

## *Alma Boyes and Cynthia Cousins*

### ***Sustaining craft practice by teaching and learning through live demonstration***

#### **Context**



Consciousness/Conscience Clare Twomey 2003 photo: Andy Paradise

Clare Twomey's piece Consciousness/Conscience, exhibited in Approaching Content at the British Crafts Council 2003, immediately and physically engages us in the materiality of clay. As we walk across the constructed tiled floor, we hear the crack of the bone china fracturing underfoot and feel the weight of the heel sinking into the broken hollow tiles. We also experience the unaccustomed freedom of breaking and 'destroying' what is normally kept whole and sacrosanct - the brittle fragility of the material.

Equally, the commentary from a series of interviews in the Ceramics Point of View project, in which ten makers and critics handle ceramics from the V&A collections, reflects the sensory process that is involved in experiencing the piece in the hand. Here Emmanuel Cooper begins to put into words his exploration of a Hans Coper pot:

"...this wonderful rim, [this] absolutely beautiful rim, this interchange between the inside and the outside. The inside dark and black and mysterious, the outside this white matt, but the join [is] absolutely wonderfully accomplished"... "This is like a drawing at the top in the way that it defines the whole thing." (Partington 2001)

Throughout there is a sense of the gradual unfolding of rich and detailed information as it is being gathered both visually and haptically through these direct encounters. The commentaries flag up the underlying relationship that the Crafts hold with the physicality and materiality of the object itself, which is understood both consciously and tacitly through our senses.

This paper reflects, specifically through our research project Teaching and Learning Through Practice (Boyes et al. 2008), on how the physicality and materiality of craft practice are sustained in the learning and teaching of skills through demonstration. In particular we assess the role that non-verbal communication plays in the specific languages used in demonstrating - and thereby in sustaining craft skills. In a world that is moving increasingly towards the virtual, does the physical still retain value and more specifically, could virtual representation replace live demonstration?

### **Skill acquisition by demonstration - tacit knowledge**

Traditional methods of skill acquisition within the European crafts culture, are through the apprenticeship system which is 'focussed on imitation: learning by copying' (Sennett 2008: 58) and is exchanged person to person. The philosopher Michael Polanyi, in his book Personal Knowledge, suggests that this interpersonal transference is necessary precisely because of the extent of tacit or 'unspecified' knowledge within practical skills. He states: 'an art which cannot be specified in detail cannot be transmitted by prescription, since no prescription of it exists. It can be passed on only by example from master to apprentice'. (Polanyi 1973: 53) He also outlines the 'process of unconscious trial and error by which we feel our way to success and may continue to improve on our success without specifically knowing how we do it'. (Polanyi 1973: 62).

Repetition of the process or 'practising' serves to gain fluency, as voiced in the adage 'practice makes perfect' and can be seen to be part of a traditional desire within the Crafts to achieve mastery and expertise of techniques in pursuit of perfection. Research has claimed that experts need to practice repeatedly for approximately ten years in order to achieve their expert status (Ericsson et al. 1993), representing a considerable investment of time in our 'fast pace' modern society. The metal worker Alistair McCallum is an example of a craftsperson dedicated to acquiring technical mastery of a particular process. He has worked with the Japanese technique of mokume gane, for the last thirty years, developing and refining the technique of layering and patterning combinations of coloured metals producing series of bowls and other small items.

'Reading' a demonstration, identifying what is critical to enable emulation and applying the information, is recognised as a complex process for learners - albeit imitation is widely recognised as a natural learning method used by young children. The complexity lies in several places. For example, Albert Bandura, in his social learning theory, identifies four inter-related processes within observational learning: attention, retention, motor reproduction and motivation. (Bandura 1969: 138--142). Nicola Wood, in Transmitting Craft Knowledge also specifically pinpoints the difficulty created by the 'knowledge gap' between the expert and the novice's level of performance, which hinders skill development in the initial stages of learning (Wood 2006). In addition, Michael Polanyi notes that 'to learn by example is to submit to authority', indicating that the novice must also be willing to recognise and accept the role of the demonstrator as an expert (Polanyi 1973: 53).

Within the craft disciplines, techniques, equipment and processes can be sophisticated: they are often used in combination, and employing them involves the whole body and all its senses. Timothy Wilcox observes that when Hiroshi Suzuki makes his silver vessel forms by hammering 'the two hands both play vital, yet independent roles. Suzuki's work activates and enshrines not just those hands, nor even the body, but the man's entire being.' (Wilcox 2007: 2). Furthermore it might be assumed that interpretation and application towards personal concepts increases the complexity of this process, as Richard Sennett points out in The Craftsman: 'the difference between brute imitation of procedure and the larger understanding of how to use what one knows is ... a mark of all skill development' (Sennett 2008: 58).

### **Thinking through making**

Craftspeople or artist-makers may not only be focussing on the single activity of making a particular form or the skill in the task at hand but can be simultaneously using the process to engender the thinking or creative process. The jeweller/metalsmith Dorothea Pruhl considers - 'thinking in the material (and what else is the reason for skills) – is a strong creative force.' (Dewald 2009: 26) and artist-maker Elizabeth Callinicos declares "I am somebody who thinks *through* my making activity. I couldn't just intellectualise it and think something up and then do it" acknowledging the interdependency of her process: "I think that is part of the thing of actually hand making because you have got a sort of conversation going on" (Cousens et al. 2009). This raises the question of whether the teaching and learning experience within the demonstration should be prescriptive or interpretative in nature.

### **Working cross discipline – self developed skills**

As established discipline boundaries tumble, craftspeople, designers and artists, such as Thomas Heatherwick Grayson Perry and Hans Stofer, are increasingly working across traditional categorisations and their related media, techniques and form. New relationships and values of skill and craftsmanship are being developed. Liesbeth den Besten, in her essay Deskilled Craft and Borrowed Skill for Think Tank's 2008 edition of papers and exhibition, outlines a move away from the specialised makers who 'maintain age-old skills' where knowledge is 'handed over from generation to generation, taught by mimicking and experience' (den Besten 2009: 20 &16). She cites the Dutch jeweller Ineke Heerkens, stating that 'we should accept that there are now new generations of makers who develop their own skills and strategies. Starting from an idea they want to realize, they look for the right material and techniques or create their own' (den Besten 2009: 19). This implies a need for a less structured system of acquiring skills built on direct experience with the novice taking the lead, rather than one based on modelling from expert demonstration.

This genre of makers is also potentially developing a wider and more varied range of skills than provided by an educational programme emanating from a single discipline or material specific base. The skills may develop less specifically - virtuosity of technique no longer being a primary goal, nor the consistent practicing over a long period that enables perfection. In addition, craftspeople may also seek to 'borrow' the skills of others. For example, the ceramicist Clare Twomey elicited the expertise

of Royal Crown Derby, a traditional tableware manufacturer, in order to make the 7000 bone china tiles for her installation Consciousness/Conscience described earlier in this essay. In line with this, key skills may be broadening to encompass non-making skills such as communication, collaborative techniques, presentation, and even, as the artist partnership Thomson & Craighall cited, to include the skill of living cheaply. (Yentob 2009). These skills may necessitate different approaches to teaching.

### **New technologies**

At a time when machines aided by computers can make almost anything, it might be assumed that there will be a move away from involvement in the handmade and physical process of making. Craftspeople are using highly technological processes to both confirm existing and create new relationships with skill and craftsmanship, especially in relation to the 'hand touch', which has had a long standing association with Crafts.

The digital craftsman Geoffrey Mann is known for not having had any physical contact with his pieces until their arrival at the exhibition site. His exhibits for the Jerwood Contemporary Makers 2009 included glass sculptures, developed by a combination of cinematic stop-motion techniques, CAD modelling, rapid prototyping and traditional hand-craftsmanship with a glass fabrication company in the Czech Republic, as well as extensive documentation of the correspondence and communication directing the work.

Throughout, he retains a strong craftsman-like understanding and control over the process through computer and email with the manufacturers, which succeeds in pushing the technical boundaries of the process forward.

Exploration of the concepts of perfection and imperfection in relation to machine and hand making are also under debate. Freddie Robins produced a series of knitted garments for the exhibition The Perfect at the CAA London in 2007 using 'technology that was developed to achieve perfection. Technology developed for mass production to make garment multiples that are exactly the same as each other; garments whose production does not require the human touch. Garments that are, in fact, perfect.' (Robins 2007). But the resultant pieces such as the The Perfect: Alex, formed from odds and ends of coloured wools into a seemingly ill shaped human second skin, showing all the marks of construction, presents an anomaly looking more handmade than machine perfect.

The metalsmith Drummond Masterton, also intrigued by imperfection in an assumed perfect world, seeks out and capitalises on computer-generated mistakes in the programmes that govern the milling of his metal. (Masterton 2007). Lucie Gledhill reverses the process of machine emulating hand in the series Undo-Redo 2007-, documenting the construction and making process of a machine knitted jumper by undoing and remaking it by hand. 'I wanted the hand to imitate the machine, I wanted to track each detail, count every stitch, preserve it. I wanted to freeze time', it 'would never look like the machine-made original but [...] every difference would be a mark of the hand, an expression of the hand made'. (Gledhill 2009)

## **Summary**

It seems evident that craft practice and its relationship to making and using skills is currently under debate and approaches to it are both changing and broadening. A spectrum has emerged which encompasses the craftsperson who pursues mastery in a single technical process to lead their work; those who use the making process in a dialogue with their creative thinking to develop concepts; as well as those who work cross-discipline, who learn techniques on a 'as and when needed' basis to apply to governing concepts. Craft practice, as a result of collaboration or 'borrowing in' skilled workers, may include new key skills outside the traditional physical skills of making with materials.

This highlights a range of issues pertinent to learning and teaching skills: the potential difference between learning by observation and imitation from demonstrations or through direct experience or self-discovery; the effect of demonstrations led by a novice or by an expert; and the prescriptive or conversely the interpretative nature of the teaching and learning experience.

If we accept that the crafts have a strong relationship to physicality and materiality and that we use extensive tacit knowledge in order to create and understand it, it is important to look more closely at how this is made evident in the way we teach and learn skills. The following section of the paper will look at this in detail through our research project, which investigates the strength of non-verbal language used in demonstrations and the value of live demonstration where all the senses are available for communication.

## ***Research Project***

The overarching research project: **Teaching and Learning Through Practice** Boyes, Cousens & Stuart 2008, grew out of our practical experience as makers, and our role as teachers and demonstrators on the MDes 3D Materials Practice course at the University of Brighton. It was triggered by demands from our students to be taught more practical skills and the desire, from our position as staff, to make skill teaching more effective. The research was funded by the Centre for Excellence in Teaching and Learning through Design (CETLD) at the University of Brighton. The CETLD partnership includes the Royal College of Art, The Victoria and Albert Museum and the Royal Institute of British Architects and focuses on themes of practice-based learning and object scholarship. It was a joint project involving academic staff, technical staff and students working together.

The research explored teaching and learning in practice based courses in art and design through demonstration in order to understand more clearly how students learn physical technical skills. We primarily researched a series of demonstrations undertaken by students and staff working on the MDes 3D Materials Practice course at the University of Brighton. This is a craft based course within the Faculty of the Arts, which is concerned with creative expression and communication, expressed through object making. Live demonstrations are the main method of teaching technical skills. The curriculum provides demonstrations of key skills in Wood, Metal, Ceramics and Plastics and also encourages self-development of skills and interpretation from that base. The fluid nature of the curriculum construction leads to teaching through the students' reflective practice rather than following subject

developments. The demonstrations are set within an interpretative/creative framework and form part of a creative project. The students' creativity and individuality is also developed through parallel activities such as visual research, contextual research and material experimentation.

We also researched demonstrations in a range of other practice-based courses such as Culinary Arts and Pharmaceutical Sciences to give comparison.

<b>Demonstration</b>	<b>Level</b>	<b>Course</b>
Hand Building	1	MDes Materials Practice & Design
Soldering	1	MDes Materials Practice & Design
Raku Firing	1	MDes Materials Practice & Design
Welding	2	MDes Materials Practice
Whirler	2	MDes Materials Practice
Machine Shop	2	MDes Materials Practice
Bread Making	1	BA (Hons) Marketing, Food and Drink
Pharmaceutical Analysis	2	BSc Pharmaceutical and Chemical Sciences
Plaster Profiling	Post Grad	MA Ceramics & Glass RCA
Laminated Wood	-	Forum drawn from students, researchers, administrators, educators and practitioners in the arts
Choreography/Dance	-	Forum as above
Pinch Pot	-	Forum as above

Data was collected by observation; both as participant observers working as demonstrators, and taking part in the demonstration itself, and as detached observers present at the demonstration. Information was recorded by video and audio, interviews and questionnaires with students and examination of 3D works were made.

We looked at the following areas: the use of non-verbal communication, the value of experiential learning and live demonstration and whether the student or expert led the demonstration.

### ***Non-Verbal Communication***

Although spoken language was a major explanatory method used alongside the physical performance of the demonstration gesture was heavily employed as a parallel language. It was used in three ways: to reinforce spoken word, as a compensation for physical action, and as a connector to the haptic process of making. Bodily gesture could be seen as taking the instruction a step closer to the physical action of making.

#### **Gesture instead of or to reinforce spoken word**

Gesture was used throughout the observed demonstrations instead of speech or to reinforce verbal instruction. Almost all verbal instructions were accompanied by gesture, e.g. in Whirler, words momentarily failed the demonstrator when describing

the 'horizontal' and 'vertical' planes, and gestures replaced the words. Later, the same gestures were used again to accompany the now remembered words, implying that gesture has been used specifically, with precise meanings and has become a language.

### **Gesture as compensation for action**

Gesture was used most extensively to accompany a verbal description of a process when it could not include the actual physical process i.e. as compensatory movement. This was most evident in Soldering, which was highly restricted visually, spatially, audibly and through the short time scale of the process. Here the process had to be described before and after the physical demonstration and the actions were also emphasised and exaggerated by gesture to make the small-scale more visible. In the demonstration the physical movements of the torch and the process e.g. the bubbling up of the flux as it heats, which could potentially cause the solder to ping off, were both mimed alongside the verbal description.

A choreographer observing the Hand Building demonstration commented about the demonstrator: "You make a lot of spontaneous compensatory movements because when you are working very small like this, whenever you actually put your tool down and talk to the students, your movements get much bigger and so there's a great rhythm, from a movement observation point of view, that you see naturally."

The demonstrator emphasises the mime quality of the compensatory movement, enlarged and exaggerated in order to emphasize and make visible small-scale action. She also makes a link between the rhythm of the gesture and the natural rhythm of the making process.

### **Gesture forming a link to the haptic process of making**

The paralleling of the spoken explanation in the demonstration with a physical gestural language, could be seen as taking the instruction a step closer to the physical action of making. It served to connect the learner to the haptic process of making, touching and handling of three dimensional objects. The movements relating to the processes are strongly ingrained in any experienced practitioners vocabulary. They were often repetitive movements within a process and therefore acquire rhythm and fluidity.

The use of gesture alongside spoken word offered a parallel form of communication allowing learners to access information in a variety of ways, which helped to support a diverse range of learning styles.

### **Tactile and other sensory communication**

Tactile and other sensory communication such as sound, touch, and smell also played an important role. Touch was one of the most important senses used to collect information and as a connector to the process of making.

### **Gathering information by touch**

There were numerous examples, within our observations, of using touch to gather information. The Whirler demonstrator explained how to test when the plaster was ready to turn: “you touch it and its cheesy” and poked it with the finger to test the consistency. Later the correct consistency of plaster for pouring was also demonstrated by touch and likened to double cream, with each student feeling this in turn.

In ceramics the hand is the predominant tool whereas metal is ‘felt’ through tools such as hammers, files and saws. A close relationship develops between craftspeople and their tools, which can be seen as extensions of their body. They are often specially made, customised and passed down through generations.

### **Connection with the work through touch**

Knowledge is acquired by the craftsperson holding the object while informing the creative process. In Whirler the demonstrator touches the turned plaster form as she speaks, reflecting on the information she is gathering on its form and surface. It emphasises the constant tacit connection a maker has with the piece while working on it. The mould was passed round the students for them to explore and feel the form and the surface.

### **The inter-relationship between hand making and the individual body’s physique**

The research found a close inter-relationship between hand making and the individual body’s physique and how one affects the other. For instance in Hand Building the students showed their surprise in discovering by touch how warm or cool their pot had become as a result of the heat of their hands as they worked and how it affected the clay.

### **Other senses**

We found numerous examples of direct instruction to use the senses: in Bread Making students were asked to go outside into the fresh air to prevent “smell fatigue”; and in the Machine Workshop the sound of a saw changed in pitch in the last few strokes before cutting through a metal rod. Sound was constantly referred to throughout the demonstrations to aid learning. “If you listen, you can hear the noise of the tool changing as it touches ‘the head’ - the old plaster” (Whirler).

### **Experiential Learning**

Experiential learning was important to the students. Machine Shop was a lecture style demonstration of approximately two hours, where the machines and equipment were explained but not used. In questionnaires, when the students were asked if they felt they could use the techniques demonstrated: several (students) commented that they needed to try the processes in order to learn them, or use the machines in order to be confident with them.

This chart shows a fall off in the students' perception of whether they felt able to use the process directly after the demonstration in relation to whether they have had the opportunity to practice.

Demonstration	Practice included	Question to students: Did you feel equipped to use the process shown?	Sample size
Hand building	yes	81% yes 18% partially/with help	11
Welding	yes	83% yes 17% partially	12
Raku	yes	80% yes 20% partially	4
Soldering	no	78% yes 22% partially	9
Whirler	no	64% yes 36% partially	14
Machine Shop	no	30% yes 50% yes with practice 20% partially	10

In Welding the expert demonstrated to a group of between four and five students, before the students took turns individually to try the process in front of the rest of the group. A student commented: "actually doing it means you remember it more that just being shown it".



Welding

A student comments on the value of experiential learning and group work after Raku Firing:

“I felt this exercise was much more hands on and more practical based than other demonstrations we have had. And I think that’s very useful because when you’re doing it you actually know what you are doing and you’re taken through it step by step, yeah, and so then you’ll know for future how to do it where as in demonstrations where you don’t actually get to try the things for yourself often you’re quite forget of what was shown to you and then you need to be shown again later but with it the facts being that we all did it as a group and actually did it together I thought that was very useful.”

In the forum, one of the demonstrators commented on the necessity of experiential learning: “It can also be like trying to describe the taste of an orange, it’s very difficult to get that information across without tasting an orange.”

### **Live performance**

There were several aspects to live performance that cannot be represented by video or virtual presentation. For example sensory communication can only be interactive and fully effective in live performance. Other examples included the sense of drama and danger and adapting the demonstration to the audience needs.

### **Dramatic Value and Risk**

Live demonstration can border on theatrical performance: Fanny and Johnny Craddock, innovators of TV cooking, took their demonstrations into the world of entertainment, performing to an audience of 7,000 in the Albert Hall in 1957.

In Raku Firing the unpredictability and risk of a one-off event heightened the demonstrator’s performance and learner’s attention. This was illustrated by a collective gasp when the kiln shelf wobbled. The moment of anxiety was integral to the live performance. The tension and expectation was built up throughout the process. There was shouting, chattering, the delighted noises of involvement and excitement at the end of the three-hour process of firing. Humour and exchange between the demonstrator and student also helped to create a relaxed and supportive learning environment.

### **Role of danger**

The Raku Firing, Welding and Machine Workshop demonstrations had the potential for danger if not handled correctly within health and safety guidelines. In Raku Firing and Welding all the senses were employed taking in smoke, sparks, flame, fire, heat and inevitably registering the danger. In Raku learners experienced the social interaction of the community alongside the primitive experience of standing around a bonfire. Here they also experienced working as a team and the inter-dependence it brought. From the questionnaires the students said they were “Interested because there was fire” and from the taped interviews: “I like it because it’s dangerous”.



Raku Firing

### **Adapting the demonstration to the audience needs**

Through live demonstration, the demonstrator has the potential to connect to the learners allowing the adaptation of the demonstration in response to their individual needs in the following ways:

- The pace of the demonstration could be changed
- The content and delivery could change through the questions asked by the students or as a result of the work produced by the students during the demonstration.
- Individual learning needs of the student group.

For example in Welding there was a profoundly deaf student in the group who relied on lip reading. When the students took turns to try out the welding for themselves, the demonstrator normally gave a running commentary to 'talk' the learner through the process. In this instance the demonstrator adapted the demonstration by stopping to speak face to face with the learner. The demonstrator also explained the process by drawing onto the table and physically guiding the learner's hand. This took much longer than for the hearing students but in the end the learner achieved the weld. After the end of the demonstration, in discussion, the demonstrator learnt that the learner's ability to see was affected by the goggles, which in turn affected her balance, so pointing the flame in the wrong place.

### **Flexibility**

There is the flexibility to constantly up-date, develop and improve the demonstration content and delivery over successive performances so that it remains current and of

high quality. Future research could track the evolution of a demonstration over several performances.

Student involvement and interaction can only take place in live demonstration where students come into direct experience with the materials and involving all the senses.

### ***Expert or student led demonstrations***

#### **Variation on expert / student led demonstrations**

The variation of whether the expert or the student led the demonstration also impacted on the learning experience. Predominantly the demonstrations were led by the expert who showed the process first, for example, in Bread Making and Whirler. This set up high technical standards with the quality and fluency of the demonstrator's expertise engaging the students. Where the expert leads, there needs to be a balance of expertise and inspiration and yet still remain achievable. Making it look easy and doing it well got people engaged but the challenge must be attainable in order not to intimidate the learners. "You make it look so easy and when you try it for yourself its much harder then you think". (Student using the whirler).

The reverse was shown in Dance, where the participants, as novices, explored and created movement in response to a given script. Once the novices had experimented with the movement, the expert took the script and made a series of movements to show advanced interpretation and skill. This technique of novice first, expert last allowed more room for individual interpretation rather than copying but still gave the learner something to aspire to.

Exploration of the process by the student first is not always possible: it might be limited by complexity, difficulty or through health and safety regulations of the equipment, for example Welding.

Working alongside each other allowed for easy comparison between the expert and student performance and was the most immediate employment of knowledge with less time for memory to erode the information. It was exemplified in Hand Building, where the process of making pinch pots was explored by the students at the same time as the demonstrator. This also allowed for immediate comparative feedback on the work produced. However it relied on the student looking, listening and doing simultaneously, which may become difficult if applied to a complex process.



Hand Building

### **Novice and expert working together**

In some demonstrations, the expert and student worked together in shared activity, which allowed the latter to employ a more intuitive and tacit approach to learning, where it was physically 'felt' whilst taking part in the process. An example was the guiding hand over the students own to direct the torch while welding.

In Raku Firing, the expert and novice worked together a number of times, carefully lifting the lid of the kiln over the pack or removing the shelves from the red-hot kiln using the tongs. The precise action was transmitted from the expert to the learner to avoid knocking the work. In Raku Firing, all the students and the demonstrator worked together. When the kiln is unloaded they all had shared chores working as a unit or team. This created a community spirit and responsibility for each other's work and also promoted joint ownership of knowledge giving the learner equal responsibility.



Image 5 Lifting kiln shelf together

## **Conclusion**

Given the physicality and materiality that we associate with the crafts embodied in pieces like *Consciousness/Conscience* by Clare Twomey and the extent of tacit communication used in both making and understanding crafts, it is not surprising to see how richly this underpins teaching and learning through demonstration. There is powerful use of tacit or 'unspecified' knowledge and non-verbal communication involving all the senses, sight sound touch and smell, alongside the explicit spoken word.

Live performance is particularly well situated to involve the full range of sensory communication and incorporate the tacit knowledge innate in crafts, unlike videos of demonstrations, which are audio-visual only. The flexibility of live demonstrations potentially allows for continual evolution through incorporating updated information at each performance. It can also be instantly tailored to the differing needs of the learner in reaction to the student response. The inherent sense of risk and unpredictability heightens performance and engages student attention.

Experiential learning through student involvement and interaction with the demonstration is a key factor in the student's confidence to work later with the processes and techniques shown. We found a variety of approaches to delivering the demonstration, which could positively reflect the widening range of philosophical approaches to skills and workmanship found professionally in the crafts. Different combinations of the expert and student leading the demonstration, group work and pairing relate to the development of the student's creativity through the opportunity to interpret and adapt the information while learning the skill or conversely to copy prescriptively and benefit directly from the expert's knowledge.

In terms of teaching, live demonstration can be time consuming, costly and hence difficult to sustain in today's economic climate. Our research explored the complete process involved in learning through demonstration and our findings indicate that there is not a replacement for live demonstration or the value in teaching by example alongside the student's practical experience. Video has an important role in supporting live demonstration but needs to be brought alongside the student's experience of making in the workshop. We have recently completed research funded by CETL Learn Higher developing the process of making and using short video clips on MP3 players to support live demonstrations. We have identified a number of key areas where video could be a positive addition, such as acting as aides-memoires to live demonstration, to enable recall of complex health and safety procedures and to give detail to small-scale processes, which are hard to follow in a group demonstration. These do not replace the live demonstration but support them and aid learning.

We may be moving increasingly into a virtual world but there is evidence that craftspeople are using the new technologies to re-examine and create new relationships with skill and craftsmanship. It is also evident that craftsmanship and the role of skill are on the agenda and under debate across all disciplines. It has, for instance, infiltrated the major UK Fine Art prize - the Turner shortlist for 2009. Juror Dr Andrea Schlieker reflected: 'all the short-listed artists shared a commitment to craft - a quality that has taken second place to concept recently' (Adams 2009) and described as 'sensuous, delicately crafted, beautiful work' by The Guardian newspaper critic (Higgins 2009). Recently sewing shops and knitting bees have appeared in our high streets (Brighton and Liberties, London) as communal places to meet, make and create. It appears that as humans we have an instinctive need to connect with materials and the processes of making.

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