

shall be interested in how all the various stakeholders can make their voice heard.

To some extent we can see design as a generic activity, and yet there appear to be real differences between the end products created by designers in various domains. One of the questions running throughout the book then will be the extent to which designers have common processes and the extent to which these might vary both between domains and between individuals. A structural engineer may describe the process of calculating the dimensions of a beam in a building as design. In truth such a process is almost entirely mechanical. You apply several mathematical formulae and insert the appropriate values for various loads known to act on the beam and the required size results. It is quite understandable that an engineer might use the word 'design' here since this process is quite different from the task of 'analysis', by which the loads are properly determined. However, a fashion designer creating a new collection might be slightly puzzled by the engineer's use of the word 'design'. The engineer's process seems to us to be relatively precise, systematic and even mechanical, whereas fashion design seems more imaginative, unpredictable and spontaneous. The engineer knows more or less what is required from the outset. In this case a beam that has the properties of being able to span the required distance and hold up the known loads. The fashion designer's knowledge of what is required is likely to be much vaguer. The collection should attract attention and sell well and probably enhance the reputation of the design company. However, this information tells us much less about the nature of the end product of the design process than that available to the engineer designing a beam.

Actually both these descriptions are to some extent caricatures since good engineering requires considerable imagination and can often be unpredictable in its outcome, and good fashion is unlikely to be achieved without considerable technical knowledge. Many forms of design then, deal with both precise and vague ideas, call for systematic and chaotic thinking, need both imaginative thought and mechanical calculation. However, a group of design fields seem to lie near the middle of this spectrum of design activity. The three-dimensional and environmental design fields of architecture, interior design, product and industrial design, urban and landscape design, all require the designer to produce beautiful and also practically useful and well functioning end products. In most cases realising designs in these fields is likely to require very considerable

technical knowledge and expertise, as well as being visually imaginative and ability to design. Designers in these fields generate objects or places which may have a major impact on the quality of life of many people. Mistakes can seriously inconvenience, may well be expensive and can even be dangerous. On the other hand, very good design can approach the power of art and music to lift the spirit and enrich our lives.

Architecture is one of the most centrally placed fields in this spectrum of design, and is probably the most frequently written about. Since the author is an architect, there will be many architectural examples in this book. However, this is not a book about architecture, or indeed about any of the products of design. It is a book about design problems, what makes them so special and how to understand them, and it is about the processes of design and how to learn, develop and practise them.

Already here we have begun to concentrate on professional designers such as architects, fashion designers and engineers. But there is a paradox here about design. Design is now clearly a highly professional activity for some people, and the very best designers are greatly valued and we admire what they do enormously. And yet design is also an everyday activity that we all do. We design our own rooms, we decide how to arrange things on shelves or in storage systems, we design our own appearance every morning, we plant, cultivate and maintain our gardens, we select food and prepare our meals, we plan our holidays. All these everyday domestic jobs can be seen as design tasks or at least design-like tasks. When we are at work we are still designing by planning our time, arranging the desktops of our computers, arranging rooms for meetings, and so we could go on. We may not aggrandise these humble tasks with the word 'design', but they share many of the characteristics of professional design tasks.

We can see, however, that these tasks vary in a number of ways that begin to give us some clues about the nature of designing. Some of these tasks are really a matter of selection and combination of predetermined items. In some cases we might also create these items. Occasionally we might create something so new and special that others may wish to copy what we have done. Professional designers are generally much more likely to do this. But professional designers also design for other people rather than just themselves. They have to learn to understand problems that other people may find it hard to describe and create good solutions for them. Such work requires more than just a 'feeling'