

Review

Design Pedagogy

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For this book Mike Tovey has assembled a stellar cast of design researchers and educators to provide a guide to the latest thinking on teaching and learning design to bring undergraduate students to a professional level.

The book has chapters by experienced teachers and researchers from many of the UK's leading universities and art and design schools, including Loughborough; Glasgow; Open; Aston, and de Montfort. In particular there are chapters on the work by members of Coventry University's Centre of Excellence for Product and Automotive Design (CEPAD), which Mike Tovey directed. The research at Coventry has been developed by the international group of academics who form the Design Research Society's Special Interest Group on Design Pedagogy, also headed by Tovey, and the results of this further work are also represented in the book.

The book has two parts. The first sets the scene of design education and research in the UK, and the second reports on key developments in design pedagogy arising from the research and practical teaching experience in the above institutions.

Part 1 introduces a number of valuable concepts to frame the problem of effective design teaching and research, especially in the fields of product, industrial and automotive design. The first concept introduced and discussed here is the set of core design skills, knowledge and experience that give a student a 'passport' to enter professional practice. A second important concept discussed is the 'community of practice' through which designers around the world share new ideas and designs, as exemplified by the international community of automotive designers and stylists who share ideas and concept vehicle designs face to face and via various

media. The third key concept is the 'designerly' ways of knowing that designers need to have or acquire; especially visio-spatial thinking and a solution-led approach to tackling 'wicked problems'. These concepts are not all new, but in the book it is explained how they can be embedded into practical educational strategies.

Part 2 then makes use of these and other concepts and research findings in chapters that discuss the latest thinking in design pedagogy.

Steve Garner and Chris Evans start by discussing the importance of fostering and maintaining student motivation if they are to learn how to tackle the difficult task of solving ill-defined design problems, resolving their many often conflicting requirements and choosing between different possible solutions.

In her chapter Alison Shreeve emphasises the importance of 'signature pedagogies' in developing students' skills and ways of thinking and working if they are to become professional designers. Traditionally these pedagogical methods have involved getting students to undertake design projects in response to a brief, making 2D and 3D representations using drawing instruments, computers and materials and the 'crit' by an experienced tutor, all taking place in a studio setting. Now increasingly, Shreeve argues, design students need to be able to undertake rigorous research, work in teams and collaborate remotely online and plan and present their work to a wider audience e.g. at trade fairs.

Linda Drew summarises the results of research on how different design lecturers teach. This work shows that although some lecturers focus on transmitting practical and technical skills, there is greater emphasis by most

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design teachers on real-world project based learning. This reinforces the emphasis on design education's signature pedagogies discussed in the previous chapter.

The chapters by Karen Bull and Jane Osmond review the research on design teaching and learning conducted at Coventry University's Centre of Excellence for Product and Automotive Design. Both chapters stress the significance of developing students' professional capabilities by tackling increasingly realistic design tasks that require a combination of systematic linear and holistic creative thinking. Such practical project work Osmond's research has found helps students to surmount the 'threshold concept' of being able to tolerate uncertainty that characterises the 'wicked' problems that occur in professional design practice.

Mark Evans, Ian Campbell and Eujin Pei discuss their investigations into the different approaches and representations used by engineering and industrial/product designers when undertaking design tasks. The differences include engineering designers' emphasis on systematic procedures, calculations, technical information and specifications compared with industrial designers' focus on intuitive processes and sketching. In order to improve collaboration and communication between engineering and industrial designers, the authors describes the development of a design tool at Loughborough Design School comprising a set of 'iD cards' that show different modes of representation that both types of designer can apply at different stages of the New Product Development process.

Seymour Roworth-Stokes' and Tim Ball's chapter discuss research into published design case studies and their use in design teaching and learning. Their analysis, albeit of a small sample, shows that use of case studies is most common in the teaching of architecture followed by product design and design management. They conclude that case studies can be valuable for inspiring ideas and exposing students to real world practice across all field of design and could be more fully exploited.

In the penultimate chapter, Aysar Ghassan and Erik Bohemia argue that the traditional master-apprentice model of design education is insufficient to train designers in today's globally connected and financially constrained world. They introduce experiments with the Global Design Studio (GDS); a blended learning system that combines online and face-to-face learning to enable collaboration between universities across places and countries. The aim of the GDS is to allow student to 'tell their own stories' to prospective employers as a rounded individual and not

just as a trained designer. There are indications from two research trials undertaken by the authors that the GDS helps students develop their own identity and present themselves well. The researchers admit, however, that further work is needed to develop and validate the GDS approach.

The book concludes with a chapter by its editor Mike Tovey that provides a most useful summary of its themes and argues for the need to conduct more research into both designing and design education in order to improve the effectiveness of design teaching and learning.