

The value, relevance and sustainability of ‘craft skilling’ in Higher Education today.

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This paper explores the questions:

- ‘How and why should we sustain a full and effective craft education in today’s fast-paced digital society?’
- ‘What is the value of tacit knowledge and craft skills?’

The definition of craft in this paper refers to that of ‘professional craft’, the intellectual and physical activity of making in order to produce work at a high level of expertise and skill. This research has relevance for craft and various fields of design educators, practitioners and students.

In February 2014 the Crafts Council published [Our Future in the Making](#) a comprehensive report of trends in contemporary craft education in the UK. This research highlights the severe dilemma that craft subjects face in education in favour of STEM (Science, Technology, Engineering, and Mathematic) subjects. Craft is almost non-existent in secondary education and subsequently there has been a catastrophic reduction in craft based courses in higher education over the last ten years with the inevitable effect that courses are closing all the time. This comes at a time when the value of craft skills to the UK economy has been quantified and is significant: 'craft generates £3.4bn for the economy. 150,000 people are employed in businesses driven by craft skills.' (Crafts Council 2014)

This quote from Rosy Greelees, Crafts Council Executive Director emphasises the values and transferable skills that a craft education brings to the UK economy and the creative industries. So the decline in craft education is in contradiction with this research that highlights the UK as a world leader in craft.

The UK has a history of excellent craft and design education which has resulted in thriving and world-leading creative industries. The haptic and material skills of makers feed into innovation across a range of sectors. A continued decline of craft-related courses will have an effect on the next generation of makers, the creative industries more broadly and beyond that to a number of industries including medicine, technology and engineering. (ibid.)

This decline in craft education paradoxically comes at a time when there is a public resurgence of the phenomena of making as seen in the popular BBC 2 productions 'The Great British Sewing Bee', 'The Big Painting Challenge', 'Great British Pottery Throw Down' and the new 'Making' series on BBC 4.

These programmes form part of a wider ethos regarding making as a healthier way of life and the notion of the benefits of slow thinking in contrast to the quick fix offered by the 'digital world'. Research has identified concrete links between craft making and health and wellbeing (Yair 2011; Riley 2008; Burt and Atkinson 2012).

A recent article in the Mail Online, Monday 14 September 2015 champions the benefits of knitting and 'the sense of accomplishment achieved after hand-crafting something special has also been shown to reward pleasure pathways to the brain'. Occupational therapist Victoria Schindler explains; 'The repetitive motions of knitting, for example, activates the parasympathetic nervous system, which quiets that "fight or flight" response.' It says 'Studies show that knitting can cure depression.' (Goslings 2015)

Other identified benefits include the pleasure makers describe when immersed in their making – the feeling of being lost in the 'flow' of things as the mind and body work together in repetitive co-ordination (Yair 2011). But still craft teaching in Higher Education can appear to some people to be an 'expensive luxury' with its need for fully equipped workshops, technical support and numbers restrictions to comply with ever increasing health and safety regulations.

In order to sustain this 'hands on' strategy it is essential to articulate how students learn through this method of teaching and how this can produce highly skilled, versatile practitioners, researchers and innovators holding a wide range of transferable skills. The thrust of the teaching, learning and pedagogic research in design and craft at The University of Brighton is embedded in experiential learning, and knowledge gained through tacit learning.

Over a five year period Alma Boyes, a ceramics specialist and Programme Leader for BA(Hons) / MDes 3D Design and Craft course at the University of Brighton and Cynthia Cousens, an accomplished maker and educator in metals and jewellery on the same course, have undertaken research projects in order to more fully understand and evaluate the value of 'hands on' tacit learning and how this approach fosters and develops independent learning in design and craft students.

The research was primarily carried out through qualitative case studies. Data was collected by observation; both as participant observers and detached observers, questionnaires, interviews and evaluation of student work produced. Information was also recorded by video, audio, written and photography. The main aim of the research was:

- to understand how students learn through observation, emulation and how they use this as part of the creative process.
- to improve and develop innovative modes of practitioner based teaching in Higher Education.
- to contribute to the quality of teaching and learning in craft and design based subjects nationally and internationally.

The first project titled Teaching and Learning through Practice⁹ was funded by the Centre for Excellence in Teaching and Learning Through Design, (CETLD), a Higher Education Funding Council for England (HEFCE) funded partnership between the University of Brighton Faculty of Arts and Architecture, the Royal College of Art (RCA), the Royal Institute of British Architects (RIBA) and the Victoria & Albert Museum (V&A). CETLD was a higher education initiative created in 2005, seeking to advance higher education through design.

One of the main methods of delivering craft teaching on the 3D Design and Craft course is through demonstration. A demonstration is where a student is physically shown how to do a process, technique or how to use a piece of equipment. Health and Safety regulations make it necessary for some demonstrations to be restricted to small groups of students so this method of teaching and learning can be perceived to be 'expensive' and 'unsustainable' so through the research project we asked the question:

'How effective is live demonstration and what is its relevance?'

Reading a demonstration, identifying what is critical to enable emulation and then applying the information, is a complex process for students. Techniques, equipment and processes can be sophisticated, they are often used in combination, and employing them involves the whole body and all its senses.

In this project twelve demonstrations were observed, recorded and analysed predominantly in the creative subjects of Ceramics and Metals, crossing a variety of formats and styles and student levels including postgraduate. Demonstrations given in other practice-based subjects of Culinary Arts and Pharmaceutical and Chemical Sciences were also studied to give comparison.

Demonstration	Level	Course
Hand Building	4	BA (Hons) 3D Design and Craft
Soldering	4	BA (Hons) 3D Design and Craft
Raku Firing	4	BA (Hons) 3D Design and Craft
Welding	5	BA (Hons) 3D Design and Craft
Whirler	5	BA (Hons) 3D Design and Craft
Machine Shop	5	BA (Hons) 3D Design and Craft
Bread Making	4	BA (Hons) Marketing, Food and Drink
Pharmaceutical Analysis	5	BA (Hons) Pharmaceutical Science
Plaster Profiling	7	MA Ceramics and Glass
Laminated Wood	-	Research Forum
Choreography/ Dance	-	Research Forum
Pinch Pot	-	Research Forum

Key areas that emerged from this research were the value of experiential learning and the importance of touch.

The importance of touch

Touch was one of most important senses, playing a fundamental role in demonstration; it was primarily used to collect information and as a connector to the process of making. In ceramics, the hand is the predominant tool, working directly with the clay and therefore direct touch is very important. Metal is rarely worked by hand but 'felt' through tools: often hand held tools such as hammers, files, and saws. A close relationship develops between craftspeople and their tools, seen as extensions of their body, they are often specially made, customised and passed down through generations.

There was a close inter-relationship between hand making and the individual body's physique and how one affected 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. During the same demonstration students felt that their attention was more focused when they could touch the clay. Being in touch with material placed them in an interactive and responsive frame of mind. A student interviewed after the demonstration said: 'Even holding a piece of clay in the hand helped focus and identify with what was being shown'. (Boyes et al. 2008: 16)



Image 1: Pinch pots from the "Hand Building" demonstration, Alma Boyes

Knowledge is acquired by the craftsperson holding the object while informing the creative process. There were numerous examples, within the observations, of using touch to gather information. In the 'Whirler' demonstration the demonstrator touched the turned plaster form whilst speaking to the students, reflecting on the information she gathers on the form and surface. It emphasises the constant tacit connection a maker has with the piece while working on it.



Image 2: Touching the plaster form from the 'Whirler' demonstration, Alma Boyes.

The value of experiential learning

Experiential learning through the students involvement and interaction with the demonstration was a key factor in the students confidence to work with the processes and techniques shown. 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

A student comments on the value of experiential learning and group work after the 'Raku Firing' demonstration, feeling that because the demonstration was more hands on it was more useful because you were actually doing it and that in demonstrations where you don't actually try things out you are quite forgetful.

In the 'Welding' demonstration where the expert demonstrated to a group of 4-5 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 than just being shown it.' (Boyes et al 2008 18)

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.

In some demonstrations, the demonstrator 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 demonstrator and student 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 demonstrator to the learner to avoid knocking the work.



Image 3: Demonstrator and student lifting the kiln shelves together in 'Raku' demonstration.

In 'Plaster Profiling' and 'Bread Making' the demonstrator first demonstrated the process then students of mixed ability were paired together to copy the demonstration. In this way they gained confidence and support from each other. This gradually built confidence initially learning through the demonstration itself and subsequently embedded by teaching and helping each other.

The research found live demonstration, which involves all sensory communication seeing, listening, hearing, touching and smell has positive benefits. Its flexibility potentially allowed for continual evolution and to be instantly tailored to the differing needs of the learner.

Under the theme of experiential learning but from a different aspect the project Observational Learning through Professional Practice (Boyes et al. 2010) funded by CETLD, assessed the value of learning practical skills by direct observation of an expert making in a professional studio and as part of the entire process of the production of an artefact.

The specific research question in this project was: 'What is the value in students learning skills by direct observation of professionals working in their studios in the practice-based arts?' The research explored the following aspects of experiential learning:

- the holistic view of a technical skill or process within the entire creative process
- setting a technique or process within a professional context
- insight into speed and activity of making
- understanding of the rhythm of creating through the materials and processes
- the learning of skills through international experts of the highest level

The project was essentially a case study, which entailed taking two small groups of ten students to visit two internationally recognised professional makers working in their studios. The studio visits were to David Clarke, often cited as one of Britain's most highly innovative metalworkers and Christie Brown, Professor in Ceramics at Westminster University. The students were self-selected by volunteering to be part of the research and were drawn from years 2, 3 and 4 of the 3D Design and Craft Course. The students were tasked to observe the artists making without asking questions.

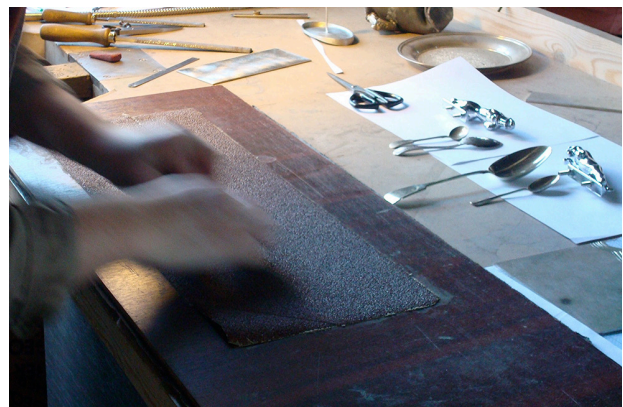


Image 4: The hands of David Clarke working in his studio.

Data was collected from students by means of: unobtrusive observation, video-audio recording of the visit, photography of student journals made on the visit and through self-completion questionnaires. We were essentially looking for rich, detailed information that is found within methods such as: questionnaires and unobtrusive observation. In the research individual students were distinguished by identifying them by letters A, B, C etc.

'Inspirational experience'

The students were overwhelmingly positive about the experience. There were a number of findings. Many of the students commented that it was an 'inspirational experience' and the word recurs throughout the journals and questionnaires. They were inspired to return to their own work and 'get into that focused zone' (Boyes et al. 2010: 4).

Strengthened confidence

Other students cited that it strengthened and developed confidence in their skills, Student F thought the value lay 'mainly in gaining confidence from seeing that the same techniques are applied in professional use – seeing care and application of techniques, dexterity'. The visit gave Student I confidence and encouragement to work in metal 'as I find it hard to push possibilities in making when working with metal - and seeing those forms being constructed and touching their finish it really helped'. (Boyes et al. 2010: 4 , 5)

The students valued the experience even though the subject of the professional's work did not necessarily relate to their own giving them a 'new perspective'.

Knowledge acquisition was also a large part of the findings, which will not be covered in this paper but other key lessons articulated were about acquiring a deeper level of understanding of workmanship, attitudes and approaches to work. Throughout the journals and questionnaires the students commented specifically on the speed and timing of the professional maker. Students observed a marked relationship between confidence, craftsmanship and the speed and rhythm of making.

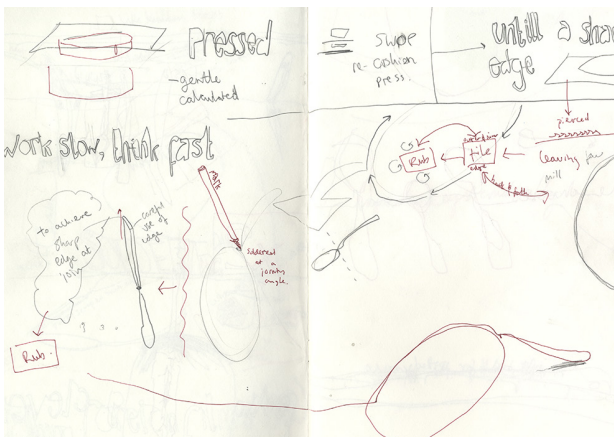


Image 5: Student I's journal 'Work slow, think fast'.

The value of non-verbal communication

These students valued direct observation uncluttered by translation into verbal language: Student C states, 'I enjoyed watching her and thinking just about what she was doing rather than being told. I observed ways in which I could develop my own techniques for the better' and student J also noted that the experience was 'teaching us to look – nothing lost in translation'. (Boyes et al 2010: 16)

Independent learning

Several of the students remarked that the method of learning placed a different emphasis on the learner to be active, to question and look: Student A 'I think that it is interesting that you are not allowed to talk. It makes you question a lot more what is in your head.' 'Observing without speaking makes you more inquisitive.' This method of self-discovery leads to more independent learners. (Boyes et al. 2010: 16)

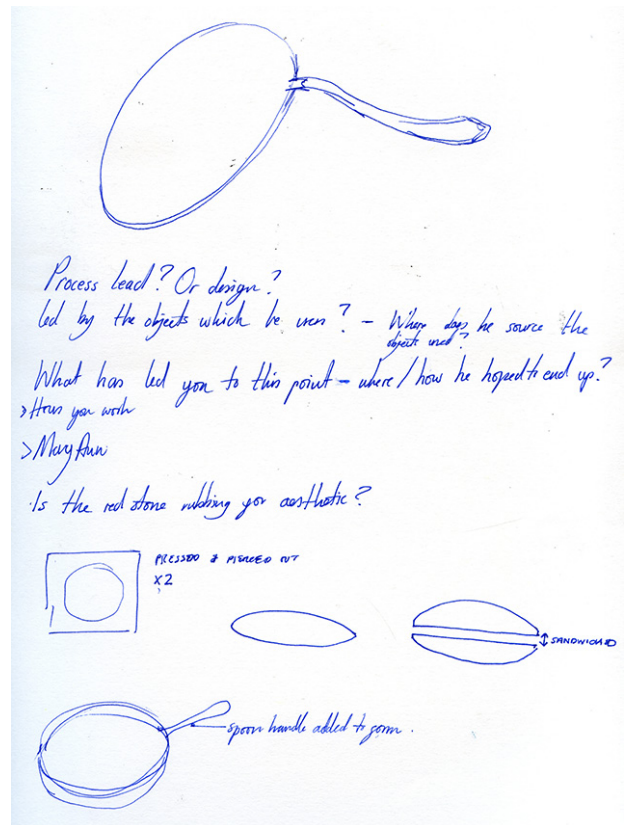


Image 6: Student E's journal 'Design Led or Process Led'.

The third research project, *In the Hand* (Boyes and Cousens 2010), awarded an Art Design & Media Teaching Fellowship, set out to assess how handling objects could contribute to an experiential and sensory form of learning, and play an important role in the process of designing and making within the art and design disciplines in higher education.

This project entailed two groups of third year students volunteering to take part and to select seven to eight artefacts from the V&A's ceramics and jewellery collection website to handle at each session. The artefacts were presented by the curators at the museum. These were two different groups of students and in this research project individual students were distinguished by identifying them by letters and numbers ie. A1, A2, B1, B2 etc.



Image 7: Metalwork handling session at the V&A

The data revealed that the handling sessions benefitted the students in two key areas: an increased awareness and understanding of the physicality of objects and their making, and also a powerful long-lasting impact on their attitudes and approach to making.

Tactility and handling the forms enabled the students to gain a deeper understanding of the texture and form of the pieces. 'It was also amazing being able to rotate and handle the items so that you didn't just see them from the angle that someone else had perceived to be their best (e.g. in a case)' (Student B1).

Touch is not just a single sense as Heller points out; 'Touch involves the interrelation of rhythm, movement, contact proprioception [...] and with it we can perceive shape, space, colour, size, texture, temperature, vibration and response.' (Heller 2009)

Handling objects and being able to explore the pieces from all angles and sides, back, top, bottom, inside, out, helped the students to appreciate the full three dimensional qualities that are difficult to grasp when limited to the single sense of vision. The students also noted that they were in 'control' of their experience with the work.



Image 8: Ceramics handling session at the V&A

Experiencing the weight of objects was also identified as an important factor in all three handling sessions: 'I think that the amount of information that you took in about each piece was greatly increased. You were no longer only learning about them visually, but also able to gauge much more, such as weight, giving a more wholesome experience.' (student I1)

Students also commented on their surprise at the scale of some of the pieces, which is mainly in relation to images on the web site or images in a book (rather than in the glass case). 'Seeing and handling the jewellery, at first hand gave me a greater impression of the scale of certain pieces especially the cut steel piece, I didn't realise it was that large.' (student D1)

'It enabled me to realise the true scale, colour & texture of the pieces. Seeing the pieces photographed in the book & then experiencing them was totally different.' (student J1)

Understanding colour was an important factor for the students. They described being able to appreciate 'colour, reflection, facets'.

Change in attitude to work – respect and value

Students identified other influences such as the connection it gave them to the object, maker and user and the value of the curator's information historical, contextual, social and technical, on their ability to gain a deeper understanding of the artifacts. This all led to raising their confidence, aspiration and connection at a high level and ultimately to a change in attitude to their work through respect and value. 'When you see objects that have become so precious over time it makes you handle your own work totally differently.' (Student K2)

'I have to understand that they are pieces of work they are not just a project, they are in the world now and I think that the visit has made me understand their preciousness in a way.' (Student N2)

Conclusion – Primary Findings

The primary findings from the combined research projects were that experiential learning through the involvement and interaction with the materials, processes and handling artefacts were key to success in problem solving, independent thinking, self confidence and expertise. Although experiential learning and tacit knowledge gained by learning through doing and thinking through making can appear to be 'unsustainable', 'out dated', 'slow' and 'time consuming' in our modern fast paced digital society it is this method of teaching and learning that is required by employers today.

It endorses the notion that 'Craft education nurtures the twentyfirst century skills of collaboration, communication, creativity, problem-solving and resilience that are prized by employers across the economy.' (Crafts Council 2014) 'Hands on' investigation into materials and the technologies of making through manipulation, experimentation and the innovative application of materials to processes can lead to the invention of new materials, products and objects that challenge precedents and provoke debate.

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i The Research Excellence Framework (REF) is responsible for appraising the impact of research in UK Higher Education.

ii See also Indra Kagis McEwen's book, *Socrates' Ancestor: An Essay on Architectural Beginnings* (MIT, 1993)

iii Marcel Proust in Remembrance of Things Past 1923
iv <https://vimeo.com/9498805>

v Anders Gammelgaard Nielsen, Aarhus School of Architecture, Denmark

vi See <http://www.studioswine.com/can-city>

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