRV. Second sight or metaphorical inscriptions or data visualising things that are invisible. Knowledge constructed by humans and non human materials reflecting back at us, a self reflectivity as knowledge all materials in a "worlding" or actants, affecting and shifting us. Post Human to Post Phenomenological. Visibility and Instrumentality. Post Feminist.

Mondloch, Haraway, Verbeek, Ihde, Van den Eede, Ajana ...

**Case Studies now progresses through these bodies:**

**1) Margret Sara Gudjonsdottir - Body 1**, Full Drop. Chiasmus and Blurring

**2) Susan Kozel - Body 1 & 2** Chiasmic Body as extension using accelerometers, video, telematics

**3) Kasia Molga - Body 1, 2 & 3.** Body in real world, Body/Tech as extension visualising real life body's reaction to real life situation, augmented, through bio mediation and instrumentation.

**4) Lorna Moore - Body 1, 2 & 3.** Biorelational feedback to control heart rate. But body is "seen" externally

**I want to propose**

**Body 04** = Covers all three bodies above as the Biorelational feedback reflects back into me and increases a deeper visibility in my own *Deep Flow*.

No longer looking out at the world but deep into me. The outward looking is the data but the data reinforces a deeper investigation of my inner embodiment that blurs the subject and object sensibility of myself or seeing and being seen chiasmically. It reinforces Body 01.

The "worlding" activates through a performativity of all the materials, hence "worlding" or actants, transform my inner visualisation, feelings and emotions which are all materials. Working in a "tentacular" (like feelers of an insect or sense making feelers) manner between self, world, materials, human and non human, myself, as part of this "worlding" or actants sensing all these materials "worlding" I expand my embodiment with materials.

**Conclusion**

**Pilot 04 & Demo**

**Q&A**