Great Expectations: Design
Teaching, Research & Enterprise

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Great Expectations: Design Teaching, Research & Enterprise

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Foreword

Great Expectations: Design Teaching, Research & Enterprise

The 17th International Conference on Engineering and Product Design Education (E&PDE) was held at Loughborough Design School (LDS), Loughborough University, UK on the 3rd and 4th of September 2015.

The conference was hosted by LDS in close collaboration with the Design Education Special Interest Group (DESIG) of the Design Society, and the Institution of Engineering Designers (IED).

The E&PDE conference series began in 1979 in the UK. In that year I was a member of the first cohort of students in our school to study GCE ‘O’ level Computer Science. We were taught by our mathematics teacher (who reportedly was a week or two ahead of us in the syllabus) and we used five hole punched paper tape to input to our computer. The home computer was yet to arrive on the scene, with the Sinclair ZX80 under development at The Mill in St. Ives, Cambs (released in 1980 at £99.95, UK).

Product Design, in 2015, has many fundamental differences to Product Design in 1979 and, while much of the heart of engineering theory existed at that time, Engineering Design (and practice) in 2015 has also undergone multiple transformations over the thirty six year period.

On Wednesday 8th July 2015, I attended an event at St James’s Palace, London where the Duke of Edinburgh, a patron of the Institute for Engineering Designers (IED), hosted a celebration of the 70 year anniversary of the IED, he also conferred the newly established status of Chartered Technological Product Designer (CTPD) upon the first five candidates to meet the requirements.

Chartered Engineer status (UK), on the other hand, followed the establishment of the Engineering Council, gaining a Royal Charter on 27 November 1981 and offering verified recognition of professional competencies through training and monitored professional practice experience. Applications for registrations have reportedly increased in recent years suggesting that industry acknowledges and rewards those who have achieved this status.

Engineering and Product Design then have essentially been through evolution and revolution in the intervening years since the E&PDE conference series began.
The programme committee agreed, “Great Expectations: Design Teaching, Research & Enterprise”, as the headline theme, captured some prevailing perceptions associated with Higher Education Institutes (HEIs) involved in Engineering and Product Design Education. HEIs, it appears, are required to output humans able to meet industry, government and societal demands for productivity, innovation, happiness and lifelong adaptability.

Our keynote speaker, Sebastian Conran, brings wisdom gained in Industry at Sebastian Conran Associates, to present “The Importance of Design” arguing that there is a clear business-case for the use of rigorous Design Process and Creative Thinking tools in early stage innovation. Such an approach, he suggests, can be even more effective for industry.

Professor Dale Russell, also a keynote speaker, reflects upon her experiences in Design Education at The Royal College of Art and Central Saint Martins UAL to present, “One Step Beyond: An Open Culture of Transcending Boundaries Towards Innovation”, looking back at the open culture of discourse and experimentation in the late 1980s, through to a transdisciplinary fusion of research investigation and experimentation in pedagogical and commercial design innovation to initiate insight and understandings for people-centred design as we shape our future.

Globalisation, the process of international integration arising from interchanges of world views, products and ideas, previously focused on the economic perspective only, also projects a very different picture in 2015 to that in 1979. It is pleasing to see representatives from more than 30 countries at this year’s E&PDE conference. This allowed the committee to construct a programme with major streams including:

- Promoting Creativity and Innovation in Design & Engineering
- Ethics and Social Issues
- Benefits of Collaboration in Design & Engineering
- International Collaboration
- Project/Problem Based Learning
- Bachelors, Masters and PhDs in Design & Engineering
- Design & Engineering Metrics & Assessment
- Informing Design & Engineering Pedagogy with Research & Enterprise
- Technology Integration, Application & Knowledge Transfer
- Design & Engineering Pedagogical Practice

The quality papers submitted and accepted under these streams offer an opportunity to frame, provoke and progress toward an Engineering and Product Design Education culture fit for purpose at the present time and into the future.
This 2015 edition of the E&PDE conference was made possible through the commitment and efforts of many people. Special thanks go to Judith Grace, Ahmed Kovacevic, Brian Parkinson, Erik Bohemia and Andrew Weeks for their excellent wisdom in organizing this conference. Nadine Pearce and Charlotte Whitehead from the Institution of Engineering Designers who have carried out sterling work throughout.

We would sincerely like to thank all the members of the international academic review board.

On behalf of the conference programme committee:

Dr. Darren Southee
Programme Director Product Design & Technology (BSc)
Loughborough Design School
Loughborough University
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The Design Society is an international non-governmental, non-profit making organisation whose members share a common interest in design. It strives to contribute to a broad and established understanding of all aspects of design and to promote the use of results and knowledge for the good of humanity.

The Design Society was founded in 2000, taking on the previous activities and responsibilities of the Workshop Design Konstruction (WDK) Society, especially the organisation of the International Conference on Engineering Design (ICED) series of conferences, which had been running since 1981. Since 2000 the Society has organised ICED conferences in Stockholm, Melbourne, Paris, Stanford, Copenhagen, Seoul and Milan. It has also expanded with members from forty countries and with further very popular events such as the Engineering and Product Design Education conferences and the International Conference on Design Creativity among many other activities. The Society is very active in publishing papers and proceedings on design topics, and it has a developing portfolio of other design resources available to members including a repository of theses and collaborative agreements with a number of design research journals.

The Design Society concentrates on activities that transcend national boundaries, and, where possible, will seek to complement national activities. The objects of the Society are to promote the development and promulgation of understanding of all aspects of design across all disciplines by:

- Creating and evolving a formal body of knowledge about design;
- Actively supporting and improving design research, practice, management and education
- Promoting co-operation between those in research, practice, management and education
- Promoting publications and their dissemination;
- Organising international and national conferences and workshops
- Establishing Special Interest Groups and other specialist activities;
- Co-operating with other bodies with complementary areas of interest

The Design Society is a charitable body, registered in Scotland, number SC031694. Registered Company Number: SC401016.

The Design Society is open to new members. www.designsociety.org.
Established in 1945, Incorporated by Royal Charter in 2012, the Institution of Engineering Designers is the premier organisation in the UK to represent those working in the many fields of engineering and product design.

Our members enjoy a range of benefits, including advice on professional codes of conduct, a job board, regular newsletters to keep members up to date with relevant developments and events and a helpful legal advice service. We host regular events which offer our members the chance to network with other professionals and members receive the Institution’s bi monthly journal – Engineering Designer.

We are committed to encouraging CPD for all our members, and support ongoing training and skills development.

We are licensed by the Engineering Council to assess candidates wishing to join the EC's Register of Professional Engineers and Technicians and we also accredit academic and training courses, both for membership of the Institution and registration with the EC. Those members who achieve the appropriate academic and competence standards receive Chartered Engineer, Incorporated Engineer or Engineering Technician status.

We are also a licensed body of the Society for the Environment and are able to register suitably qualified and competent members as Chartered Environmentalists (CEnv).

2015 has seen the launch of a new Chartership for Product Designers. CTPD (Chartered Technological Product Designer) is on-a-par with all other Chartered registrations and exists to provide professional recognition and standing to those suitably qualified and competent persons working in Product Design.

We welcome members from any organisation that has a design function and employs design engineers and we have many academic teaching staff in membership. The first step to becoming a member is to register as an Affiliate, and find out more about becoming a member of the IED at http://www.ied.org.uk
The Importance of Design
Sebastian Conran, Sebastian Conran Associates

Summary of Keynote
There is a clear business-case for using rigorous Design Process and Creative Thinking tools in early stage innovation can be even more effective for industry for multiple reasons: more innovative & appealing products, simpler manufacturing, quicker responsiveness, and shorter product-development timescales. All of which leads to greater product resilience, customer satisfaction, less aftersales resource and ultimately better profitability.

Although its meaning has become quite nebulous the word Design derives from Latin designare; scheme, plan, mark out, devise, choose, designate, appoint. The designer is literally "one who schemes" and creates the vision for others to follow.

Traditionally Britain has a culture that believes in amateurism and that anyone ‘creative’ could design something nice. There is often a tendency to view design as a sort of marketing tool used in the selling process to package and communicate the product offer. However in a contemporary world - whether Porsche, Dyson or Apple - if aiming to offer globally outstanding product then excellent thoughtful design is essential to achieve success.

Professional design exists within a wide bandwidth of disciplines including: industrial, architecture, interface, product-styling, graphic and fashion. Designers tend to specialize in specific fields such as: automotive, built environment, luxury, strategic, branding, or web design. For example industrial designers are trained and experienced in product innovation and industrial fabrication. They are skilled at collaborating successfully within technical teams throughout the product development process; they tend to think rigorously and in the long term. However with buying seasons twice a year the more intuitive fashion designer is obliged to follow an entirely different schedule.

The choice of which discipline is appropriate for a specific task, and when & where in the innovation process is best applied significantly impact on the outcome of a project. What is the scale and impact of the challenge – do you need a nurse or a neurosurgeon, or perhaps a more of a generalized practitioner? Whatever the choice of designer, both talent and experience can count for a lot and some are better than others.

The one thing that all designers should have in common is that they employ their creativity and experience to create the maximum Value (as in perception of fair exchange), whilst using available resources as efficiently as possible.
Another way of looking at it is that value consists of brand, design and quality, divided by cost.

**Key Message:**
Outstanding design can leverage excellence and success from your business; do not leave it too late, design is not just the marketing graphics & logos, wrappers & websites, posters & packaging – although it is part of it, this comes towards the end of the process. Design needs to be the first thought as well as the last.
One Step Beyond: An Open Culture of Transcending Boundaries Towards Innovation
Professor Dale Russell, Royal College of Art & Central Saint Martins UAL & Russell Studio

Summary of Keynote
In the late 80s an open culture of discourse and experimentation took place by default. Today this same open culture is required that inspires the willingness to transcend boundaries while acknowledging excellence of innovation and rigor demanded within the fusion of engineering, scientific and design innovation.

Left-field visioning in a corporate culture is reliant on knowledge flow within an innovation ecosystem without boundaries. Forming a synthesis addressing society, user-centricity and technology that rely upon delicate dialogue between scholastic research and commercial innovation practice.

Transition in change through strategic frameworks for disruptive iteration provoke impact of meaningful exchange created by practitioner and educator as protagonist in the provision of peripatetic practice on an international platform between academia and corporations. As we progressed through landline to cloud, numerous questions and observations are provoked and include: Social responsibility? Need for permanency? What is the role of artefact? Material metamorphosis? Positioning of the hacker?

As advocate for the integration of the intuitive and the pragmatic within tangible and intangible product development, this has led to progressing a transdisciplinary fusion of research investigation and experimentation in pedagogical and commercial design innovation through the synthesis of foresight, research and practice to initiate insight and understandings for people-centred design as we shape our future.