Making Sense: an exploration of ways of knowing generated through practice and reflection in craft

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http://www2.rgu.ac.uk/subj/ats/research/home.html

Abstract
Art (creative practice) is now an increasingly acknowledged experiential mode of inquiry that, when firmly located within a research framework, can reveal insights and understandings in ways that expand our capacities for ‘knowing’. The notion of ‘making sense’ can not only be taken as making (craftwork) through sensory exploration, but also as ‘sense making’ – creating understandings about that practice both through action and reflection on it. (Schön, 1983).

Current discourse on experiential knowledge includes, for example, the concept of ‘material thinking’ (Carter, 2005) and ‘materializing pedagogies’ (Bolt, 2006). Both concepts open up possibilities for ways of knowing through immersive experience – what Dewey (1934) calls ‘undergoing’.

Informed by this context the paper presents the emerging findings from ongoing research – a dialogue between two makers (the authors) in the exploration of ‘knowing through making’. This research has implications for the critical framing of craft practice and development of the higher education curriculum.

Keywords
CRAFT, REFLECTIVE PRACTICE, MAKING SENSE, EPISTEMOLOGY, PEDAGOGY

Introduction
This paper outlines our recent experimental exploration and thinking about ‘knowing through making’ derived from our ongoing practice-led research - Making Sense - through which we ask the question:
“What can be known by making that could not be known by any other means?”

We offer some brief context pertinent to this question and a possible methodology and methods for addressing it.

Art (in its broadest sense - creative practice) is now an increasingly acknowledged experiential mode of inquiry that, when firmly located within a research framework, can reveal insights and understandings in ways that expand our capacities for ‘knowing’. We take as our philosophical touchstones Dewey’s important insights on ‘art as experience’ (1934) and the important concepts of immersion and ‘undergoing’; Schön’s concepts of the ‘reflective practitioner’ and ‘knowing in action’ (1983); and Bruner’s ‘constructivist learning’ - learning through doing, through practice in relation to social interaction (1996).

The notion of ‘making sense’ can not only be taken as making through sensory exploration, but also as ‘sense making’ – creating understandings about that practice both through action and reflection on it, as in Schön’s concept of ‘reflective practice’.

Context

Current discourse on experiential knowledge includes, for example, Carter’s concept of ‘material thinking’ (2005) in which he says that ‘local knowledge’ is the ‘distinctive yield’ of creative research. ‘Material thinking’ has implications for pedagogy as in Bolt’s concept of ‘materializing pedagogies’ (2006). Adamson’s ‘thinking through craft’ (2007) proposes craft as an active process for working towards broader understandings. Such concepts together with a recent series of innovative conferences – ‘Sensuous Knowledge’ open up possibilities for ways of knowing through material and sensory experience.

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1 Paraphrased from Barrett, 2007
2 For AHRC’s definition of research and funding criteria see www.ahrc.ac.uk
3 Making as creative and critical manipulation of thought and material
4 Carter and Bolt’s work is discussed in more depth in our journal paper – Making Sense: ‘material thinking’ and ‘materializing pedagogies’, http://interactivediscourse.com/
5 Initiated and hosted by the National Academy of the Arts, Bergen, Norway. http://www.khib.no/khib/ku_fou/konferanser_seminarer/sensuous_knowledge/sensuous_knowledge_2_aesthetic_practice_and_aesthetic_insight
As precursors to current discourse on ‘material thinking’ there are a number of historical examples that compellingly demonstrate the value of ‘making sense’ - things that could never have been possibly understood without some imaginative approaches involving ‘making’.

For example, Gaudi’s inventive model of the Crypt in the Colonia Guell (1898-1914), a hanging set of catenary curves using string weighted with lead balls, which when viewed through a mirror directly beneath, gave an image of a proposed complex vaulted ceiling. Crick and Watson’s experimental improvised structures in wire and metal around a laboratory retort stand led to the eventual DNA model (1953) - a materialisation of what had hitherto been presented as two-dimensional data. With simple materials - string, lead, wire, metal plate and resourcefulness with things to hand (mirror, retort) – abstract and complex insights and understandings may be drawn out through the simultaneous connected processes of thinking and doing.

**Methodology**

Informed by this context we present our emerging findings from our ongoing research in which the main methodological framework is dialogic. Through collaboration and dialogue we can question our assumptions about making and its value in terms of ways of knowing, attempt to exteriorise what would normally be implicit in the making, and try to visualise and communicate how we come to know. In order to question our assumptions we wanted to work outside of our comfort zones for making, eliminate preferred ways of working, challenge our existing knowledge, and encourage fresh thinking. To achieve this a key tool in our exploration was ARP – *Art as Random Process* - a ‘choice/chance’ database, developed as part of Allan Watson’s PhD. ARP gives a set of eight ‘categories’ (‘substance’, ‘time’, ‘senses’, ‘place’, ‘quantity’, ‘method’, ‘quality’, ‘mind’) within which are further options for action given by chance or choice. We used ARP in two different ways: firstly, as an analytical tool to provide focus and rigour through common criteria for analysing previous work; secondly, as a means of stimulating ideas for new work – exactly as the inventor intended.

Within the dialogic framework we are using both active and reflective methods to structure

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6 To see an image visit - [www.gaudiclub.com/ingles/i_vida/fotobras/colonia/1102.jpg](http://www.gaudiclub.com/ingles/i_vida/fotobras/colonia/1102.jpg)

7 To see an image visit – [www.sciencemuseum.org.uk/images/1045/10313925.aspx](http://www.sciencemuseum.org.uk/images/1045/10313925.aspx)

8 Completed in 1992 at Gray’s School of Art, The Robert Gordon University, Aberdeen
and analyse this exploration: the reflective method - ‘Sense Making’ and the active method - ‘Making Sense’.

Objectives and Methods

Our first objective was to try to establish a viable dialogic framework for the project by developing a mutual understanding of our existing experiences of making. For this we used the reflective method of Sense Making - Reflecting on Action - a conversation (captured digitally) about two completed pieces of creative work (one by each of us) in which we reflected on these specific experiences of making, what we each understood through this, and what might be different ways of knowing. This method entailed the following:

- using 4 of the 8 ARP categories to help structure the conversation and analyse the completed works in relation to the criteria of ‘place’, ‘substance’, ‘quantity’, and ‘method’
- having the actual work and sketchbooks on the table - to hand
- having a time-limited conversation of 45 minutes - captured on digital video and separate audio.

Through this method we exercised Schön’s ‘reflecting on action’.

Sense Making - Reflective Analysis

The audio recording was transcribed and analysed by us both independently and then we shared our emerging understandings. From this reflective analysis we both realised that we had worked from within a framework of the familiar - the known - especially familiarity with materials and technologies. Intentionality was very strong for both of us - we each had a clear vision for the outcome. In both our cases there was no dialogue (in a formal sense) as part of the making process. However, unexpected discoveries were made, for example: (for Gray) a technical discovery - that sanded acrylic over LED’s produces subtle colourings, not revealed through photography; (for Burnett) the realisation that responsiveness to specific local cultural context can generate new understandings. From this experience we understood that reflection is a productive practice in itself, and that, when framed within a dialogic process, helps to make what is tacit in practice explicit.

Our second objective was to actively and speculatively explore making in the dialogic framework, by sharing with each other our ideas, processes, challenges and emerging
understandings. For this we used the active method of *Making Sense – Coming to Know in Action* - a time-limited project that entailed the following:

- using the ARP database and keeping to the 4 ARP categories – ‘place’, ‘substance’, ‘quantity’, and ‘method’ - we each used only ‘chance’ options to each derive a set of ‘ingredients’ - in the form of words - for making new work.
- a 2 week period of preparation and planning was agreed to research the words, material possibilities and processes
- keeping a record of development in sketchbooks
- a 2.5 day period only - in the workshops to realise the new work.

Through this we exercised Schön’s ‘knowing in action’ - what he calls “the characteristic mode of ordinary practical knowledge”.

Gray’s ARP ‘ingredients’ were:

- ‘place’ - elliptical, The Milky Way; ‘substance’ - limestone polypody; ‘quantity’ (a paper size) - B5 (250 x 176mm); ‘method’ - casting

A startling selection to which her first reaction was “how can these possibly be combined in any kind of sensible way?” Immediately the ARP method made her admit to what she didn’t know (e.g. limestone polypody – it’s a fern), made her investigate further what she thought she did know (The Milky Way) - which as it turns out wasn’t very much!

![Figure 1 Extracts from Gray’s sketchbook](image)

Burnett’s ARP ‘ingredients’ were:

- ‘place’ - irregular, The Milky Way; ‘substance’ - frothy; ‘quantity’ (paper size) - own choice (250 x 250mm); ‘method’ - assemblage

His first reaction was “what do I know about these words - what do they mean?” For Burnett the selection made by ARP was immediately unsettling, because of their diversity and implausibility. The challenge was to embrace them.
At the end of the two-week preparation period we met on a Thursday afternoon and shared the accumulated knowledge through our sketchbooks and discussed needs for the following week’s two and a half day workshop session. At this point Gray needed Burnett’s advice and expertise as the feasibility of generating a solid precise quarter ellipse through the use of rapid prototyping. He said it could be done - over the weekend. This was a critical decision point. During this discussion Burnett affirmed that any work that he makes must have function - so the idea for a light was proposed.

Monday, 4th August 2008 marked a distinct change in pace. With an urgency to act, but still with no vision of any conclusions, we went into the workshops where machines, tools and materials were available. From the precise quarter ellipse mould Gray started to produce plaster casts while Burnett began searching for things to hand - foraging in the workshops for appropriate bits of material to hold his light source. Although not planned, every few hours we checked on each other, curious to know how things were going. This interaction helped each of us to focus or open up aesthetic or technical issues. Critical dialogue – something that normally happens silently with oneself – was being made explicit through our interchange as our paths of inquiry crossed. Making became dynamic. We were reflecting in action and ‘coming to know in action’.

Day 1: Good steady progress was made, with what Burnett called ‘ping-pong’ conversations. This was followed by independent evening reflection.

Day 2: A sticky start - frustrations with technical issues, re-thinking options, time wasted, the pace slowed. Again evening reflection provided an opportunity for ‘adjustment’ and some unexpected strategic decisions.

Day 3: Pressure to resolve immense, and make important decisions very quickly and stick with them. We both finished by 2.00pm Wednesday ready for the planned
conversation with another maker - Allan Watson, sculptor, educator and ARP inventor.

Figure 3 The completed work (left - Gray's, right - Burnett's) - ‘embodied knowing’?

Throughout this process Gray had no idea how the work would be resolved. Literally an hour before the deadline five forms ‘presented themselves’. It was as though she had no knowledge of them. This is radically different from her usual way of working where an end product is envisaged and worked towards. For Burnett the components he had been working with before assembly in the final hour conveyed masculinity (were phallic, angular, mechanical). Once linked with the optic fibres and illuminated, the assemblage suddenly transformed, becoming organic, oceanic, dynamic - it ‘came alive’.

Making Sense - Reflective Analysis

Immediately on finishing at 2pm on Wednesday a structured conversation with Watson about the work produced took place. From his informed perspective as an artist and educator he asked a series of perceptive questions that we had no knowledge of beforehand, for example:

“Describe what you feel about what you have created?”

“Can you express what you understood about your intentions before you began to make the work?”

“Is your history of understanding ‘smoothly consistent’ or were there pivotal moments when clarity of understanding occurred?”

Again this was a time-limited conversation - 45 minutes - captured by digital audio. Up until this point there had been no time for us to absorb and make sense of what we had done. We were too close. Through this conversation involving reflection and analysis we attempted to
make embodied knowledge explicit and began to understand our experience. A month later we listened to the recording and analysed this conversation.

Outcomes and Analysis

New Ways of Knowing?

Estelle Barrett in her book ‘Practice as Research’ (2007) asks a crucial question - paraphrased here as: What can be known by making that could not be known by any other means?

In trying to be true to the ARP ‘ingredients’ given - to be authentic - Gray made a new kind of work that surprised her. The objects had a certain ‘autonomy’ - she made them but in fact they revealed their own nature to her (especially through being photographed) as ‘new worlds’.

“Against the black their true form and meaning is revealed - they are worlds in themselves, planet like objects floating in space - black space - and their scale and nature is ambiguous. They are elliptical places.”

(Extracted quote from Gray’s sketchbook)

For Burnett the whole project helped him understand more about the relevance of dialogue in making - facilitating critical reflection, decision-making, and contributing to shared understanding - both cognitive and affective.

“Interaction makes making dynamic … through dialogue.”

(Extracted quote from Burnett’s sketchbook)

However we were aware that dialogue could also be destructive if there is no willingness to learn, be able to listen and empathise.

At the end of the ‘Making Sense’ action stage we both realised that we had worked within a new framework - that of the unfamiliar - the unknown - although we brought to bear mature practices and distinct aesthetics. We each had no clear vision for the outcome. However, we both were propelled by the interaction through dialogue as part of the making process. As with the first method (‘Sense Making’), unexpected discoveries emerged at the end of the process, along with a heightened sense of surprise.

The concept of emergence was recognised as a feature within the analysis of our outcomes. Both within and at the end of the Making Sense process new understandings emerged as a
result of our dialogue and co-reflection, where knowledge emerges from that experience and is not handed down. In *Making Sense* we became co-producers of what Carter calls ‘local knowledge’.

As part of our reflective analysis we found a valuable concept in the epistemological literature - ‘connected knowing’ (Belenky, Clinchy, Goldberger and Tarule, 1997). This epistemological orientation is towards ‘relationship’, the ‘connected knower’ developing ways of accessing the knowledge of others. ‘At the heart of these procedures’ says Belenky ‘is the capacity for empathy’, which expands one’s own experiential learning base. In her view the most ‘trustworthy knowledge’ emerges from personal experience rather than ‘the pronouncement of authorities’.

“Connected knowing involves feeling, because it is rooted in relationship; but it also involves thought. … it entails ‘generous thinking’ and ‘receptive rationality’.” (Belenky, p 121)

We recognise our own experience of ‘Making Sense’ in the epistemological orientation of ‘connected knowing’.

*A ‘materialist pedagogy’?*

Drawing from our shared experience of *Making Sense* we propose the development in the craft curriculum of what Bolt (2006) calls a ‘materialist pedagogy’ - an explicit framework for inquiry in craft – one that is constructivist, research-led, collaborative, critical, with its own distinct language and discourse that might help extend and amplify the voice and value of craft.

The theoretical frameworks for a ‘materialist pedagogy’ are discussed in more detail in our ‘interactive Discourse’ journal paper (http://interactivediscourse.com/) but here we present a pragmatic outline of an iterative student project - one that can be repeated at each level of study. The aim of this student project is to extend creative and critical action and reflection, through a methodology that is dialogic, relational, entailing collaboration. The methods involved include the use of ARP, reflection on action, reflection in action, and the structured analysis of conversations. In terms of the student learning experience, learning stages, timing and physical conditions/environments need to be considered.
A Making Sense project will be tested (in 2008) over a three-week period with level three Honours Degree students studying Three Dimensional Design, linked as pairs. The project will begin by outlining the critical discourse, methodological framework and aim. Three days will be allocated for making. The authors will carry out critical reflection on and analysis of this curriculum development in 2009. In future re-iterations we anticipate that this methodology will be re-shaped and refined and eventually owned by the students themselves through the experiential learning process itself.

Conclusions
In terms of ‘Crafticulation’ - the articulation of craft - we have outlined a practice-led research methodology - question, context, methods, outcomes and implications – that might be useful to our peers and to our students. In terms of expanding our own capacities for ‘knowing’, at the time of writing this we are still in the process of assimilating a very rich immersive experience for which the in-depth analysis is the content for a new paper. However, in actively pursuing a practice-led research project, we have understood from first hand experience the concept of ‘connected knowing’, in which personal ‘local’ knowledge has become shared knowledge through the acts of conversation, forebearance, attentiveness, listening, and ‘connected criticism’. Through reciprocity and trust we have arrived at empathy.

We would like to conclude with this quote from Glenn Adamson

“Craft only exists in motion. It is a way of doing things ... organized around material experience.” (p. 4 Adamson’s italics)
Again we recognise our own experience of *Making Sense* in this - of craft as a dynamic process of learning and understanding through material experience, returning us to one of our philosophical touchstones - John Dewey - and his concept of ‘art as experience’.

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**References**


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