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Designing with people as well as for people

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Designing with people as well as for people

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Design has evolved significantly since the 1950s and 60s and each decade brings in new and more valuable insights about people, their needs and their preferences. Technological leaps still dictate the major shifts in the form and functionality of modern products, such as the move from cathode ray tubes to LCD and LED screens that mean a TV can now easily be 55 inches across yet only one inch thick. Touch screen technology has provided unparalleled adaptability to interfaces on countless products and enabled the smart phone. As technology becomes ever smaller and smarter, products converge and the opportunities for aesthetic differentiation become increasingly limited. Compare the similarity of all smart phones these days (shiny black rectangles) with the enormous variation and even wild expression of automobiles in the 1950s.

So as products and markets mature or become saturated users' demands grow further into aspects that previously played a secondary role to the technological innovation; aspects such as convenience, reliability and usability (1). Consumers and users are no longer satisfied to just have the latest technology, they expect it to work and to enhance their lives. As the functionality becomes increasingly dictated by software users have very quickly got used to rapid revision and improvement in their "apps". In short, users are becoming more demanding and less willing to accept the quirks and foibles that previous generations tolerated in their products. Of course, when it comes to medical products and assistive technology these demands for usability take on a whole new level of significance. This point about the importance of usability is well made by Steve Eichmann in the interview that starts this special issue.

Meanwhile, over this period, design research has increasingly shifted from the manufacturing focus of industrial design towards ever greater user focus. Design methods and techniques are increasingly exploring and addressing human needs (2). User Centred Design was still a new thing when I studied design in the early 1990s. Since then, notions of universal or inclusive design have gained traction as research groups and leading academics pioneered and advocated new design processes that aimed to capture what it was that people actually needed and wanted. They recognised that we are not all one standard person. This led to the coming together of the previously somewhat separate disciplines of design and human factors / ergonomics. This has been reflected now in the increasing capacity and capability in human factors that is being integrated within the leading design consultancies and indeed in many academic institutions; not least my own, where design and ergonomics were merged into a single School in 2012. At Loughborough human factors is now an integral part of our undergraduate design courses, whilst remaining a postgraduate specialism. It is interesting to note that our first interviewee, Steve Eichmann is Global Head of Industrial Design *and* Human Factors and our second interviewee, Ian Culverhouse, combined training in industrial design with research and industry practice in human factors.

These trends have not really happened in isolation, but it certainly appears that now they are inextricably aligned. In order to meet users' expectations, approaches that are user centred are essential. In fact, we now progress a stage further by bringing users into the design process itself with approaches such as co-design and co-creation. The value of these approaches is only magnified when we consider the products that are for our most critical and sensitive needs such as medical devices and assistive technology. Whilst a

poor user experience with your vacuum cleaner might be irritating, poor experience with a medical device might materially limit your quality of life.

It is therefore heartening to see users of all types recognised and placed at the heart of the research you see collected in this special issue. The paper by Phillips, Page, Straker and Nusem neatly demonstrates the power of new mobile technologies combined with user centred design, and a focus on usability to improve the lives of women with Gestational Diabetes Mellitus. We see from the paper by Khoo, Reay, Potter, Brownlie and Tamanui-Fransen how co-design was used to successfully engage young people with the online platform for the Auckland District Health Board's Peer Sexuality Support Programme (PSSP). It is interesting to see how technology and design are helping to tackle sensitive personal healthcare concerns effectively when previous approaches and attitudes could so easily have disillusioned or alienated the target users.

The paper by Eggbeer, Beverley, Evans, Hollisey-McLean and Mehrotra show us that even when utilising the latest technologies within a healthcare setting, it is still vital to consider all of the people (the users) involved. This serves to remind us that in nearly all medical treatments there are at least two users with very different needs, the clinician and the patient, and of course in most cases many other healthcare professionals and carers too. This paper also brings up the wider contextual issues that affect all healthcare systems, those of economics (profit) and sustainability (planet).

The papers by Page and John, and by Peel, Eggbeer and Dorrington show us that good design using tried and tested processes still have great value in design for healthcare. It is gratifying for somebody of my generation to see that a good design process without anything more technological than a paper pro forma can result in solutions that are user friendly, quick, cheap and effective. As a researcher and specialist in prototyping myself, I was particularly pleased to see the former paper so effectively demonstrating the value that effective prototyping can have in bridging the notorious and seemingly perennial translational gap between research findings and commercially viable medical products and treatments.

This special issue is topped and tailed by interviews with experts from industry, which seems only right given the nature of this journal and the aims of the special issue. Eichmann and Culverhouse show us that the value of user centred design is not just recognised by academics but is increasingly playing a leading strategic role in companies large and small.

The current corona virus pandemic has starkly revealed the vulnerabilities of our increasingly globalised manufacturing supply chains and the lack of agility in its ability to respond to local urgent need at scale (3). On a more positive note, it was inspiring to witness (and in my case play a very small part in) the immediate and altruistic response of the design and making communities to meeting urgent local demand for medical devices and personal protective equipment (4).

Designers, as both researchers and practicing professionals, together with manufacturers and economists should take stock of the lessons to be learned from this current crisis. We should work together to add preparedness, resilience, agility and flexibility to our design and manufacturing processes so that future medical emergencies can be tackled more rapidly and effectively. Whilst there is much current interest in distributed manufacturing research (5), we need to look deeper into how disparate, geographically distributed designers, makers and manufacturers can be better prepared to coordinate responses. We need to better understand the best response strategies that balance local versus regional, national or even international coordination and how this might shift as emergencies develop. Another area that deserves more research attention is how we manage the sharing and distribution of designs that are safe, legally compliant, manufacturable and dependable in emergency situations. The fragility of global supply chains has revealed that regions and nations should commission research into rebuilding and maintaining their domestic critical manufacturing capability and capacity.

There are many challenges here for not only design and manufacturing research but also for research into supporting clinical, regulatory, economic and political environments. The call must go out to researchers in medicine, public health, business, law and government policy to join design and manufacturing researchers in tackling these issues. Perhaps more importantly, the commissioners and funders of research must put in place appropriate funding mechanisms that can encompass this kind of multidisciplinary research and better support work that is free to speculate on scenarios which would previously have been considered to be highly improbable. I hope that some of this work will be showcased in future issues of the Journal of Design, Business & Society.

Stay safe and take care,

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September 2020

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