On Becoming International…

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When I became Editor of this journal in 2005, clearly a major item on the agenda for the relaunched journal was 'becoming international'. (Its previous title had been T*he Journal of Design and Technology Education*). Of course, journal publications only reflect the research cultures from which the submitted papers originate, so no particular credit can be claimed except the extent to which the journal's policies have been open towards changes in these cultures and supportive of them. Nevertheless, the evidence provided by the papers published in the journal during this period concerning becoming international seemed an appropriate topic for my last editorial, alongside a glance at the journal's readership. This is what I wrote about the importance of becoming international in 2005.

'But why must the relaunched journal be 'international'? The pragmatic answer is that in order to attract contributions from the best researchers, the journal must be an international research journal. Otherwise, they will publish elsewhere. However, there is more to it than that. There is a sense in which further real progress in UK design and technology education is dependent on taking an international perspective. For example, consider the debate which occasionally surfaces briefly,

only to be submerged by the rising tide of implementation details, about the fundamental human capacity to design. How is designing possible? This is not a question to which answers would relate to national boundaries, or cultural divides, but to what it is to be human. It is a generally held belief that design and technology is about developing the human capability to design that has driven the international design and technology movement, but the debates tend to skate around the fundamental questions.' (Norman, 2005:3)

I still hold to this view, but the extent to which progress has been made concerning the fundamental understanding of the human capability to design must await another occasion. At least in England there seems to have been an endless series of implementation issues that have slowed potential progress. The evidence presented here only refers to the countries that have been represented in the papers published over the last 10 years. Table 1 shows the number of papers published in each volume and their countries of origin. For this purpose I have shown England, Northern Ireland, Scotland and Wales as separate countries in order to reflect their different educational provisions, although they are all parts of the UK. The number of papers from England can be

Volume	Number of papers published	Countries
10	11	**England(7)**, New Zealand, Scotland, Singapore, USA
11	11	Australia (4), **England (4)**, Finland, Greece, Wales
12	17	Australia (2), Canada, **England (4)**, New Zealand, Northern Ireland (2), Scotland (2), Sweden, Taiwan, USA, Wales (2)
13	11	Botswana (2), **England (7)**, Iceland, Sweden
14	15	Australia, Canada, **England (8)**, Iceland, Ireland, India, New Zealand, Norway
15	17	**England (6)**, Germany, Ireland, Israel, Malta, New Zealand (3), Norway, Portugal, Turkey, USA
16	17	Australia, Botswana, Cyprus, **England (5)**, France, India, Ireland, New Zealand (4), Northern Ireland, The Netherlands
17	18	Botswana (2), **England (5)**, Finland, Germany, Ireland, Northern Ireland, Pakistan, South Korea, Sweden (2), Taiwan, The Netherlands, Turkey
18	15	Australia, Belgium, Canada, Cyprus, **England (4)**, Finland, India, Malaysia, Norway, Singapore, USA (2)
19	14	Australia (2), Cyprus, **England (3)**, Finland (3), France, Iceland, Malaysia, USA (2)
20.1 and 20.2 only	10	Australia, Belgium, Botswana, Denmark, **England (2)**, Finland, France, Norway, Sweden, Turkey

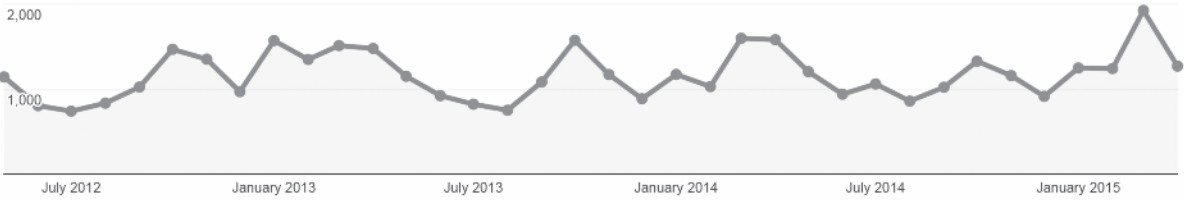*Table 1. Number of papers and countries represented in each volume from 10-20*
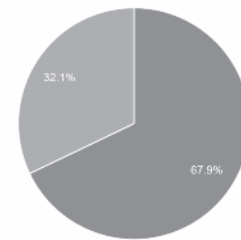
Figure 1. Visitors to the DATE:IJ website from May 2012-May 2015
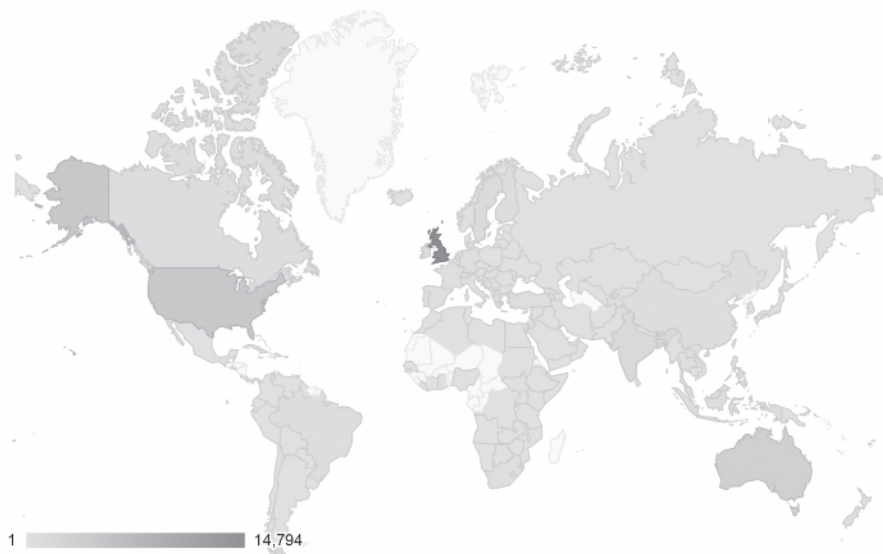

Figure 2. Countries of origin for visitors to the DATE:IJ website from May 2012-May 2015

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seen to be broadly reducing as the years have gone by, and, although this is not a statistical significant sample, it might be one measure of the journal becoming international.

Where academics in England decided to publish will have been much influenced by the Research Assessment Exercises and the Research Excellence Framework that have taken place during this period and the responses of their university managements to those initiatives. Journal Impact Factors have been high on the agenda for senior managers in English universities, so that might well be as large a factor in the changing pattern of publications as any other. However, for whatever reason, there has been an increasing number of papers published from outside England (which I have thoroughly enjoyed reading and editing).

As part of the policy of promoting international collaboration, the Design and Technology Association took the decision to make this journal freely available online in 2008 (Norman, 2008; Mitchell, 2008) alongside its back catalogue (to 1970). Two years later I published the Google Analytics data, which indicated that the online readership had grown to around 400 serious visitors per month from 128 countries. Figures 1 and 2 show comparable data for the last 3 years. There are now around 700-800 serious visitors per month (allowing for the Bounce rate) and around 30% are return visitors. They originate from 167 countries around the world. Most visits are from the UK (42.1%) and then the USA (11.2%), Australia (7.8%), India (3.6%), Sweden (2.4%), Canada (1.8%), Finland (1.7%), Ireland (1.7%), Singapore (1.6%), Malaysia (1.5%) etc. The readership largely reflects the origins of the papers published as might be expected, and provides further evidence that the journal has become international.

The next Issue (20.3) of the journal will have Professors Richard Kimbell and Kay Stables as Guest Editors and will focus on the achievements of the Technology Education Research Unit (TERU) which was founded at Goldsmiths University in 1990. Issue 21.1 will have Professor Michael Tovey and Dr Erik Bohemia as Guest Editors and will again be Special Edition. It is to be based on papers from the DRS/Cumulus conference being held in Chicago in June 2015 (LearnxDesign). For Issue 21.2, a new Editorial Team will be in place and I wish them well in leading the journal forward to a successful future.

In this Issue of the journal there are five further research contributions. There are two papers from England, one concerning secondary education and one higher education, and three that are international. These papers are looking at critical issues such as the value and need for design and technology education, the potential for interdisciplinary teaching and learning in secondary education, and critical pedagogical issues for design areas in higher education

The paper by Alison Hardy looks at how trainee teachers and experienced academics value design and technology education. Recent curriculum reviews in England have demonstrated that different stakeholder groups hold very different perspectives on the value of design and technology (D&T). Equally, current policies are leading to a reduction in the number of universities engaged in D&T teacher training and hence providing leadership for curriculum development. In these turbulent times it is essential to understand the values and beliefs that are underpinning D&T policy formation and this paper provides a starting point for how that research agenda can be approached.

The paper by Sirpa Kokko, Lasse Eronen and Kari Sormunen concerns a project in a Finnish Secondary School in which mathematics education was combined with craft instruction. The students were provided with an interdisciplinary real-world context and they worked collaboratively on an open-ended design task. The students were interviewed at the end of the project and found to have developed more positive attitudes to mathematics, as well as an increased understanding of its importance in real-world situations. The authors discuss the potential for organising teaching and learning in a more holistic way rather than the traditional subject-based approach.

The paper by Maria Antonietta Impedovo looks at how 12-14 year old students in a French middle school relate to technical objects. Technical objects were selected that were part of everyday life and mediated reality. A questionnaire was designed to explore how the children were able to detect the technical characteristics of objects and create relationships between them, as well as their direct use of technical objects and interest in science and technology. The research is targeted at understanding the complexity of the relationship with technical objects and the consequential need for design and technology education.

The paper by Jane Osmond and Michael Tovey takes a closer look at the pedagogy of teaching design through practice. In higher education the end goal for most students is to achieve the level of capability necessary for them to enter the world of professional design.

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The research looked at 'signature pedagogies' for product and automotive design at Coventry University and resulted in the identification of a key barrier, or threshold concept, which was labelled the toleration of design uncertainty.

The paper by Fatima Teixeira Pombo looks at phenomenology in the context of introductory architectural analysis courses at the University of Leuven in Belgium. Building on the arguments of recognised architects concerning the importance of taking a phenomenological approach, the author proposes the pentagon method as a pedagogy that can facilitate this. The pentagon method is discussed in relation to the 'Integrated Seminar on Housing', which is taught in the first semester of the bachelor programme.

This Issue also contains a Reflection piece 'Spider-Man and the Penal Colony' by Richard Kimbell and a review by Robin Roy of the book edited by Michael Tovey *Design Pedagogy*.

References

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13 April 1954 – 13 April 2015

It is with much sadness that we report the passing of Professor Chitra Natarajan. We extend our deepest sympathy to her family and friends and we hope that they will find some peace and consolation in the messages they will have received from all around the world concerning the contributions that Chitra made to so many fields.

Chitra was a much valued colleague and her contributions to the Editorial Board of *Design and Technology Education: an international journal* (DATE:IJ) will be sorely missed. She was a research scientist and in the early 1990s chose to engage with science education and in particular multidisciplinary models of teaching and learning. Her work provided the foundation for HBCSE-TIFR's contributions to the interface of science and design and technology education.

Chitra joined the Editorial Board in 2009, one year after the journal went online. She contributed to the 'double-blind' reviewing process and the maintenance of the journal's high reviewing standards. Chitra also published papers with her colleagues in the journal in Issues 14.3 (*A Study Exploring the strategies used by Indian Middle –School Students in Identifying Unfamiliar Artefacts*, 2009), 16.3 (*A Study Exploring Indian Middle School Students' Ideas of Design and Designers*, 2011) and 18.2 (*Investigating Indian Elementary and Middle School Students' Images of Designers*, 2013). It would have been no coincidence that the journal's online readership also increased in India during this period.

We are greatly indebted to Chitra for agreeing to join the DATE:IJ Editorial Board and for all her contributions.