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Accessed from Swinburne Research Bank: http://hdl.handle.net/1959.3/58879
In 1943, Winston Churchill gave a famous speech on rebuilding the House of Commons, a design brief if ever there was one. He said, “We shape our buildings, and afterwards our buildings shape us.” How we shape the world around us – and how it helps to shape us – sets the frame of this elegant, concise book.

Over the past quarter century, Nigel Cross has pursued a systematic research programme investigating design as the third way that human beings know their world. Design is older than the other two ways, science and the humanities. Design began long before language. Design emerged 2.5 million years ago when our early ancestors began making tools to reshape the environment. From that point forward, design and tool use helped to shape us as much as we shape them.

That design came late to our attention as a way of knowing may be due to the fact that designing is so integrally linked with human nature that it has been hidden in plain sight while research in other ways of knowing focused on the world around us. It is no coincidence that design process emerged as a discipline for self-aware scholars in the era of such sciences as psychology and sociology. It gained strength at a time when systems analysis, complexity theory, biology, and ecology began to explore the interface between human beings and a world increasingly shaped by human beings.

In this sense, design is not a set of technical skills, but a process, and designerly ways of knowing involve ways of thinking and knowing that form part of the process. Cross begins by examining design in its largest context. He does so by considering a project that Bruce Archer developed at the Royal College of Art (1979) to consider design in the context of general education.

As a process central to the evolution and skills of human beings, design is more than a set of technical exercises, but rather a field of action. Science examines the natural world, including human beings in their role as natural creatures. Science seeks objective truth. The humanities examine the world of human experience. The humanities seek subjective understanding. Design in this larger sense examines and works with the artificial world. Design works through practice and examines the realm of the appropriate.

But design, in practice, is constrained by conditions that do not flow from the limitations of individual designers, but rather from the contingent nature of most design problems. Science ultimately seeks truth, and humanities seek increasingly deeper understanding against a perpetually unfolding
background of time that allows for renewed and extended research. Design solves problems embedded in the world of human action, where limits on time, resources, and information constrain every design process as solution-oriented but imperfect. Every solution must – in Herbert Simon’s (1956) term – satisfice by selecting among constraints. Meeting one constraint more fully means accepting lower values on others.

Understanding design as a general human phenomenon therefore requires us to understand the nature, conditions, and consequence of successful design process. The search for this understanding has occupied Nigel Cross for most of his career. This book reports on his results of the past quarter century.

In his opening chapter, Cross identifies five aspects of designerly ways of knowing. Designers struggle with ill-defined problems (p. 12). They attempt to solve these problems by proposing and trying solutions rather than by seeking all possible information. They think in constructive ways, developing proposals and building on them in practice. They use professional codes to translate abstract solutions into working objects. Using codes enables them to read and write the object languages of design. These are the languages of modelling that open the chapter to introduce design.

From this broad opening, Cross moves to examine the nature of design ability as a general skill, and the ways we can nurture it through design education. Here, again, he examines these issues in the broad frame of design as a general human ability, applying the consequences of the larger inquiry to the narrower frame of professional design practice. One important aspect of this book is a rigorous and consistent focus on design as a human capacity and a human way of knowing. This is a clear contest to many current arguments that describe design as a central human quality while elevating designers to a special status as the key practitioners of this common human skill. Cross allows us to consider the broadest meaning and application of design at a time when human design activity shapes the human world – the artificial world – across a wider range of fields and applications than ever before.

After considering the nature of design ability, Cross narrows his focus to natural and artificial intelligence in design. From here, he moves on to explore specific aspects of design cognition. He examines the creative leap and creative strategies, before moving on to examine the nature of design cognition.

The final chapter began in a well-known conference presentation where Cross offered a series of distinctions between a design discipline and design science. In this chapter he examines three competing paradigms for the field: scientific design, design science, and science of design. He develops a robust concept for design as a discipline, anchoring this in his vision of design research, a field in which “design epistemology (studies) designerly ways of knowing, design praxiology (studies) the practices and processes of design, and design phenomenology (studies) the form and configuration of objects” (p. 101).
He concludes by endorsing a concept of design research that will lead us to richer and deeper syntheses through research programmes that are purposive, inquisitive, informed, methodical, and communicable (p. 102). To my way of thinking, *Designerly Ways of Knowing* achieves all these goals.

References

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