The Centrality of Design

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Many years ago when I joined the editorial team for New Designer magazine we used the diagram shown in Figure. 1 to demonstrate something of its scope. The magazine was written for GCSE students (14-16 year olds) and Ken Baynes (1995) was showing the design areas to which their work might relate – from small scale to large scale. None of the areas of design specifically identified – fashion design, graphic design, industrial design, engineering design, architectural design, landscape design, urban design and town planning – can be said to be implicitly 'more important' than any other. They all deserve to be represented within the curricula of general education, although realistically some areas have managed to gain greater representation than others. Indeed some areas, such as landscape design, have achieved little, if any, of the position they might be thought to deserve.

I should note that I have read claims of up to 400 distinct design areas having been identified, but the number, or the names of the design areas is not the essential point here. What is actually significant is the centrality of design and designing to activities in all these areas. Debates about the relative weightings of design areas in professional practice and how these might or might not match against the 'focus areas' around which curricular have often been mapped in general education are important, but peripheral.

In England 'design' appears in two subject titles 'Design & Technology' and 'Art & Design'. This gives some richness to the interpretation of its meaning, albeit with the attendant risk of some confusion. Many models of design (and designing) have been put forward to enable their exploration in educational contexts and the development of appropriate pedagogies. They all carry something of the meaning of design (and/or designing) but they are also all models of the reality and none have any particular merits that could justify exclusive attention (Roberts, 1992). As with all models, their fitness for purpose varies according to the task at hand. These ideas have all been long-established, as have many of the fundamental concepts relating to design and designing. Take, for example, the first use of the term 'design thinking', which has been the subject of a recent (and on-going at the time of writing) discussion on the Jiscmail PhD-Design Discussion List. A post by Alejandra Poblete, who is a PhD student at Barcelona University on 12 May, 2014 states the following:

Figure 1 Areas of the design field (© Ken Baynes, 1995)

… *according to my research, the very first time that the term DESIGN THINKING was used, properly (not as "thinking" modified by the word "design"), meaning the way designers think in the context of design process (a problem solving/creative process), was Bruce Archer, in 1965 ("Systematic Methods for designers", The Design Council, London), also published in "Developments in Design Methodology", Cross N. (Ed.), 1984. Archer used the concept DESIGN THINKING as the way designers deal with design problems and, in his paper, referring to complexity of technological issues, he wrote:*

"In the face of this situation there has been a world-wide shift in emphasis from the sculptural to the technological. Ways have had to be found to incorporate knowledge of ergonomics, cybernetics, marketing, and management science into design thinking. As with most technology, there has been a trend towards the adoption of a systems approach as distinct from an artefact approach."

I'm not sure where this Jiscmail discussion will end, but it is critically important to note that research and
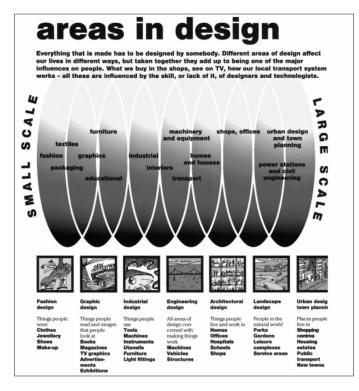
The Centrality of Design

academic discussions developing understanding of design and designing and core concepts such as design thinking have histories now measured in decades. The development of curricular appropriate for design in general education should have moved beyond either design areas or focus areas many years ago and be focused on the core competencies that underpin design capability. It is important to restate this position at this point in time because the journal will be shifting its editorial policies towards embracing research contributions that shed further light on the understanding of the development of design capability in humans. This does not exclude any of the journal's traditional range of contributions, but it does specifically include research contributions that might not immediately be recognised as related to 'design and technology education'. There is much fascinating design education research being conducted outside of the design and technology education area, particularly in the context of design education as lifelong learning, and, in my view, the future health of the subject depends on engaging with emerging agendas such as service or experience design and concepts like resilience. This is not a time to be insular and I very much hope that future issues of the journal will reflect such engagement, as the researchers whose papers feature in this issue already have.

Virpi Yliverronen's paper from The University of Turku in Finland concerns designing and making by pre-schoolers; children 6-7 years old. This research was directed at developing understanding of children's design capability within the context of a holistic craft experience. The project began with a story and data was gathered about the children's responses from their drawings and sketches, design outcomes, interviews and video recordings. 'The experiment showed the pre-schoolers' designing processes to proceed logically, and that they were able to design individual crafts in the context of a holistic craft process' (Yliverronen, p.8).

Xenia Danos, Constantinos P. Constantinou, Michalis Livitzis and Cristakis Avraam's paper from the University of Cyprus concerns an action research programme to validate a Scheme of Work that had been designed to promote creativity and designerly thinking through play. The Scheme of Work was developed to support the Design and Technology National Curriculum in Cyprus and around a particular educational product (Engino SolarPro), which is available in Cypriot schools. The research sought to establish the appropriateness of the age range for this product and whether its use could facilitate creative behaviours in the children. Several types of creative behaviour were identified.

Erja Syrjäläinen and Pirita Seitamaa-Hakkarainen's paper from the University of Helsinki in Finland reported the results of research concerning the quality of design by 9th grade (15-16 years old) pupils' design and-make assignments in craft education. These assignments were part of an assessment of learning outcomes conducted by the Finnish National Board of Education (FNBE) in crafts. Qualitative and quantitative data were analysed which showed that 'pupils had difficulties designing on paper; they executed only very basic line-work for the designed products, and only some details were illuminated in their visual representations.' Syrjäläinen and Seitamaa-Hakkarainen, p.30) These results led the authors to question whether the objectives of the National Core Curriculum in craft education have yet been attained.

Serge Leblanc and Luc Ria's paper concerns the development of a platform for web-based teacher training in a classroom setting. The paper begins by discussing some of the paradoxes concerning teacher training in France and the history of video-based teacher training. The principles underpinning the design of the Néopass@ction platform are then described. They begin their conclusions illustrating the importance of the platform as follows: 'This toolbox for observing the real work of beginning teachers, taken from a video-based research corpus, allowed us to model their typical experiences in professional situations they deemed problematic. It also enabled us to detect the ways in which they managed to adapt to their work environment in the long-term (one or more years) by adopting strategies for action and making compromises between their own standards of professional viability and the standards set by the educational institution.' (Leblanc & Ria, p49). They go on to describe some of the outcomes of exploratory studies of its use.

This issue also contains Prof Richard Kimbell's Reflection piece concerning 'BIG data' and reviews of 2 books. Ken Baynes' new book *Design: Models of Change* is reviewed by John McCardle and Inga-Britt Skogh and Marc de Vries' edited book *Technology Teachers as Researchers: Philosophical and Empirical Technology Education Studies in the Swedish TUFF Research School* is reviewed by Niall Seery.

The Centrality of Design

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Professor Robert Bowen and **Dr Gill Hope** have both given long and committed service to the design and technology community, and, in particular by serving on the Editorial Board of *Design and Technology Education: an International Journal*. Authors will, of course, never be aware of the names of those who review their papers, but they will be aware of the quality of the feedback they receive and the thoroughness of the support provided in preparing their papers for publication. This is largely a result of the detailed attention given to the papers by the reviewers. As the review process is organised at the Design and Technology Association as a 'double-blind process', the Editor(s) can never be quite sure about the origins of the advice offered, but I am confident that research colleagues with an interest in Primary Education will be very grateful for all the support they have received. We wish both Gill and Robert long and very happy retirements.