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THE POST DISCIPLINARY DIGITAL PRACTITIONER

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ABSTRACT

As new models of digital practice emerge, new pedagogies are being developed which are adopting a transdisciplinary approach to learning. The paper examines the concept of transdisciplinarity drawing on a range of examples from the USA and Europe. There are a number of institutional barriers and constraints that challenge progress towards a new digital Bauhaus. The tension between acquiring haptic and digital skills is also an important consideration. The tension we refer to arises from the need for students to acquire an understanding of elements of form, colour and spatial awareness, skills which are acquired through making, whilst at the same time acquiring digital skills. Examples of digital practitioners who have embraced a transdisciplinary approach are highlighted.

Keywords: Design Education, Transdisciplinarity, Digital, Bauhaus, Practitioner.

1   INTRODUCTION

As 3-D modelling, rapid prototyping and computer mediated manufacturing techniques become ever more accessible, a growing number of practitioners are exploiting these technologies as part of their practice. Digital practitioners are increasingly being drawn from a wide range of traditional design disciplines, including product design, craft and architecture. What these practitioners appear to have in common is advanced making skills and an ability to work with virtual objects.

Developing new pedagogical models to educate the next generation of digital practitioners presents opportunities for Higher Education. Acquiring the haptic skills associated with making, whilst not losing the intimate knowledge and experience of materials, gaining the necessary digital competences. To be able to integrate these skills into practice represents a significant challenge for both the practitioner and academic. This paper looks at examples of such academic courses that have set out to educate the new digital practitioner and the concept of transdisciplinarity.

2   EXISTING ACADEMIC MODELS

In the UK, some of the more specialist courses, for example craft courses, have in recent years found it more difficult to maintain student numbers. There are a number of factors that make it difficult for institutions to respond quickly to social and cultural change. In some cases it is a false belief in a golden age of higher education, perhaps trading on previous heritage or reputation, which is largely illusory. A lot of institutions have built in inertia for change so that they cannot react quickly, this stops people from innovating and developing new areas which are locked in the past.

The existing models of academic structures are the 'sacred cows' of contemporary education, acting as artificial barriers which if overcome might offer distinct advantages to the next generation of design practitioners. Students are increasingly testing the limits of traditional disciplines. Previously this was exclusively the preserve of postgraduate students but more frequently undergraduates are producing work that challenges existing disciplinary boundaries.

Universities provide an environment, culture and community for learning. However increasingly students are choosing to work remotely and make use of the institution only to access facilities, receive feedback and provide a quality control infrastructure. The traditional studio-based model of design education is in the process of being replaced by a laptop on the kitchen table. The implications of this for the future of design education should not be underestimated.

3 NEW MODELS

The wider process of the transformation across research in general is discussed at length in Gibbons *et al* (1994) [1]. The authors'[1] questioned the adequacy of traditional disciplinary structures within universities in the context of broader social, technological and economic contexts.

Students are increasingly making use of digital technologies as the tools of design but they are also accessing information and networking at websites such as cgtalk [2] and online animation schools [3].

Perhaps as academics we should be learning lessons from the music industry whose monopoly has been challenged through the use of music downloads. In his 2006 Royal Society Arts lecture, Stephen Heppell discussed his vision of learning in the year 2016 [4]. Heppell specifically points at education needing to be "project-based" rather than "discipline-based". He is particularly harsh on Universities, and questions the relevance of assigning essays in the age of Google. Heppell suggests instead that open and transparent contributions in the form of moderating an online forum or producing a pod cast may be more relevant. As Thomas Friedman (2005) [5], states "Kids also must learn to think across disciplines, since that's where most new breakthroughs are made. It is interdisciplinary combinations -- design and technology, mathematics and art -- "that produce YouTube and Google,"

According to Wallis and Steptoe (2006) [6] there is an opportunity for Universities to run masters programmes that bring together elements of creativity, technology and business. Students could be drawn from different disciplines, including participants with industrial experience. The aim would be to produce executives who better understand how to exploit creativity and manage innovation. George Cox (2005) [7], in his review of creativity in business reinforces this view with a key recommendation that universities should **"**tackle the issue, in higher education, of broadening the understanding and skills of tomorrow's business leaders, creative specialists, engineers and technologists". Wallis and Steptoe [6], put forward IDBM in Finland, or Stanford University in the USA as good examples of innovative teaching models. Malmo University [8] also provides a thought-provoking example.

4 TRANSDISCIPLINARITY

The term transdisciplinarity describes areas of study that transcend existing boundaries between traditional disciplines. Examples are provided [9,10,11,12]. The MFA Design course description for the California College of the Arts [13], provides an illustration of how USA higher education is embracing the concept of transdisciplinarity. "As our

world and cultures undergo radical transformations, so the role of design is growing and changing. The professional design world increasingly values broad, transdisciplinary design knowledge.... design continues to grow beyond the traditional notions of designing objects and messages and toward designing change ..... as the boundaries between traditional disciplines blur, new forms and methods are emerging. Tomorrow's designers must comprehend a much broader realm of practice, and must likewise be ready to embrace greater opportunity and leadership in shaping the future of culture in fundamental ways."

Wendy Russell of the University of Wollongong, Australia [14], makes a strong argument for transdisciplinarity, whilst at the same time highlighting some of the institutional barriers that prevent the necessary flexibility from allowing new structures to appear and be implemented. Some examples cited by Russel [14], include: allocation of internal research money, allocation of competitive grants and access to resources for students and staff between departments.

According to Janz [15], one of the more sustained efforts to think beyond current academic structures has been put forward by CIRET, the International Centre for Transdisciplinary Research in Paris.

5   FUNDAMENTAL SKILLS OF A DIGITALLY DRIVEN CREATIVE CURRICULUM

The Bauhaus School of art and architecture provided one of the first examples of an attempt to unify art, craft and technology and has strongly influenced the philosophy behind design courses ever since. The school operated in Germany from 1919 to 1933 and briefly in the United States from 1937 to 1938 [16]. Industrial and product design were taught in the first year of study, whilst history was not included because "everything was supposed to be designed and created according to first principles rather than by following precedent" [16].

The term 'Digital Bauhaus' was first used by Pelle Ehn of Creative Environments Platform, Malmo University, Sweden [17], to describe an approach to the design of digital artifacts that were formed around the objectives of the original Bauhaus. In a post modern digital age we can witness attempts to combine 'art' and 'technology' in what has been referred to as a 'third culture' (Brookman 1995) [in 17 pp214]. The original concept was formulated by C.P. Snow (1959) [in 17, pp215] in an analysis of the division of the two cultures of the art/humanities and the science/technology. Snow pleaded not without success for reorganization of education and the social system, for a 'third culture' where the two could meet. Colin Beardon published a response to Ehn's Manifesto in 2002 [18].

It is interesting to consider what a present day Digital Post-Bauhaus model would consist of. The University of Malmo innovative curriculum combines a whole range of more traditional subject areas [8]. The Institute of Chicago's School of the Art Master of Design in Designed Objects curriculum provides an interesting example [12].

The truly digital practitioner is yet to emerge. As educators perhaps we need to address the following questions: How do we teach students to develop a critical awareness? What are the criteria for selection of work? What is an appropriate body of knowledge? What skills are essential? What theories underpin this practice? John Marshall's ongoing research at Grays School of Art, The Robert Gordon University is helping to answer these questions [19].

6   EXAMPLES OF PRACTITIONERS WORKING IN THE DIGITAL DOMAIN

An exhibition and symposium exploring transdisciplinarity curated by John Marshall entitled Perimeters Boundaries and Borders, held in Lancaster, UK in 2006 pulled together a number of key practitioners working in the digital domain [20, 21].

Research being undertaken at Gray's School of Art by John Marshall has been exploring the concept of transdisciplinary modes of practice [19]. The aim of Marshall's PhD research is to provide a better understanding of the use of computer-mediated technologies in object-making within art and design practice. The focus of the research is to explore and evaluate work happening across traditional disciplines through the use of common digital tools and determine if the work being produced in this manner signifies a trend towards a new hybrid model of 3D art and design practice. Use of digital technologies in mass-manufacturing has contributed to the global spread of commercially available objects. This research is important at this time because the art and design disciplines are also experiencing discontinuities with previous models of academic and professional practice arising out of increasing globalisation and the spread of new information-based economic paradigms. Computer-mediated technologies are implicated as, both cause of and potential solution to these issues.

7   CONCLUSIONS

The digital practitioner is an emerging phenomenon. New objects are being produced and new models of practice are being developed. As the digital practitioner develops, new, more economically sustainable models of employment are beginning to emerge. For example, Craft Makers can now involve their customers more directly in the design process. By designing in a digital way, the public can see the emerging objects and have a direct input into the design process. Craft makers can move easily between one off and batch production more effectively and in some cases can have the work manufactured by third parties simply by sending the appropriate digital file to the manufacturer. The object is subsequently delivered straight from factory to customer. Craft makers can thus extend their practice and diversify into new materials and methods, creating new approaches and manufacturing models by utilising technology. Educating the new digital practitioner requires new transdisciplinary pedagogies that challenge existing models and institutional constraints. As we move beyond traditional subject boundaries new opportunities for practice are emerging.

There is a need to develop a clearer pedagogic understanding and model for this transitional process - the virtual to physical, involving both pragmatic and aesthetic sensibilities, whilst also clearly engaging emotions, memory and imagination. These abilities point towards a design vocabulary that draws on new topological forms and production processes, which extend the traditional haptic and tactile relationships of the designed object into broader material cultural domains. There is a tension, however, in educational terms between acquiring haptic skills associated with making whilst gaining the necessary digital abilities to be able to integrate these new technologies into the practice of making. Overcoming this apparent tension requires the integration of traditional making skills with digital skills, so that the next generation of makers will be capable of transcending conventional subject disciplines and modes of practice.

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