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## Editorial

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**Biographical notes:** Erik Bohemia is a Reader in Three Dimensional Design Studies at the School of Design, Northumbria University, UK. As a Researcher and an Educator in the field of design, he is interested in the skills and competencies of designers and the match between these and industry requirements. The results from his research in this area have been used to guide the development of curriculum in design so that future graduates may more effectively fulfil industry requirements. His current research focus is on global product design development processes and its impact on the design profession. His research has been published in international journals and conferences.

Kerry Harman is a Researcher at the Centre for Excellence in Teaching and Learning at Northumbria University, UK. She has over 20 years combined practice-based, research and teaching experience in the overlapping fields of adult education and workplace learning. Currently, she is conducting research on Assessment Cultures in Higher Education where she is exploring interrelationships between discourses, cultures and assessment practices. She also coordinates a module on the MA Design programme at Northumbria University on Intercultural Communication.

Tom Page is a Lecturer in Electronic Product Design in the Department of Design and Technology at Loughborough University. He has supervised research students, examined PhDs and MPhils and reviewed grant applications. He has been a Consultant for many small and medium sized enterprises and large-scale manufacturing and service enterprises in the UK, in engineering design, electronic design, information and production systems operations, management and implementation. His research interests are in the areas of the

research and development of computer applications for design and technology education, logistics and supply chain management and electronic product design.

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The articles in this special issue on *Futures of Design Education* have been selected from the *9th International Conference on Engineering and Product Design Education* conference proceedings. This international conference was held at Newcastle upon Tyne in the UK in September 2007 and brought together representatives from education and industry that have an interest in shaping the future of design education. The conference provided a forum for educators and researchers from product development, engineering and industrial design, together with industry and government representatives to discuss current educational issues as well as how design education might 'be' in the future. Themes explored at the conference included: curriculum development, responsible design, global issues, learning environments, and industry-university collaborations.

Seven articles from the conference have been included in this special issue with aim of providing a range of papers from the interdisciplinary field of product design education. The authors of these articles come from different disciplinary backgrounds and different countries, including the Netherlands, South Africa, Israel, Australia, the USA and the UK. The outcome is an edition that tackles diverse design education issues from a variety of perspectives, both disciplinary and institutional. Further, the articles are written from various pedagogical perspectives, ranging from those informed by psychology to those incorporating socio-cultural theorisations of learning.

The opening article, by Carolina Gill and Blaine Lilly, titled 'Bridging design disciplines: preparing students for unpredictable challenges', explores strategies that promote student cross-disciplinary collaboration and learning. The authors provide three case studies of students working across the disciplines of industrial design and mechanical engineering. They suggest that adapting tools and methods from each of the disciplines involved in the collaboration leads to an improved understanding across these disciplines.

The article 'Distributed collaboration in design education – practising designer and client roles', by Kristina Lauche, Erik Bohemia, Chris Wilson and Petra Badke-Schaub, outlines a case study of a distributed design studio undertaken between three universities. This article illustrates the ways in which cross-institutional design studios can contribute to enhancing student-learning experiences. It also highlights the importance of providing design students with skills for operating in cross-cultural teams in distributed design studio context.

Tania Humphries-Smith, in her article 'Sustainable design and the design curriculum', presents data from a pilot study that begins the process of considering how education should deal with the issue of sustainable design specifically in the context of the education of graduate designers in the fields of product, design engineering and interior design. Furthermore, a number of questions related to shaping the future of design and engineering education and designers/engineers are explored. This research addresses whether sustainability, or more specifically sustainable design, should or can be an integral part of engineering/product design programmes or whether it should/or can be developed as a separate design discipline. Humphries-Smith also discusses the difference between, eco-design and sustainable design and the implications of the understanding of this difference for design education.

Hernan Casakin and Kevin Miller in their article ‘Individual learning styles and design performance in the metaphorical reasoning process’, explore the relationships between metaphor, experiential learning and learning preferences in the context of product design in a studio based environment. They argue that the relationships between these elements provide a fruitful area for ongoing research in the field of design education.

Michael Rodber and Paul Wormald, in their article ‘Aligning industrial design education to emerging trends in professional practice and industry’, provide an industry perspective on the theme of design futures. They argue that the nature of design business in the UK has changed in recent years, and that these changes need to be taken into consideration in university-level product design education. They discuss these changes in relation to curriculum development, new module teaching and learning, and areas of academic research. They propose that university-level product design education should become more evidence-based and be more user-focused.

Gaurang Desai’s article, ‘An activity-theory framework for industrial design’, explores the usefulness of activity theory as an approach for undertaking design research. Using an activity theory framework, Desai examines the design of classroom furniture in India. The article concludes that activity theory, with its emphasis on human activity as the essential unit of study, is a useful methodology for industrial design. Activity theory offers potential for design educators to examine classroom activity through a socio-cultural lens, thus drawing to attention to the broader context in which teaching and learning take place.

The closing article, ‘Ontologically shaping a designed future: design education as revelation’, by Johann van der Merwe, draws on actor-network theory to explore the construction of knowledge. van der Merwe asks salient questions such as: ‘is learning concerned with epistemology or ontology?’ He also examines the assumptions that underpin ‘how we know’. In illuminating complex processes whereby knowledge is constructed, van der Merwe encourages us to rethink pedagogy in design education.

The articles in this Special Issue engage with many of the key issues that are currently impacting on higher education including: internationalisation of curriculum, establishing cross-disciplinary programmes, linking research and teaching, widening participation and an increased focus on collaboration with industry (Hanna, 2003; Barnett, 2005; Jones and Brown, 2007; Barnett and Di Napoli, 2008). These are indeed changing times. Therefore, it is important that space be made for design educators to continue to review their educational practices and the assumptions underpinning these practices. This Special Issue on Futures of Design Education contributes to opening up this space.

## References

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