‘You’ve got to keep looking, looking, looking’: Craft thinking and authenticity

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Abstract

This article outlines the foundations of an enquiry into the relationship between craft and authenticity. It provides a description of how authenticity is evolving as a philosophical concept, and what this might mean for claiming an authentic contemporary practice. It then illustrates an inconsistency in schematic analyses of craft and design thinking, which may be a barrier to the appraisal of craft as a form of ‘authentic’ cognition. The author’s personal evolution of visual conceptualizations of craft thinking is revealed through an enquiry into a decade of a digital craft practice reflexively differentiated from Human–Computer Interaction, Interaction Design and Product Design. A novel framework is proposed for situating authenticity in craft in line with relational philosophy, comprising *individual*, *social* and *ecological* forms of practice, and the framework is applied to a recent multidisciplinary digital craft project. Further research into craft thinking using schematics is recommended.

Keywords

craft thinking

design thinking

reflective authenticity

relational authenticity

philosophies of authenticity

heuristic research

reflection-in-action

reflection-on-action

reflexivity

An introduction to philosophies of authenticity

Craft is often assumed to be, and even used as a shorthand for, a 'traditional' pre-industrial form of authentic engagement with the world (cf. Harrod 2015: 188–190), an idea brought into play 'when faith in human progress…is…low' (Harrod 2015: 149; Latour 2008). At best, this habitual shorthand results in an un-reflexive stereotype, viewed from 'an Enlightenment perspective', and lacking ground and accuracy (Harrod 2015: 169); at worst, it can act as a process of othering (Jenkins et al. 2011). There is an intensity of knowing as experience in craft practice, which is described variously as 'gestalt' (Polanyi 1969), in which disparate things on the edges of attention are brought together to form something new and 'ineffable' or simply 'right', a form of subjective completion or 'peak experience' (Rahilly 1993, after Maslow), and as 'flow' (Csikszentmihalyi 1990), an optimal conscious state achieved in striving to 'accomplish something difficult and worthwhile' (1990: 3). This aspect of craft knowledge as experience is crucial, but by consistently focusing upon it other possible narratives of craft can be obscured.

In fact, Polanyi's discussion of gestalt as a process of gathering 'peripheric clues of perception… not noticeable in themselves' towards vital action and new understanding (1969: 117–18) resonates with Law's account of making aspects of an actor network absent so that certain realities may be assembled (Jenkins et al. 2011:

266). Polanyi offers a way of accounting for which aspects are brought into focus according to 'intuition', whereas Law describes three categories of reality according to attention: 'that which is "present" and directly experienced; "manifest absence", which refers to necessary aspects of reality that may be consciously omitted; and a much broader 'hinterland' of actors that are "othered" – that disappear' (Jenkins et al. 2011: 266). Processes of othering can be deliberate, political acts, or unintentional and habitual – craft suffers from both. Dormer makes it clear that craft has felt threatened by criticisms based in the knowledge frameworks of more culturally powerful paradigms (Dormer 1997; Niedderer and Townsend 2014), whereas Harrod (2015) points out that the experience of creative flow enjoyed by the studio maker in relation to machines and tools is unlikely to be available to the industrial workplace, which maintains a version of reality in which craft is marginal to industry, at the same time as the industrial worker is written as unthinking (Rose 2014). This also raises a question concerning expectations of methodology in craft research: positivist methods of research, while only one way to tell stories about our world, may 'actually silence too many voices' (Finlay and Evans 2009: 19; Law 2006).

One aspect of craft that has been othered (obscured) (Law 2006: 10) is that of authenticity; in this case I do not mean that authenticity is not mentioned, but rather that it is mentioned in such a way as to assume a common understanding, which means no further examination is needed (this journal issue, of course, will change that). Authenticity is seldom defined or explicated in the craft literature, but to be able to say how craft thinking is authentic, and how new, digitally informed practices exhibit authenticity, we first need to examine authenticity itself, and that is what I aim to do in this section of the article.

Craft researchers know that craft is a difficult term to pin down, but authenticity is at least as problematic. Findeli, writing in 2001, outlined a crisis in contemporary practical philosophy in which the shared underlying beliefs that allow social and cultural systems to function were shifting (2001: 5). He was referring to a shift from a belief in the rational Enlightenment world-view, towards a more relational and less knowable world. Thus, when craft is described as authentic, it can mean different things, and spring from very different conceptions of knowledge, and political agendas.

Authenticity according to the enlightenment

Truth and authenticity became conflated with what was knowable and expressable in language; the scientific world-view of 'disenchantment' promised that with a rational approach to enquiry deployed by an objective observer 'stripped of all prejudices' (Guignon 2004: 31), not only were all natural laws discoverable but also that it was the ethical thing to do to discover them. Authenticity in this view means scientific rigour (see also Wood 2000), transparency of process and the establishment of universal truths (see also Law 2006).

Romantic authenticity

The Romantic ideal of authenticity lay in closing the gap between what was felt and what was expressed. Truth was seen to reside in personal responsibility not to others in society but to the emotional state of the inner self – that is, a continuity between the inner (truthful) self and the external (changeable) face presented in public. For Rousseau, it was the inner essence to which one must remain true: society and

reflection on one's own feelings and actions represented the greatest threats to romantic authenticity; as long as personal expression was spontaneous, there could be no falsity (Guignon 2004; Trilling 1972).

Relational authenticity

Relational models of authenticity have been emerging for some time in an attempt to engage with the problems caused by the dichotomization of objective and subjective realities. Merleau-Ponty worked towards an understanding of the self and the world as 'chiasm', intertwined in active sensorial relation with each other (1968). This ontology proposes that the individual is never wholly free of (completely objective), nor wholly fused with (truly spontaneous), the world. To achieve authenticity in such an unfamiliar ontology is challenging; potential for transcendence (truth achieved out of the body) and existentialism (truth achieved in the moment) are shown to be based on outdated world-views. Instead, Merleau-Ponty suggests that 'circumstances point to us, and in fact, allow us to find a way' (Reynolds n.d., after Merleau-Ponty 1968: 456), and Ferrara acknowledges the 'heightened reflexivity' of today's world, seeing the spontaneous creation of the self as 'a performance option' in itself (Coupland 2003: 426; Ferrara 1998). Recent accounts agree that authenticity can no longer be considered metaphysical, but is instead relational (Benjamin 2015; Thayer-Bacon 2003), to be found in the humanistic processes of commitment and reciprocity (Brett 2005: 78; Golomb 1995), and indeed '*in the making*' (James, cited by Thayer-Bacon 2003: 59). As such, contemporary authenticity is dependent on difference as necessary for meaning making, but is made manifest in the dissolution of dichotomies through discursive meaning-making processes (Merleau-Ponty 1968; Ferrara 1998; Law 2006). A relational ontology opens up the 'non-hierarchical aesthetic of

relationships – between the material itself, between the material and the maker, and between different…makers' (Elsley 1996: 13). It asks us to consider not the single moment of 'having an idea' but the generative, unfolding engagement with material (and we can extend 'material' to include everything that is in relation).

Claiming authenticity in craft

These forms of authenticity were further developed in the author's doctoral thesis (2007), which also began the enquiry into relational authenticity. A set of dichotomies was listed, and their negotiation was claimed to be a sign of contemporary, relational authenticity: contemporary craft was then shown to exhibit these characteristics (Kettley 2007, 2012). If anything, however, the author's own tacit framing of craft was still firmly sited in the studio and individual practice; this article seeks to recognize that limitation.

Thayer-Bacon points out that our understanding of what is real (ontology) affects our theories of knowledge (epistemology) and vice versa (2003: 54). My argument here is that figurations of craft have largely been restricted by an emphasis on the Enlightenment and Romantic models of authenticity: on the one hand, the practitioner is painted as a powerful alchemist, with wisdom assumed in the unarticulable tacit 'gestalt' of craft knowing (Polanyi 1969); on the other, the maker is a skilled connoisseur of technique, a master of material. In both cases, the work of craft knowledge is recognizable as things done well (Adamson 2008). The flipside for craft as knowing is that either the maker cannot *by definition* make explicit his or her knowledge, and so it is not generalizable or verifiable according to scientific standards; or he or she is no more than a naive automaton, following 'rules and

formulas' (Dormer 1997: 229–230) – as my tutors used to say in critique, 'technique, technique, technique' (consider the converse, a complement, that a piece of work is 'thoughtful'). And so we have arrived at the strange situation in which craft knowledge can be written as a paragon of authenticity both in the Romantic model – mysterious, expressive, emotional, natural – and in the Enlightenment model – transparent, rational, mechanistic, scientific – while simultaneously being supremely 'vulnerable to theorists and their scepticism' (Dormer 1997: 229). Much time and energy has been spent defending the value and experience of craft knowledge without such an overview of authenticity; this very brief introduction is intended to contribute to the growth of collaborative and generative forms of craft practice (e.g. Felcey et al. 2013; Somersen and Hermano 2013) through the presentation of relational authenticity.

Visualizing craft thinking

The aim is to re-examine the authenticity of craft thinking on the basis of the negotiation and dissolution of the philosophical dichotomies arrived at in Kettley (2007, 2012), including inside/outside, reflection/disappearance and so on, but extending 'craft' from individual studio practice to include more recent collaborative and participatory practice. My assumptions about craft and design have been reflected back at me over the years. As a jeweller doing research in a department of Computer Science, and as a lecturer in a Product Design department, I have come across many schematic and diagrammatic representations of creative cognition and processes in these fields. As a way of thinking about craft thinking, an analysis of schemas in the craft research literature felt like an appropriate method.

The motivation for using schemas is to look at the frames used to understand craft thinking, and to question whether the frames used in design thinking are useful to craft as epistemology. For example, is the problem/solution frame the one that is used by craftspeople to describe their process? If not, why not, and what is felt to be more appropriate? What might this then say about craft as an episteme? Is craft being represented as relational? One idea that can be played with through this approach may be that craft employs or produces more than one kind of propositional knowledge (Niedderer and Townsend 2014: 7). Or we may be able to see Law's processes of bringing into presence, and othering in action, through the conceptual frames (dichotomies) used to construct the schema. For example, repertory grids exploit the human perceptual tendency to create bipolar dualities; the descriptive dichotomies (safe–dangerous; problem–solution, etc.) can be determined by researchers, or generated by participants in dialogue with three elements, two of which are identified as having similarities, and the third as being 'different' (Bang 2009; Downs and Wallace 2002; O'Neill et al. 2011). Disciplines such as Human–Computer Interaction (HCI), Interaction Design and Informatics habitually use process diagrams to communicate how complex products come into being, and how humans and machines are in relation to each other (cf. Sharp et al. 2007), and visualizations of cognitive processes in design have been commonplace for over 50 years (cf. Cross 2011; Piscicelli 2015). Systemic approaches to design involving many 'stakeholders', as in Service Design, or more complex societal problems, as in Transition (Irwin 2015) and Transformation Design (Burns et al. 2006), also make full use of schemas, not only in the anthropological research of design itself but also as tools for making explicit thinking among diverse groups of people as part of the process itself (e.g. Sangiorgi et al. 2015; Sanders 2002; Sanders and Stappers 2008).

Visual schemas mix diagrammatic metaphor with linguistic explanation; they are open to interpretation as a deliberate invitation to shared critical thought and the co-creation of meaning around the process. They may suggest rules, while providing 'a level playing field for dialogue' and a context for the emergence of a 'coherent community … among participants' (Sutton 2013: 214). They may act as diagrammatic representations of individual creative practice, or represent a landscape of differentiated practices in relation to each other. How language relates to and informs such visualizations is another rich area for research: Collins suggests that textile language was once, and could again be, a rich palette for conceptualizing research, rather than the prevalent building metaphors (2013), whereas Peer successfully used piecing as the metaphor for her Masters research into textuality and thinking in graphic design (2011). They are powerful tools for reflection and the development of critical thinking (Sutton in Somersen and Hermano 2013: 210–29).

Aware of my own use of visualizations of design and craft thinking since 2002, the intended approach was to gather and analyse these for their conceptual frames (dichotomies), and thus to review how I understood my cross-disciplinary digital craft practice in terms of authenticity. This would be supplemented with and interrogated through a review of the craft-thinking schema in the craft research literature.

A gap in the craft-thinking literature

However, it quickly became clear that the literature contained almost no reference to such visualisations. Two methods returned almost nothing: a quick and dirty literature review, and a web-based content analysis of craft and design thinking visualisations.

The search terms: ‘craft process diagram’, ‘craft process schema’, ‘craft process model’, and ‘models of craft process’ revealed a world of physical scale models made of wood, clays and metal, some of them architectural models from professional practice, and the rest arguably the results of what Greenhalgh described as ‘the amateur sphere’ (2003:6). For the most part, there was no text. Replacing the term ‘craft’ with ‘design’ gave no physical scale models and no worked materials. Instead, the search returned a large number of abstracted diagrams, suggesting a culture of scientific enquiry into practice as thought, typically organized around such terms as *research*, *analysis*, *evaluation* and *development*, while material engagement is represented through the language of *prototyping* and *engineering*. It would seem that craft’s reputation for indivisibility, its mythology of the ineffable, has affected the ways in which it is subject to academic analysis; while craft is still used to promote certain ways of thinking in the knowledge economy, or desirable attitudes to production and consumption values, analysis of processes through abstraction and textual language is missing.

A more focused, though still limited, literature search gave the following schemas. Sosa-Tzec (2014) uses craft to position the creative practice of User Experience Design, while Kirby (2007) uses ‘craft’ as a marker for situated knowledge in entrepreneurial training. Each of these combines situated craft knowledge in a larger schema, which shows ontological self-awareness (the *ecological* reflection on difference between practices as epistemes). The only schema that emerged showing an embodied dialogical process with material was in Nimkulrat (2012: 11), who makes the case for craft as ‘playful, methodical and intellectually competent’

thinking, as she describes her doctoral research into, and through, textile practice (after Gray and Malins 2004: 132).

The lack of visualizations in the literature suggests that craft could explore schemas as a reflective method of doing research. The next section presents the author's reflection on her use of schema for reflection, which leads to a proposed framework for relational authenticity in craft thinking.

A heuristic enquiry and typology of craft-thinking schema

A heuristic methodology (Moustakas 1990) was devised to unearth the author's own attempts over the years to visualize her thinking process, with a focus on the use of diagrammatic schema to develop conceptualizations of craft thinking. This methodology involves a review of notebooks, filled with discursive theoretical notes, sketches for interactions and objects, collections of inspirational material and reflexive schemas. On average, the author filled an A5-lined notebook every two to three months, between 2002 and 2015, resulting in approximately 50 notebooks reviewed. The author's practice evolved from a studio craft practice in the 1990s, through research-through-digital craft practice from 2002, to research-through-facilitation-of-collaborative-making, and the books chart reflections on these changes. Moustakas' heuristic method is characterized by 'in-dwelling', a deliberate process of turning inward by the enquirer to deepen their comprehension of practice and experience (1990). To do this, the researcher needs to develop a reflexive process of self-dialogue in which they can be open to themselves, to others and to the materials of their research. To gather the data, I scanned pages that included schematics, described them, classified them by grouping descriptive commonalities and reflected

on them through making further interpretative theoretical notes (Montgomery and Bailey 2007: 65–66).

The outcome of this reflection was a typology of schema describing my craft thinking. Four broad types were identified:

- Single-part systems: iterations of an action
- 2-part systems: intersections between practices
- 3-part systems: triangulations
- Multi-part systems: ecologies.

These led me to the following positions on craft as epistemology:

- Craft process is generally not framed by a single defined problem, but is concerned with potentiality.
- Oscillation is dependent on dualism – it may or may not help in visualizing experiences of simultaneity.
- Craft objects present a site for authentic experiencing: successful craft objects can withstand being endlessly revisited, affording new meaning making each time.
- Ontologies are fluidly constructed in acts of practice.
- Empathy is an intended outcome for craft, as well as a starting point.

Single-part systems

Iterations of a single action; amplification; spirals (combining iteration and amplification)

Figure 1: S. Kettley (2003), linear schema showing iteration.

These linear schemas tended to concentrate on the nature of the problem and the solution, and the iterative nature of the process between them. In most cases, there is an identifiable goal at the end of the process; only in working as an artist-in-residence at the second institution did I experience the goal as being undefined. While interaction design and HCI talk about iterations of design prototypes, it seemed to me that iterations might occur at different frequencies and scales, that there may be more iterations at certain stages of the creative process, and that they may also occur within the material process of making a prototype. In the more design-led cultures, I found the 'problem' to be more defined and boundaried, whereas in the making cultures, I noticed that the 'problem' was more open to interrogation (problematization). The example shown (Figure 1) is of a design process in computer science, with a fixed number of iterations between the defined problem and the solution. Single-part systems might be assumed to be different for different disciplines, and illustrate the difficulties of working across them; this model did not feel like it described a craft process.

If design is a reflective process engaged with problems (Schön 1983), craft might be better conceptualized as a reflexive process engaged with potentials.

2-part systems

Intersections of practices or of types of thinking; loops between disciplines; oscillation between states

Figure 2: S. Kettley (2004), total cognition schema for presence and withdrawal of tools; and frequency schema showing periods of intensity.

Schön concentrates on 'oscillation' between cognitive and non-cognitive processes, and this word, oscillation, triggered a number of frequency graph schemas in my notebooks, mapped against 'presence' and 'withdrawal' of tools or materials (Figure 2). In some of these schemas, I explored the idea that material and tools may be more or less present to cognition at any given time, and that this may fluctuate depending on familiarity with them in use. This might then be developed to conceptualize mastery of a skill or process, or be used to evaluate products in use. Ingold challenges oscillation and frequency as being dependent still on a dichotomy – an internal/external (2010). His 'earth without objects' thesis proposes that everything is material – that is, everything (previously 'objects') is open for meaning making: perhaps instead we are looking for a model that visualizes simultaneity. Further exploration of intensity, as in Figure 4, might produce such images.

3-part systems

triangulation; balancing; intersections describing moments in praxis

Figure 3: S. Kettley (2005), a moment in human practice, after Hutchins (2000).

In Figure 3, Hutchins (2000) tries to describe a single moment within an ongoing (human) practice, 'reinstating the human in a culturally constituted practice' (Hutchins 2000: 372). Hutchins used the thickness of the arrows to represent the density of the interaction with each dimension, and the length of the extended arrow shaft to represent the rate at which change was occurring along each dimension. The length of the ingoing arrow shaft was intended to show the history of each dimension of practice. This has similarities with accounts of 'quasi-authenticity' in classroom learning (Tochon 2000). Tochon located authentic experience at the intersection of two axes – of biographic experience (or becoming) and present moment experiencing, at which an individual tries to make sense of the meaning of this experience (the semiotic). The before and after are as important for authenticity here as the experiential moment – before for the creation and referencing of prior knowledge, and after for meaning making and valuing. Lived experience coincides with situated knowledge.

Paul Greenhalgh once said that craft objects are meeting points (2003). If we take Tochon's view that the intersection of the existing knowledge and situated knowledge is transcendent, dynamic and the starting point for further enquiry, then it is not a

difficult matter to link it to the concept of multivalency, or the 'open work' (Eco 1989). I would argue that craft objects bring together the already known with new experience and present the site for this kind of authentic experiencing: successful craft objects can withstand being endlessly revisited, affording new meaning making each time.

Multi-part systems

Cultures; ecologies; frameworks; networks

Figure 4: S. Kettley (2011), notes from sharing practice workshops with Sean Myatt and Fo Hamblin.

In these schemas, a single evolving practice is often shown at the centre, in flux as it absorbs influences from other fields. In them, I was trying to describe the 'ecology' of my practice, as it was reoriented towards producing a Ph.D. (Meskimmon and Davies 2003). I developed this further by creating a 'map' to describe the research space, structure the process of enquiry and communicate with others my awareness of the apparently eclectic journey I was on (Kettley 2007). This resonates with Law's account of the process of othering (selective exclusion of potential areas for research) through the performative enactment of an emergent reality: 'It is the craft of making several not necessarily very consistent things at once. It is the art of crafting multiplicities, indefinitenesses, undecidabilities. Of holding them together. Of relaxing the border controls that secure singularity' (2006: 12). Later, over three days

in 2010, I engaged in an emergent process with Fiona (Fo) Hamblin (jeweller and artist) and Sean Myatt (Object Theatre practitioner). The goal was to 'share practice' and the outcome would be a collaboratively devised exhibit. We agreed on an archaeological methodology in which we each brought a suitcase of things from our 'islands' of practice to the studio; practice might then be 'unearthed'. We attempted to describe our practices to each other through 'doing words', engaged in Object Theatre exercises, documented discussion in the moment and generally entangled ourselves in each other's materials to let new work emerge. Our shared and emergent understanding included critiques of the language of Reason ('under-standing') and embodiment ('making is inside, critique is outside', and 'reflection is the journey between'); objects became things, and existing meanings were subverted and rewritten. We decided that ontologies were fluidly constructed in the acts of practice, and that we moved in, out of and through things, 'getting to that edge' and blurring it (Figure 4).

Another colleague recently described the design process as a sequence of empathy (with the user and the situation), followed by creativity (the creative designer with his materials) and rationality (design management, decision-making and 'scientific' approaches to concept selection and implementation). My own experience of craft as praxis, however, seems to be quite different: deliberately non-linear, involving all of these ways of thinking, but in a different relationship with one another. For design, the process has an end point, but for my craft process, it is circular, and it could be argued that in fact empathy is intended as the outcome as well as the starting point, as marked by a question mark in my own version of his diagram. I would argue that

empathy in craft is evident in a listening attitude to material and ideas, as well as people.

A proposed framework for authenticity in new craft practices

Craft thinking is normally framed by individual experience with material, but we know that craft is becoming more collaborative (Felcey et al. 2013; Thomas et al. 2011). This section proposes a framework that scales up craft's natural epistemological and ontological form of being through knowing (Polanyi 1969; Thayer-Bacon 2003), beyond the individual to social and ecological modes of practice.

These three modes are not mutually exclusive; rather, they describe between them related scales of action. They might be seen to provide a schema for thinking: individual mindfulness with (and as) tools and materials; socially engaged, ethical and 'virtuous'; and in dynamic relation to other practical and epistemological practices. Thus, the craftsperson, acting authentically today, may look very similar to the studio maker of the twentieth century, be emancipatory and politically motivated ('craftivism'), or be working in multidisciplinary teams:

- *Individually authentic* practice is both reflexive with formal material in action, and reflective on action with formal material. It is aware of its own growth through relation with formal material.

- *Socially authentic* practice is intersubjective and emancipatory, seeking to make creative entanglement available to others. It is informed by political and social 'matters of concern' (Latour 2008).

- *Ecologically authentic* practice seeks a meta-level view of craft as a cultural practice through critically reflexive engagement with other disciplines. It is aware of its own (e)pistemology (Thayer-Bacon 2003).

While these three forms of practice may each be understood as authentic, they may be developed quite separately from one another, or in different relationships to one another. In this way, it is possible to see how different audiences also need to evolve to appraise craft works according to different frames of reference. Further, the digital may be involved in each of these forms of practice in different ways: in the form of social platforms for individual designer-makers to share skills, resources and audiences; as tools for creative production; or as materials to be worked with.

Reflections on a digital participatory craft project: An Internet of Soft Things

Lehmann states that epistemological awareness of craft – that is, the conscious awareness of how craft 'knowledge itself is acquired and constructed' – occurs for the most part when (a) craft is challenged from 'outside its own métier' (2015: 151). In this way, technical knowledge becomes epistemic knowledge. Lehmann gives the historical example of furniture making in the eighteenth century coming into contact with textile printing skills. The importance of such mergings is that they are a departure point for new forms of practice, and as 'the digital' comes into contact with craft, we have seen increased theoretical and empirical interest in craft praxis

(Bunnell 1998; Shillito 2013). While it is outside the scope of this article to present a full analysis of the Internet of Soft Things project here (2016), a summary of how the author and her fellow co-researchers have experienced authenticity and craft is as follows. The project brought together a multidisciplinary team to create computationally networked textile objects in collaboration with mental-health service users, and comprised three major phases: e-textile participatory-making workshops; participant product-service design workshops; and Future Workshops with service users, staff and volunteers. Several methods for reflection were built into the project methodology, including IPR (Interpersonal Process Recall), used in the training of psychotherapists and developed by Kagan (1980; Kettley et al. 2015a); filmed post-hoc participant reflections on workshop experiences (Jones and Fielding 2015); and researcher debriefing sessions after participatory events, which were recorded and transcribed alongside the more usual artefacts and AV recordings of the workshops.

Individually authentic: Participants and researchers expressed varying individual levels of reflection in and on material practice. Three textile designers and three computer scientists were on the research team, involved to varying degrees in material production of electronic textile interfaces and objects. Reflection-in-action was explained simply by one of the Mind members on film (Jones and Fielding 2015); Meg (her real name is used with permission) talked about colours, space, form and, more importantly, the dialogue she enters into with an object as she creates it, saying, 'you've got to keep looking, keep looking, keep looking'. On the other hand, the project was a challenge for the textile designers working on it, who felt their own personal aesthetic to be compromised both by the participatory process, and the introduction of new computational knowledge and materials (Briggs-Goode et al. in press).

Socially authentic: The project was framed by the Person-Centred modality of psychotherapy practice (Embleton-Tudor et al. 2004; Kettley et al. 2016), characterized by a listening attitude in psychological contact, as the basis of an inter-subjective process of mutual growth (Rogers 1996). Such a listening attitude can be seen in Gray and Burnett (2008), who found that in collaboration, they had created a framework of the unknown (a situated experience) within which they examined their own established creative processes. This kind of process may be experienced as authentic because each person is willing to 'learn, be able to listen, and empathise' (Gray and Burnett 2008: 8).

Ecologically authentic: The project involved ten researchers from computer science, textile design, interaction design and psychotherapy, as well as mental health service professionals and users; it made use of Sanders' and Stapper's mapping of mindsets in participatory design, to help us reflect on disciplinary tensions (Sanders 2002; Sanders and Stappers 2008). Individual researchers from HCI have described the project as 'life changing' in its challenge to some models of co-design, and in extending their understanding of qualitative and phenomenological approaches to working with people. It is interesting to ask where the different forms of craft thinking occur on this map, or whether such a framework in fact helps us to reflect on the changing nature of craft practices from an expert model to an emerging socially relational model.

Conclusion

The three key frameworks presented in the article were as follows: an overview of different philosophical accounts of authenticity, and the contemporary shift towards relational authenticity; a position on craft epistemology, based on a heuristic exploration of schemas; and a framework for authenticity in craft as it becomes more collaborative, and involved with the digital. The article makes a series of claims as a result of these frameworks, including that craft thinking is different from design thinking, and is not researched in the same way; and that it is an ontological and epistemological practice of being through knowing, exhibiting a relational authenticity that can be scaled up to help inform new digital practices.

The individually authentic form of craft is increasingly informing design, but we need to be aware of how this is happening, and whether it creates a restricted and somewhat romanticized view of craft. Design is involved with the digital, but it is also fully involved with the human and the social. Craft needs to be similarly involved, and needs to explicitly reflect on itself as a complex and evolving discipline, so that it can contribute fully to converging meta-narratives of progress and care. Craft knowing has not been codified in the same way as design thinking – that is, we have not seen schemas as a result of a 'scientific' view of craft. Visual models of craft thinking do not deny materiality, but have the powerful potential to open up its meaning; as such, the schemas presented in the article are not meant to be end points or answers, but beginnings for shared discussion. As craft shifts towards the relational and social we would do well to make use of tools like these as a way to 'articulate joint action' and move forward our understanding of the authentic in craft (Sharma

2013: 241). Theories of relational philosophy continue to be developed, and the intersections of craft with it provide scope for much further work. For example, depth of relationship is discussed in the psychotherapy research literature and could be developed in the context of craft (Knox et al. 2013). The framework of authenticity may also be useful in the study of teamwork and knowledge management: to move from *multi*disciplinarity towards *inter*disciplinarity requires a high level of openness and empathy between disparate working philosophies, motivations and cultures of expertise. An awareness of our own practices allows us to be present for others, and is a pre-condition for new hybrid practices. Reflexive (in action) and reflective (on action) techniques can be borrowed from other creative or relational disciplines to explore the edges between such practices.

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