The Abductive Wisdom of Dance as an Empirical Method

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ABSTRACT

Embodied knowing and non-linear methodologies are becoming increasingly more accepted as part of the research catalogue of HCI and design practices. Whilst *bodystorming* has become a staple practice, the overall discipline of Dance is only in its infancy when it comes to becoming recognized as fully valid and viable for empirical research in/for HCI. This paper will document a collaborative dance practice research exploration to constructively critique the existing practices in HCI and computing research. In our work we are drawing on somatic, meditative, and embodied dance practice as means to explore new avenues to answer established queries in/of HCI.

Thereby we scope the strengths and opportunities of methodological pluriversalism and the limits of linear epistemologies in their ability to cater for queer (et al.) biographies.

Author Keywords

Dance, Empiricism, Methodology, Non-representational Theory, NRT, Embodiment, Somatics, Science and Technology Studies, STS, Creative Practice.

INTRODUCTION: PRECEDENTS OF EMPIRICAL DANCING

The recognition and taking-serious of creative means of inquiry within the computing research domain is a laudable development [1]. These are calls for a synthesis of different modes of inquiry and new methodological enrichment to respond to the wickedness [2] of global challenges that span across social, political, ecological and psychological dimensions.

Therein, we argue, creative methods may overcome the limitations of quantifiable worldviews [3]–[5] and instead invoke a pluralism of perspectives [6], scholarships [7] and with that the promise of 'better' innovation; where "*betterness*" can be framed as *more commercially viable* [8], [9] or *more inclusive* [7]*, more decolonized* [10]*, more sustainable* [11] etc.

This move towards epistemic and methodological pluralism has led to whole new branches of research, journals, experts and whole research centers and departments at the intersection of computing and creative practice.

Yet, it may be surprising to hear that such appreciation of creative inquiry within the empirical sciences has a much deeper going heritage, and is by no means limited to computing and innovation.

In fact, cancer biologist David Odde is using dance as serious research method in cancer research [12]. In his paper 'Science + dance = bodystorming' [ibid.] he describes the new epistemological avenues dancing has offered him (and may offer to his peers) in the context of getting a better (more tacit) grasp, understanding and appreciation of the violence of chemical reactions that happen within the body, within cells and within protein synthesis.

Odde does not want to do away with conventional oncological research methods but appreciates his creative interventions as a transformative supplement to his molecular-computational and mathematics-informed imaginary of intracellular processes. Odde's work is an exemplary case study to investigate the synergistic and complementary opportunities of creative investigation as *valid* empirical supplement to conventional research avenues.

ABDUCTIVE WISDOM

Hailing from the discipline of *sustainable design* research, the work of Stuart Walker discusses these different forms of knowledge-production in great depth [13]–[17]. Walker classifies the social and natural-scientific approaches to inquiry not in an oppositional tradition, but instead places them into a synergistic frame. What 'both cultures' [18] have in common is a rational/istic premise of inquiry; one either being deductive or inductive, depending on philosophical

persuasions and ontological assumptions. Creative investigations, such as those as produced through art and design, to Walker, are *also* empirical; but they are of a type of empiricism that is neither rational nor linear (but therein not irrational, not haphazard). *Creative wisdom*, to Walker, is informed and grounded in empirical impressions; yet they do not *deduce or induce* truths; they *abduct* them.

Framed through the lens of *abduction* the scope for the epistemological opportunities of bodily knowing and dance in the context of research can become valorized as worthwhile engagements.

> The true method of discovery is like the flight of an aeroplane. It starts from the ground of particular observation; it makes a flight in the thin air of imaginative generalization; and it again lands for renewed observation rendered acute by rational interpretation. [19, p. 5]

What philosopher of science, Alfred North Whitehead, gets at in this quote is a fundamental breakage of conventional framings of the nature of scholastic inquiry, away from enlightened pursuits of reason, observation and empiricism, towards a framework of *rational commodification*. That means that Whitehead's forms of inquiry are not dependent on rational engagements with one's environment – but, *science-making* takes place once these impressions (be they quantifiable or not) become rationalised *post-hoc*.

In other words: Whitehead emancipates "inquiry" from the imperative to be *objective, empirical and quantifiable* and instead makes a case that only the analysis and narrative sense-making of ones 'experiment' ought to be governed by rational and linear reason. Whilst in-progress an(y) experimentation is bound up in assumptions, generalisations, and simplification, only to be <u>reintegrated</u> with higher levels of truth(s) once the experiment has ended.

In fact, whether implicitly or explicitly so, Whitehead makes a case that manners of empirical inquiry are equally so socially constructed and context-bound to their internal framework that their assumptions (of rationality, objectivity and decontextualization) must be revisited post-intervention in the same way that more-than-rational engagements ought to be.

With such a re-definition of the framework of what means make valid and rational inquiry, a reference framework for the possibility and strengths of more-than-rational methodologies becomes emergent. These new, more-than-rational methodologies must therefore not be seen as in opposition to empirical-objective frameworks, but firmly positioned *as a supplement* (cf. [5], [20], [21]); and as supplement to rational means, they attain a valid space along other means of investigation.

THE BODY AS ABDUCTIVE KNOWER
Drawing on literatures on embodied knowing [22], tacit knowledge [23], queer time [24], [25] and others, the intervention discussed in this paper experiments with this framework and explores to what extent such creative modes of inquiry withstand the transposition into the domain of HCI and computational modes of pursuing knowledge. The disciplinary methodology that we *abduct into the domain of computing,* is Dance.

THE PROJECT
My collaborator and I have engaged in an attempt to explore the scope of *dance as method in computing* through methodological substitution: We sought to ask classic questions of HCI, but rather than use ethno-methodologies or videographic/quantifiable data, our method was Dance. Our query at hand was our attempt to reframe the interactions that happen in instances of user/device encounters; their mediation, experience and politics. The site for the exploration of these encounters was *the keyboard*.

We reframed this *peripheral* and rendered it the central interlocutor and condition through which human-computer-interaction is rendered possible in the first place. What kind of new questions could be fabulated [26]; what new worlds are "worlding" [27, p. 124]; which new dramaturgies may be encountered in the mundane?

4 STAGES OF INQUIRY
The creative practice was documented with a variety of means such as reflections, sketch-noting [28]–[30], film, audio-recording etc. Post-intervention these were used to create a number of related artworks in their own right (some prints and impressions as well as a video piece; images in annex). The work was conceptually fanned up into four sections, aligned to the *Software Development Life Cycle* (SDLC) [31] framework, a central method of software engineering. The framework is based on four subsequent stages:

Analysis
The first stage was an artistic inventory-taking of what it means to use a computer. In turn we observed each other using a simple laptop computer; the other would employ an ethnographic framework of *anthropological strangeness* [32]. This means that human-computer interactions and physical encounters were not interpreted as "usage" of technology, but instead a material meeting of matter in the tradition of *new material thinking* [33]–[35] drawing on concepts such as the philosophy of object-oriented ontologies [36]. We "'lure' materials into *posing their own problems"* [37, p. 21].

Design
Subsequently we explored the type of labels that may be appropriate for these ephemeral encounters and material mobilization. In particular the ephemerality of touch, dance and *somatic knowing* [38]–[41] stressed the temporality and ephemeral dimension of human-computer encounters, that is rarely acknowledged in HCI frameworks of experimentation and account.

Testing
The testing phase then catalysed attempts to get at a deeper conceptual understanding of human-computer encounters that focus on *the fleeting, the annoying, the out-of-synch, the belated or anticipatory* (cf. also [42, p. 40]). Through the material framework both actants, *the user* and *the computer/peripheral*, become

epistemological equals. They are not in a dialectic master-slave relationship, but instead in mutually enable the ephemeral process of catalyzing touch.

Implementation

In the final step we take intellectual inventory of the types of impressions and knowledges that were produced tacitly in the process of this project. *In vivo* we did not articulate or see any of this embodied knowledge; it is only through a post-hoc rationalization and active intellectual inventory-taking of our creative engagement that the analogies of the creative knowledge generation and software knowledge-crafting

THE IMPACT

As it pertains to this paper, and our research interests we want to dwell in the political, methodological, and epistemological consequences of this meta-experimental intervention.

The work described in this paper is a prototype of intervention that brings into conversation (1) methodological questions on the scope and place of creative inquiry in the empirical sciences, together with (2) the epistemological challenges to the pursuit of quantification and (3) its politics of exclusion through normalizing modes of knowing.

We explicitly position temporal modes of creativity (touch and somatic performance) into the arena of decontextualized methods of science-making in HCI.

We make the case that creative methods, such as employed by us in this intervention, can introduce not only new modes of knowing, but more importantly: such more-than-rational forms of investigation can explicitly begin to make possible: *utterances of affective injustice*, experiences of (epistemic) violence, externalize bodily memories of trauma, and communicate internalized pre-verbal intuitions of collective memory.

Whilst making this possible, at the same time these expressions are not straightforwardly available (read: commodifiable) to software engineering and innovation.

We consider this a strength. Epistemic justice ought to be its own entelechial pursuit (i.e. its *raison-d'être* is found within itself, and does not require further justification).

Epistemic justice through creative practice therefore, to us, is a precursor to justice in innovation; and must therefore not be appraised under a framework of commoditization. Creative methodologies in parallel to research (not in its service) as those proposed by us, enable new forms of inquiry as well as new types of responses and "data"; And whilst these new forms of knowledge that are expressed through non-linear engagements are not directly commodifiable and do not neatly fit into empirical frameworks of innovation, we want to cherish the challenges that *uncooperative modes of knowing* produce.

The issues more-than-rational modes of inquiry get at are of *wickedness* and thereby inherently too-big-to-solve. Recognizing the limitations of solutionist ideologies when confronted with the *messiness of dance* enables us to dwell in the absurdity *of being of problems and of questions, audacious and reluctant* (cf. again [42, p. 40]).

One is more likely to experience states of epistemic absurdity when one's biography places oneself further from the normalizing myths of what is framed as *normal*. Cis, slim, white, able, healthy, sane, middle-class (*et al.*) lives encounter states of absurdity much less frequently that those who find themselves *gifted with the perspective of outsider*-ness.

The experience of inhabiting a *normalized* world with the baggage of being mad, queer, more-than-cis, disabled, *et al.* is beyond the grasp of reason because it is an unreasonable position to be expected to dwell (and thrive) in hostile environments. Yet before attempts can be made to resolve these states of absurdity, instances of epistemic conflict must be recognized as such, i.e. become *utterable* in some form. We make a case that in particular abductive forms of expression are a first step to achieve this, are a well suited origin to begin to reconcile *lives that are lived on the peripheries* with the expectations to navigate-with-

ease spaces that descend in their conception *from the center*. Creative forms of expression therein are a first step at being able to lay the ground to create some preconditions for the possibility of healing. Hence, we conclude that admitting abductive frameworks of reason into the canon of empirical methodologies, is therefore a matter of inclusivity and epistemic and social justice.

CONCLUSION

In this paper we have made the case that the methodologies of dance, and a rigorous creative somatic practice can produce new knowing that can meaningfully contribute to questions that are part and parcel of the HCI research agenda. Through the employment of the methodologies of Dance, alongside established research HCI agendas, new knowledges and answers can be retrieved and then ultimately be fed-back into the more mainstream canon of HCI questions.

In this sense, we would like to close our case with two explicit take-home messages. Firstly, Dance (and other creative modes of inquiry) ought to be taken seriously by the empirical sciences as valorizing creative modes of inquiry and methods will yield new findings. This holds true in HCI but is equally so the case in cancer research (such as pioneered by Odde [12]).

Secondly, we want our work to be understood as an overall catalyst for more inclusive modes of expression at the intersection of innovation and technology. That means that a methodological pluralism (such as advocated in this paper through the methods of somatic dance) can lay the groundwork to include and draw on much broader wisdoms that work towards other forms of embodied experience, such as tacit knowledge of racialization, disability, queer living, and other more-than-normative experiences of life.

Future work that is build on this project used these premises to articulate racialized experiences of software in public spaces. This dance-focused research project was a fundamental stepping stone to lay the ground for the subsequent work.

ACKNOWLEDGMENTS

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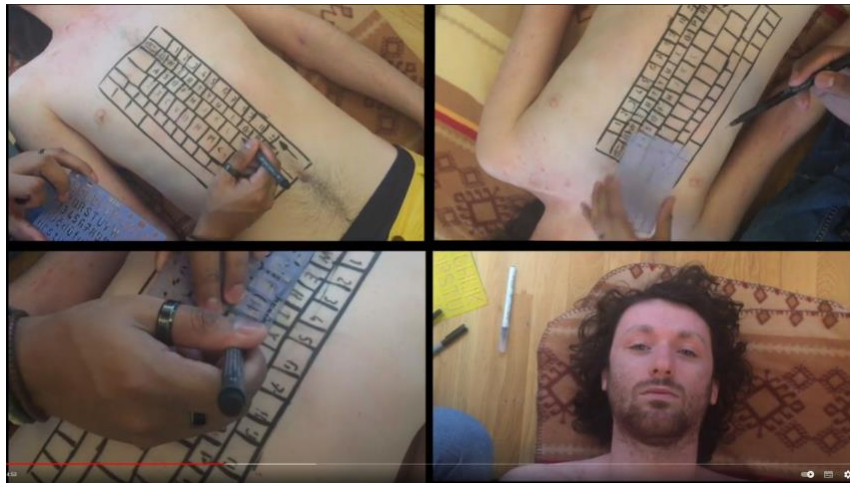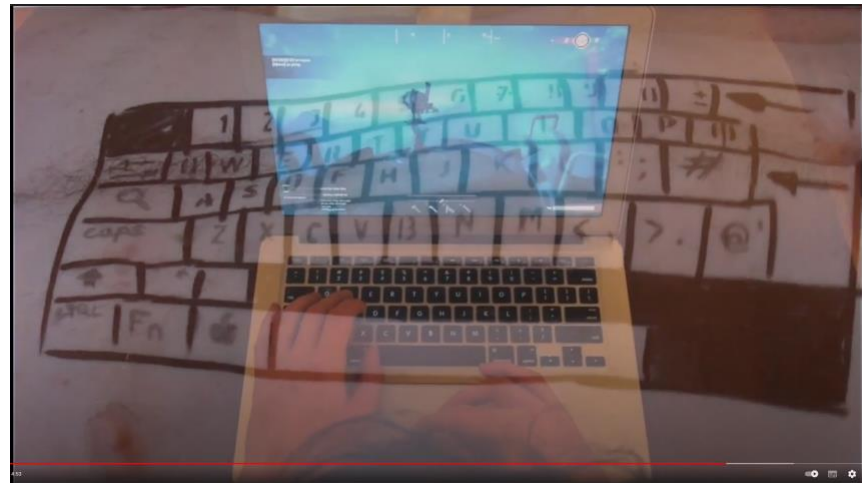[42] P. Rabinow, 'Marking time', in *Marking Time*, Princeton University Press, 2009.
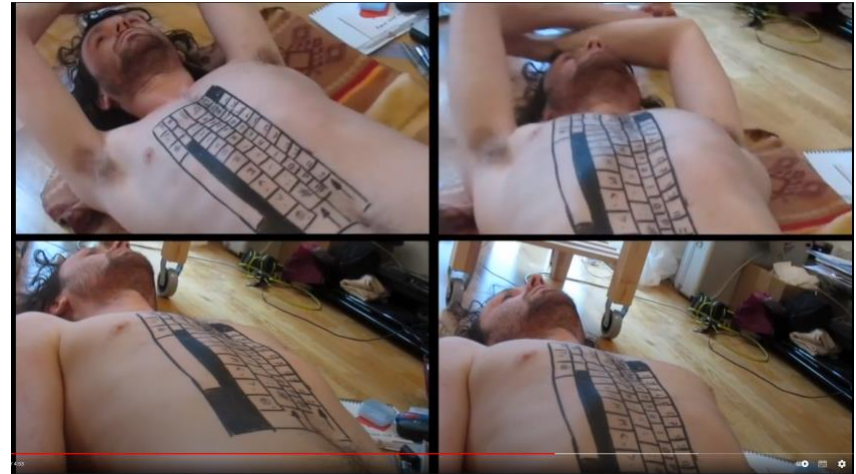
Becoming keyboard. Becoming keyboard. Becoming keyboard. Please
hold. Becoming keyboard. Becoming keyboard. Becoming keyboard.

Your transformation is important to us, please hold.

Becoming keyboard. Becoming keyboard. Becoming keyboard. Still
becoming keyboard. Still becoming keyboard. Still becoming keyboard.

A keyboard will be with you shortly.

Fig. 3.1 The resulting video