

Editorial

Forty years of design research

The 40th anniversary of the founding of the Design Research Society fell in 2006, and thus provided a suitable moment to reflect on the first forty years of design research. From the very beginning, the purpose of the DRS has always been stated clearly in its aims: 'to promote the study of and research into the process of designing in all its many fields'. Its purpose therefore is to act as a form of learned society, taking a domain independent view of the process of designing.

The emergence of the Society lay in the success of the first 'Conference on Design Methods', which was held in London in 1962 (Jones and Thornley, 1963). That conference is generally regarded as the event which marked the launch of design methodology as a subject or field of enquiry, and the 'design methods movement'. In the UK the new movement developed through further conferences in the 1960s – 'The Design Method' in Birmingham, 1965 (Gregory, 1966), and 'Design Methods in Architecture', in Portsmouth, 1967 (Broadbent and Ward, 1969).

The origins of new design methods in the 1960s lay further back in the application of novel, 'scientific' methods to the novel and pressing problems of the 2nd World War – from which came operational research methods and management decision-making techniques – and in the development of creativity techniques in the 1950s. (The latter was partly, in the USA, in response to the launch of the first satellite, the Soviet Union's 'Sputnik',

which seemed to convince American scientists and engineers that they lacked creativity.) The 1960s also saw the beginnings of computer programs for problem solving. The first design methods or methodology books appeared – Asimow (1962), Alexander (1964), Archer (1965), Jones (1970) – and the first creativity books – Gordon (1961), Osborn (1963).

A statement by Bruce Archer (1965) encapsulated what was going on: 'The most fundamental challenge to conventional ideas on design has been the growing advocacy of systematic methods of problem solving, borrowed from computer techniques and management theory, for the assessment of design problems and the development of design solutions.' And Herbert Simon (1969) established the foundations for 'a science of design', which would be 'a body of intellectually tough, analytic, partly formalizable, partly empirical, teachable doctrine about the design process.' In some senses, there was a desire to 'scientise' design in the 1960s.

However, the 1970s became notable for the rejection of design methodology by many, including some of the early pioneers. Christopher Alexander said: 'I've disassociated myself from the field... There is so little in what is called "design methods" that has anything useful to say about how to design buildings that I never even read the literature anymore... I would say forget it, forget the whole thing' (Alexander, 1971). And J. Christopher Jones said: 'In the 1970s I reacted



against design methods. I dislike the machine language, the behaviourism, the continual attempt to fix the whole of life into a logical framework' (Jones, 1977).

These were pretty harsh things for the founding fathers to say about their offspring, and were potentially devastating to those who were still nurturing the infant. To put the quotations of Alexander and Jones into context it may be necessary to recall the social/cultural climate of the late-1960s – the campus revolutions, the new liberal humanism and rejection of previous values. But also it had to be acknowledged that there had been a lack of success in the application of 'scientific' methods to design. Fundamental issues were also raised by Rittel and Webber (1973), who characterised design and planning problems as 'wicked' problems, fundamentally un-amenable to the techniques of science and engineering, which dealt with 'tame' problems.

Design methodology was saved, however, by Horst Rittel's (1973) proposal of 'generations' of methods. He suggested that the developments of the 1960s had been only 'first generation' methods (which naturally, with hindsight, seemed a bit simplistic, but nonetheless had been a necessary beginning) and that a new second generation was beginning to emerge. This suggestion was clever, because it let the methodologists escape from their commitment to inadequate 'first generation' methods, and it opened a vista of an endless future of generation upon generation of new methods.

Where the first generation of design methods was based on the application of systematic, rational, 'scientific' methods, the second generation moved away from attempts to optimise and from the omnipotence of the designer (especially for 'wicked problems'), towards recognition of satisfactory or appropriate solutions (Herbert Simon had even introduced the notion of 'satisficing') and an 'argumentative', participatory process in which

designers are partners with the problem 'owners' (clients, customers, users, the community). However, this approach seemed to be more relevant to architecture and planning than engineering and industrial design, and meanwhile these fields were still developing their methodologies in somewhat different directions.

Engineering design methodology of the systematic variety developed strongly in the 1980s; for example, through ICED – the series of International Conferences on Engineering Design. The early developments were especially strong in Germany and Japan. (Although there may still have been only limited evidence of practical applications and results.) A series of books on engineering design methods and methodology began to appear. Just to mention some English-language ones, these included Hubka (1982), Pahl and Beitz (1984), French (1985), Cross (1989), and Pugh (1991).

It should also be acknowledged that in the USA there were some important developments in design theory and methodology, including the publications of the Design Methods Group and the continuing series of conferences of the Environmental Design Research Association (EDRA). The National Science Foundation initiative on design theory and methods (perhaps in response to German and Japanese progress – like the earlier response to Sputnik?) led to substantial growth in engineering design methodology in the late-1980s. The American Society of Mechanical Engineers (ASME) launched its series of conferences on Design Theory and Methodology.

In fact, after the doubts of the 1970s, the 1980s saw a period of substantial consolidation of design research. The constraining link with science was severed at the DRS conference on Design:Science:Method in 1980 (Jacques and Powell, 1981). Historical and current developments in design methodology were recorded in Cross (1984). A particularly significant development was the emergence of the first journals

of design research. Just to refer, again, to English-language publications, DRS initiated *Design Studies* in 1979, *Design Issues* appeared in 1984, and *Research in Engineering Design* in 1989. Some significant books also appeared, with a new emphasis on design cognition signalled from the architectural field in Lawson's *How Designers Think* (1980) and Rowe's *Design Thinking* (1987).

In the 1980s we saw the establishment of design as a coherent discipline of study in its own right, based on the view that design has its own things to know and its own ways of knowing them. This had been heralded in the very first issue of *Design Studies*, when we launched a series of articles on 'Design as a Discipline'. Bruce Archer again encapsulated the view in stating his new belief that 'there exists a designerly way of thinking and communicating that is both different from scientific and scholarly ways of thinking and communicating, and as powerful as scientific and scholarly methods of enquiry when applied to its own kinds of problems' (Archer, 1979). A little later, expanding the idea, Cross (1982) suggested that 'We need a research programme ... At its core is a 'touch-stone theory' or idea – in our case the view that "there are designerly ways of knowing".' (For further development of such a programme see Cross, 2006.) Most significant of all, Donald Schön (1983) promoted the new view within his book *The Reflective Practitioner*, in which he sought to establish 'an epistemology of practice implicit in the artistic, intuitive processes which [design and other] practitioners bring to situations of uncertainty, instability, uniqueness and value conflict.' Design as a discipline means design studied on its own terms, within its own rigorous culture, based on a reflective practice of designing.

It might be said that design research 'came of age' in the 1980s, since when we have seen a period of expansion through the 1990s right up to today. More new journals have appeared, such as *The*

Design Journal, the *Journal of Design Research*, and *CoDesign*. There has also been a major growth in conferences, with not only a continuing series by DRS, but also series such as Design Thinking, Doctoral Education in Design, Design Computing and Cognition, Design and Emotion, European Academy, and the Asian Design Conferences, etc. Design research now operates on a truly international scale, acknowledged in the cooperation of DRS with the Asian design research societies in the founding in 2005 of the International Association of Societies of Design Research. DRS itself celebrated its 40th anniversary with its largest conference yet, in Lisbon, Portugal, in November 2006, for which this brief, and partial, history was prepared.

Forty years on, design research is alive and well, and living in an increasing number of places.

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