See what happens! – The value of creative experimentation through materials

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Introduction

Experimentation is widely recognised as being fundamental to developing an individual, agile and sustainable creative practice. From our experience as educator-practitioners, we have perceived a decline over the last eight years in our students' ability to engage in material experimentation. This research analyses and evaluates the role of experimentation through materials in the creative designing and making of three dimensional objects and artefacts. It focuses on student and professional attitudes and engagement with material experimentation: how they define it, the methods they use and the value they place on it; in order to establish how it can be best supported educationally. It looks specifically at the field of metalwork but it is anticipated that there will be relevance across the art and design sector and beyond.

The primary aim of this research is to strengthen the place of material experimentation within the Higher Education curricula and to contribute to the quality of teaching and learning through designing and making in materials. The experience of the students should benefit through knowledge gained by the educational sector and improvement to curricula. It will help to meet needs for graduates in developing the agile creative practices essential to succeed in professional 3D art and design employment.

research methodology

This project is essentially a case study of undergraduate students and postgraduate students, representing both early and late stages of education, and professional artist-makers. Participants were all working creatively, mostly with metal and included design, craft and fine art approaches. The research questions were:

1. What is creative experimentation through materials in 3D art and design practices?
2. How do student and professional artist-makers experiment through materials - is there a coherent methodology?
3. What impinges on and what stimulates creative experimentation?
4. Why do student and professional artist-makers experiment?
5. How can creative experimentation through materials and the associated risk-taking, be supported within Higher Education curricula?

The data collected was predominantly qualitative using a flexible approach, essentially looking for rich, detailed information, found within methods such as: semi-structured interviews and unobtrusive observation. Some quantitative data was also

produced through questionnaires. The individualistic nature of creativity was reflected in allowing theories to emerge from the research (grounded theory), for example allowing definitions of material experimentation to emerge through interviews with artists. Three events were set up to provide data. A one-day project was undertaken with Level 1 students from the BA 3D Materials Practice and 3D Design courses at the University of Brighton, and data was collected through mind maps, journals, self-completion questionnaires, observation of the working process and records of the artefacts made. Five postgraduate students from the Royal Collage of Art were interviewed and their work recorded. Three professional artist-makers, a sociologist, and a materials scientist were brought together for a Creative Workshop Forum and Seminar, where projects were set, and interviews and artefacts studied. The small sample size studied of 25 individuals resulted in observations specific to this particular community but we consider that their experience is likely to have relevance to a wider community of students in other universities and professionals from metalwork and other three dimensional disciplines.

A full ethics document was presented and approved by the University of Brighton Faculty of Art and Design Ethic Committee.

Findings

Although experimentation through materials may be considered to be fundamental to artist-makers, the process is rarely articulated or documented in full and is rarely made public. Certainly an understanding of what ‘experimenting with materials’ means, its value and how it is undertaken, exists and is evident in educational communities where knowledge is commonly passed tacitly or verbally from teacher to student.

Perhaps it is not surprising though that no one clear definition, method or set of values emerges in a field where its protagonists are expected to be individual, original and innovative; their training and working processes continually evolve new concepts, approaches, methods and techniques. Therefore this research has set out firstly to document and bring together individual viewpoints to create a broad typology and secondly to consider strategies to help strengthen the place of material experimentation in the Higher Education curriculum.

definitions

The American Oxford Dictionary definition of *experimentation* points back to the Latin: *experiri* - “to try” but also highlights a difference between the sciences - “testing a hypothesis, or demonstrate a known fact” and the arts to “try out new concepts or ways of doing things”. This dichotomy of definition was also echoed in this research and found to signify different approaches *within* the arts. Further to this the range of definition voiced by the artist-makers and students can be categorized in relation to the following: the area of knowledge, purpose, type of activity, methods and techniques employed, associated attitudes, and in relationship to other activities.

The most straightforward definitions confirmed the direct link of material experimentation to material qualities and processes. For some, this knowledge and understanding of materials, gained through experimentation early on in their educational development, formed an essential basis to their creative practice. It was generally considered as a key learning process and frequently defined in terms of finding new and independent knowledge.

Fundamentally, participants saw material experimentation as a physical process – a ‘doing’ and making activity. Some described a physically based experience explored both tacitly and experientially, working with the hand and the senses and also empathising or developing a dialogue with the material. Yet there was also debate about the impact of new technology and the virtual world on material experimentation. Concern was voiced about how it would affect the physicality of the experimenting process and its reliance on materiality.

Some of the participants defined material experimenting as testing or trying out pre-constructed ideas, often employing a systematic process. Although some described it as a game with rules in which limitations may be set, others reduced the process to selected questions and answers. On the other hand it was also defined as playing, requiring complete freedom and openness of spirit, an intuitive act and pure enjoyment.

It was defined both by an attitude of mind and by approach. There was a requirement to embrace mistakes or the unpredicted and a willingness to take risks. Often it was described as pushing materials and self to extreme limits. For others it also included practicing, developing skills by repeatedly using them.

Generally there was a sense of discovery that it leads to new knowledge but that the ‘unknown’ also brings uncertainty and possibly risk. For a few there was a sense that exploring outside one’s ‘safety zone’ enabled flexible thinking leading to the generation of new ideas and concepts.

methods and strategies used

It is evident the methods and strategies employed in material experimentation were individualistic, in keeping with the breadth of definitions. The emerging methodologies were primarily based on physical engagement and critical reflection.

The process builds in steps. Some begin with an initial stage, which is open, non-reflective, and intuitive in nature, in which conscious thought and rationality are partially suspended. Others initially explore more consciously predictable and existing or known solutions. These initial stages were often eventually rejected, serving to enable access to a deeper secondary process. For some there was a distinct point of recognition of the value of what has emerged, and the process changes to be directed by identifiable intention and logic.

Experiments were nearly always made in multiple groups or series rather than as ‘one off’ pieces. This multiplicity allowed variation and change, bringing individualistic results. These necessitate comparison, selection or evaluation against criteria. Different patterns of work emerged – multi-tasking, working on several pieces at the same time, or consecutive sequences, with one piece informing another.

The process of evaluation and selection - or what could be termed the reflective process - runs alongside the physical work, the essence of each experiment carried onto the next. The direction the series of experiments takes might be linear and forward moving or might hop around in numerous directions, creating web-like threads or links in tangential ways, driven by excitement and discovery. Note-taking might help to record trains of thought and process, acting as an aide-memoire, allowing the retracing of paths. This process grows at varying speeds: combinations of slow and fast work. Overall there is an emergence of a need for an agile and flexible mind to orchestrate work across a multiple series of experiments, create links often in many directions and operate at different speeds.

The act of reflection linking these stages or processes was also revealed, sometimes through observation or connections to other contexts. For some, reflection was so closely bound to the making process that it was described as ‘thinking through making’. There was general recognition that it is not necessarily conclusive but it is about generating ideas and learning, opening up possibilities and questions, involving uncertainty and risk.

Throughout the research there was a strong acknowledgment of both breaking and establishing boundaries during the activity of experimentation. This included the imposition of limitations on the process, for example, by restricting the range of materials or by retaining constants, imposing focus on an otherwise infinite process. ‘Pushing ones self’ or the material or process to its limits and to extremes, driven by a desire to discover new knowledge, was also a frequent characteristic of the working process.

what affects the ability to experiment

There were varying views on whether prior knowledge and skills would serve to inform and enable the process or if the inherent traditions would serve to restrict the process. Some Level 1 students felt they needed more experience before experimentation, whereas some postgraduates felt the lack of a traditional or established framework of skills and knowledge benefited them, allowing space for personal discovery and variation. The professional artist-makers, who were established and publicly known for distinctive approaches to their work, felt that they had to first set aside these personal traditions before feeling free to experiment.

Inherent in working with the unknown and uncertainty is risk - economic risk, or the risk of working outside familiar traditions, personal comfort zones, and of personal and public failure. Professionals identified both the risk of not having something of value at the end of the day – in a world where their time equates to money; and the risk of producing poor work, which is damaging to their public profile. Students identified a perception that they needed to produce an object or product at the end of a project and the risk of failed assessments.

However there was also evidence of an inner confidence or ability to override risk, to employ strategies to negate risk or to convert risk into opportunity. Risk is framed within expectation, therefore if expectation is lessened or negated so is the risk of failure. Negating risk strategies employed included working in multiple – hence spreading risk; to down play the value of the process and possible outcomes; to work secretively or privately where the process is not seen publicly including editing material for an exhibition. Equally, risk was diminished by an open expectation of the outcome. The philosophical and conceptual approach is one of being open to what might emerge. ‘Mistakes’ are seen as ‘accidents’, divergences and can be converted to opportunity because of a flexible expectation of outcome.

The working environment was seen to directly affect the methods and strategies used to experiment, especially when placed in an unfamiliar or unusual workplace where the natural flow of individual working patterns is challenged. Unfamiliarity enabled some to reflect and learn new things about the way they worked. Some sought solitude to avoid embarrassment or sought an empty, anonymous environment to create thinking space. Others benefited from the dynamics of people in the immediate environment to get feedback on their experiments, or sometimes incorporating others into the experimental process. Equally flexibility to transfer and even transgress the traditional use of equipment, tools and ingredients created

potential for new directions for the material experiments and even new ways of thinking about their work.

why do artist-makers experiment

As the definitions artist-makers place on material experimentation and the methods they chose to employ are both complex and individualistic, so it may also follow that the reasons for doing it and the values they place on it are equally varied.

References have already surfaced earlier in the discussion of material experimentation being used to find new knowledge. It is therefore closely linked to the research process; as a means to finding and developing new concepts, individuality in their work and to generate original ideas; to try out ways of realising existing ideas; to test specific physical material qualities for a product; and as a form of play, which is connected to self enjoyment and satisfaction. ‘New’ knowledge could also encompass known knowledge that is represented in another context or reconfigured in an unfamiliar way. For example knowledge previously acquired by the artist-maker tacitly could be made explicit and conscious through experimentation, or represented through experimentation in a fresh context or format.

The link between material experimentation leading to the acquisition of new knowledge and the key objectives of individuality, originality or uniqueness of the work were considered to be the essence of a *creative* practice by the postgraduate students. They used words like ‘discover’ and ‘curious’ in conjunction with gaining new knowledge when describing material experimentation and it is likely that these serve to form personal motivators. Whereas for those who defined material experimentation in terms of ‘play’– without much in the way of guiding themes or concepts to initially govern the direction of work, connected with enjoyment and excitement as a key driving forces. For some the value of material experimentation was considered as a legacy, to potentially inform their work at some future date.

Sometimes the journey of the process, the material experimentation itself is so highly valued for the learning and knowledge that it becomes the main outcome rather than a resolved 3D object. It is interesting to note the recent rise of ’work-in-progress’ exhibitions as a new method of developing and revealing working processes through critically engaging with the public. Some professional artist-makers clearly value material experimentation highly, seeing it as the ‘life-blood’ of their work or as a means of regenerating their creative practice.

Conclusion

recommendations to strengthen teaching experimentation through materials in higher education

Experimentation through materials is based on physical activity with materials and related processes, it is wide ranging and individualistic by definition and in the range of methods used. It is primarily used to discover new knowledge and new ways of thinking by developing new concepts or testing ideas and through that plays a vital role in the creative process. However, although it primarily engages with physical making, it is yet to be seen how the development of the virtual world will influence and bring new methods to the process.

The research flags up the individualistic nature of the process in the rich variety of definitions and methods used by artist-makers, which should be reflected in any

teaching strategy related to it. Therefore it would sit more appropriately within an interpretative rather than a prescriptive framework of delivery.

The working process is split between two fundamental activities – predominantly the physical making or doing process and secondly the thinking or reflective process. The physical making process requires materials, equipment and tools as appropriate. The working process can be broken down into several activities, which could be supported by teaching input: working in multiples, evaluating variation through comparison, consideration of governing themes which might link sequences of experiments, lateral thinking, organising and managing different strands and developing methods of recording thought pattern. Economic risk can be lessened by considering the use of sponsorship as a means of purchasing expensive materials, recycling material eg silver can be reclaimed by melting and then can be reworked so that both material costs are reduced and the risk of 'messing it up.'

Since the process of experimenting generally involves working with uncertainty and risk, it is important that the teaching supports the student to help them build confidence and security to allow risk taking. The programming and amount of time available to creatively experiment should be considered when planning the curriculum. Introducing material experimenting after the student has initially settled onto a new course, is familiar with the health and safety requirements of a workshop environment or introduced when a student group is established and have confidence to support each other may be beneficial. Equally strategies should be in place to reinforce the fundamental nature of experimenting through materials early on in their education.

Teaching of material experimentation needs to be framed within an interpretative approach to encourage individual development. Support should be given to help the learner gain confidence and form strategies to deal with the risk and uncertainty of moving into unknown territory. An awareness of appropriate assessment requirements is important which can be channelled towards process rather than predetermined product, and towards a process where the intention is clearly established but outcomes are emergent rather than predetermined.

The methods involved in experimenting encourage open, flexible and agile thinking which are valuable transferable skills. It encourages development of the reflective process of evaluation, selection and analysis of activity and the development of systematic trains of thought linking series of actions. It uses both intuitive and rational approaches to working and contributes to the development of the valuable ability of converting risk to opportunity.