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DIFFERENT PERSPECTIVES

Diverse approaches to human centred design can benefit society

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Chartered
Institute
for IT

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Gilbert Cockton explores how a balanced approach may be better than a human centred one.

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Brunel's Human Centred Design Institute applies design to the benefit of society.



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Interfaces 88, Autumn 2011: deadline: **30 July 2011**. Theme: Post-conference reflections.

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Articles should be MS Word or plain text. Send images as separate files: these must be high resolution digital originals suitable for commercial printing, cropped if desired but not resized, and if edited, saved as tiff or highest quality jpeg. Please supply photographers' credits as appropriate. Authors should please provide a 70-word biography and a high resolution head and shoulders original digital photo.

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When I think about different perspectives I think of the familiar optical illusion – is it a candlestick or is it two faces looking at each other – things are not often as they first seem, and sometimes what they are keeps changing. When police ask for witnesses to come forward, they like to gather as many different perspectives as possible from which to build a realistic version of events. We don't see things as *they* are, we see things as *we* are. We look at situations and interpret them according to our own set of experiences, beliefs and values. We are constantly trying to make sense of our world.

The HCI community has many different perspectives, as members come from such different backgrounds and sets of experiences. It's as if we are all looking at the same world through distorted lenses and everyone has their own personal prescription. As HCI matures we must continue to try to understand how to fit the different perspectives together as we contemplate the next 25 years.

Lynne Coventry

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THE HUMAN CENTRED DESIGN PARADIGM



Joseph Giacomin and Steve Love outline the Brunel perspective on human-computer interaction by sharing their research activities in the area of Human Centred Design

In recent years many businesses have changed their emphasis away from matters of pure technology and manufacture, moving instead towards a growing preoccupation with how their products and services are perceived and experienced by the consumer. A growing abundance of sophisticated and relatively low cost technologies has shifted the focus away from the purely material aspects, suggesting instead the need to view the world through the eyes of the consumer.

Towards Human Centred Design

The growing focus on the consumer has led to a significant expansion of design considerations. Form and function are no longer enough, an approach is instead required which addresses matters of perception, emotion, meaning and metaphysics. The shift is evident in the progression of the paradigms which have evolved and prospered in recent decades, starting with ergonomics and moving through human factors, usability,

inclusivity, interaction design, service design and finally, most recently, Human Centred Design.

The evolving paradigm of Human Centred Design is an approach that integrates multidisciplinary expertise towards enhancing human well-being and empowering people. It leads to products, systems and services which are physically, perceptually, cognitively and emotionally intuitive to use. More than a trend or a point of view, Human Centred Design is a systematic gathering and deployment of knowledge about humans from the Arts, Humanities and Sciences.

An increased emphasis and understanding of humanity

From banks to broadcast media, and from iPhones to eyecare, a quick look around confirms the vast improvements in design which have been achieved in recent years thanks to the increased emphasis on the consumer. Brand and brand identity now permeate our environment, both

functionally and emotionally, manifesting themselves in a bewildering range of sophisticated products and services which meet people's needs.

We are today surrounded by the semiotics of humanity. Well known brands such as Apple, Alessi, BMW, Google, Ferrari, Nokia and Virgin have led the way. The key to their success has been their human centred focus, whether it be their internal organisation as companies or the look and feel of their products and services. Choosing and rescaling technologies to fit people's needs has been the trick in many cases such as Apple, while focusing on emotional engagement has made companies like Alessi a household name. The feel of a button, the simplicity of a menu, the narrative of a service or the game-like excitement of a purchasing process are all tangible manifestations of well performed Human Centred Design.

With the shift in emphasis from the artefact to the community of people there



Figure 1 Brunel University Driving Simulator

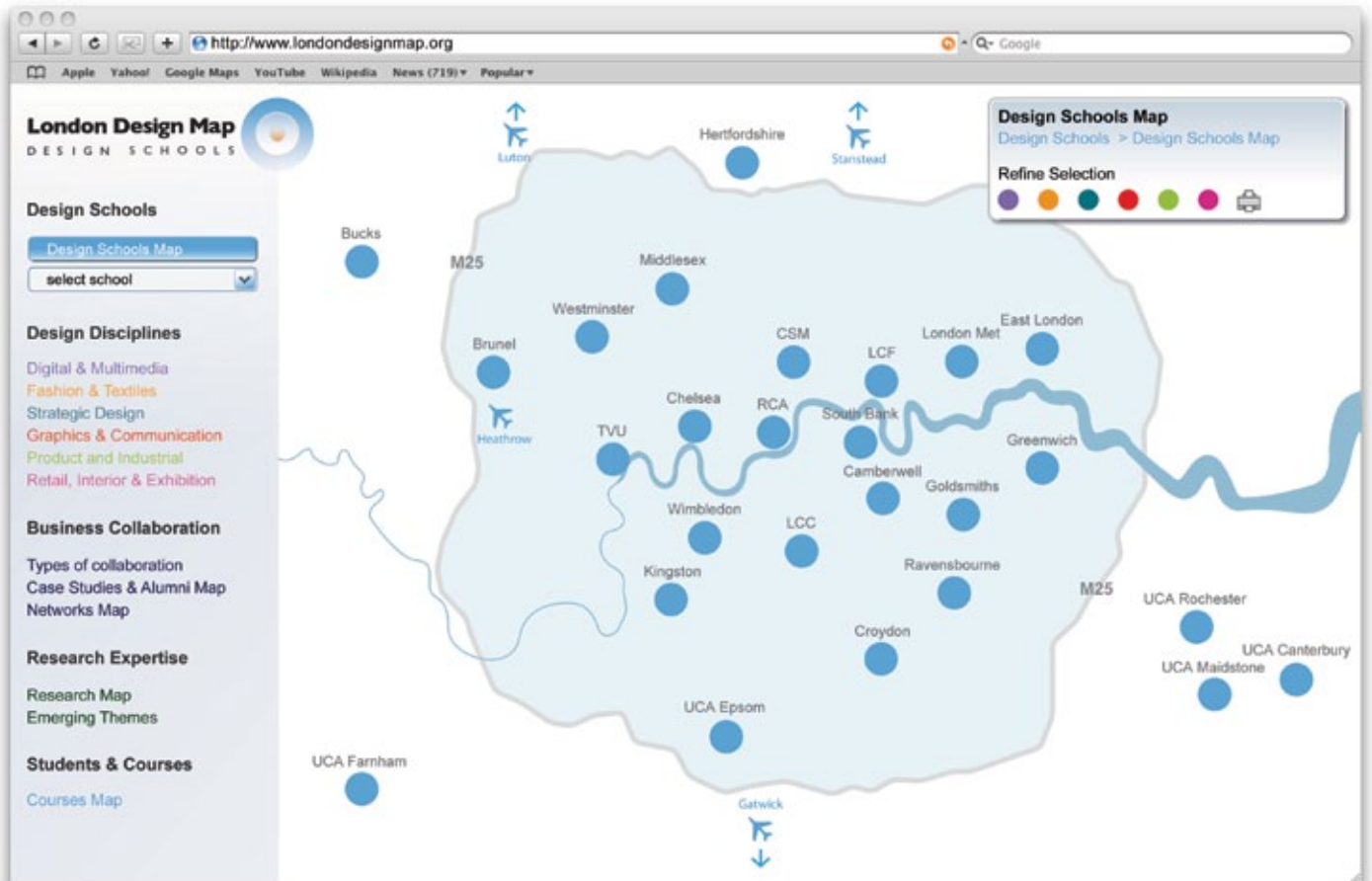


Figure 2 London Design Map



Figure 3 An augmented cognition system for bathing support

has been an accompanying growth in tension in professional circles regarding the nature of the Human Centred Design process and the skill sets required. We are all familiar with the professional figure of the Artist Designer, an individual who applies knowledge of aesthetics, materials, mechanics and perception to achieve pleasant and enjoyable objects. We also have decades of experience of working with the Engineering Designer, an individual who applies scientific and technical knowledge to achieve functional, efficient and affordable products. We are much less familiar, however, with the more recent figure of the Human Centred Designer.

What is a Human Centred Designer?

The Human Centred Designer is a relatively transparent figure who does not impose preferences on a project but, instead, conveys and translates the will of the people in order to empower them through the final design solution. The Human Centred Designer deploys techniques which communicate, interact, empathise and stimulate the people involved, obtaining an understanding of their needs, desires and experiences which often transcends that which the people themselves actually knew and realised.

Typical tools of the trade include ethnographic interviews, questionnaires,

day-in-the-life analysis, customer shadowing, fly-on-the-wall observation, activity analysis, error analysis, cognitive task analysis, conceptual landscapes, the five whys, narration, visual journals, role playing, be-your-customer, personas, scenarios, extreme users, focus groups and co-design. The Human Centred Design collection grows continuously, sometimes by borrowing from fields such as psychology or sociology, and sometimes instead by defining new analogies and approaches.

The study of the Human Centred Design paradigm

The academic study of paradigm and the development of new tools for the professional are the core mission of the Brunel University Human Centred Design Institute (HCDI). The HCDI was established in 2006 to bring together a group of internationally recognised researchers who carry out both fundamental and applied research. The mission statement of the institute is to identify the key challenges of the paradigm in the 21st century, to develop new methodologies and tools in support of the professional, to deliver postgraduate programmes in Human Centred Design and to promote Human Centred Design to business and to the general public. The HCDI works in close collaboration with a number of

designers, manufacturers and service providers, with several professional organisations and with numerous educational, academic, governmental and charitable organisations.

Several distinct strands of HCDI research exist in which particular emphasis is placed on a specific aspect of the overall paradigm. Substantial subdisciplines which are worthy of mention include Augmented Cognition; Branding, Design Strategy and Innovation; Ergonomics and Human Factors; Human Centred Design Process; Inclusive Design; Information Architecture and Perception Enhancement.

Designing to augment cognition

Augmented Cognition refers to the design and evaluation of cognitive technologies which act in partnership with humans, aiding or improving human performance (Figure 3). Typical examples of HCDI research projects in this subdiscipline include affective and emotional computing frameworks, the embedding of business intelligence into the environment, interactive and face-to-face communications in web-based systems and human behaviour toward adaptive systems.

Designing to enhance the experience

Branding, Design Strategy and Innovation

refer to tools for developing brands through the design of the total sensory experience, and management strategies for adding value through design. Typical examples of HCDI research projects in this subdiscipline include brand communication frameworks for fashion, frameworks for applying art experience in stores, frameworks for enhancing brand values in the product design process, future forecasting tools for the mobile communication industry, service design strategies to meet emotional needs and real-time feedback systems to mobilise tacit knowledge in the community.

Designing for human capabilities

Ergonomics and Human Factors refers to the designing of products, systems and services based on the science of human capabilities and limitations. Typical examples of HCDI research projects in this subdiscipline include cognitive systems for reducing driver distraction, green driving assistance (Figure 1), interaction design of mobile communication platforms, cognitive, emotional and personality effects of mobile telephone usage in public spaces and network models of aviation accident causation.

Designing the process

Human Centred Design Process refers to the development of Human Centred Design practices and processes through collaboration with a range of businesses and consultancies. Typical examples of HCDI research projects in this subdiscipline include the mapping of the specialist design research expertise in the London Region (Figure 2) and the modelling of design based knowledge transfer.

Designing for all

Inclusive Design refers to approaches for designing products, systems and services which empower people through simplicity, appropriateness and adaptability. Typical examples of HCDI research projects in this subdiscipline include anthropometric data visualisation for inclusive design, business innovation through inclusivity, design adaptation for professional-to-lay-use, development of learning systems that are attuned to individual differences and new inclusive design standards.

Designing information

Information Architecture refers to methods for designing products, systems and services which help people to understand and interact with complex data. Typical examples of HCDI research projects in this subdiscipline include information architectures for customer experience, ontological approaches for achieving



Figure 4 Brunel University Virtual World portal

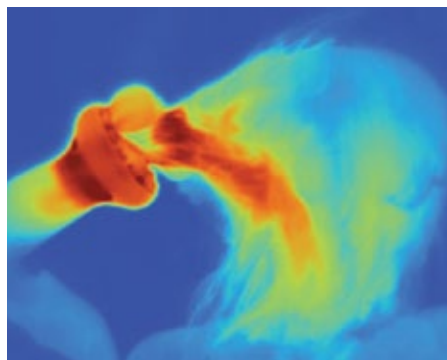


Figure 5 Thermal image of the heat from hair drying

flexible and interoperable business interactions, Massive Multiplayer Online Learning Environments and virtual collaborative environments (Figure 4).

Designing for behavioural change

Perception Enhancement refers to methods for designing products, systems and services which aid the perception of key environmental stimuli for purposes of interaction, emotion and sensory branding. Typical examples of HCDI research projects in this subdiscipline include human psychophysical response to motor vehicle stimuli, perception enhancement for automotive steering systems, perception enhancement for future aircraft and Energy Sixth Sense Design for behavioural change with respect to home energy systems (Figure 5).

THE HUMAN CENTRED DESIGN INSTITUTE AT BRUNEL

The HCDI and similar international centres of excellence provide rally points for a new and fast growing profession. Human Centred Design, in its manifold manifestations, is an important paradigm and its practitioners represent an important movement which puts knowledge from Arts, Humanities and Sciences at the service of people.

In 2007 the Harvard Business Review identified Human Centred Design as one of the year's "Breakthrough Ideas", and since then an ever growing number of businesses have deployed the paradigm in order to enhance the perception, emotion, meaning and metaphysics of their product, system or service. The many strands of research performed at centres such as the HCDI highlight the wide range of characteristics, abilities and interests exhibited by people. In fact, and in many ways, Human Centred Design can be considered a primary empirical route to understanding the very nature of people.

hcdi.brunel.ac.uk