Evidence-based Practice

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An intriguing Comment piece by Ben Goldacre was published in the Guardian on 18 March, 2013 (Goldacre, 2013a). The following is an extract from the related briefing note published by the Department for Education's press office (Goldacre, 2013b). Could it be that whatever else might be thought of Michael Gove's time as Minister for Education that his period in office might usher in a golden period of evidence-based practice?

> Education Secretary Michael Gove asked Dr Goldacre to examine the role of evidence in the education sector.
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> In a paper to be presented at Bethnal Green Academy, Dr Goldacre will say today that research into "which approaches work best" should be embedded as seamlessly as possible into everyday activity in education.
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> High-quality research into what works best can improve outcomes, benefitting pupils and increasing teachers' independence. But Dr Goldacre's recommendations go beyond simply running more "randomised trials", or individual research projects. Drawing on comparisons between education and medicine, he said medicine had "leapt forward" by creating a simple infrastructure that supports evidence-based practice, making it easy and commonplace.
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> Dr Goldacre says that:
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> - research on what works best should be a routine part of life in education
> - teachers should be empowered to participate in research
> - myths about randomised trials in education should be addressed, removing barriers to research
> - the results of research should be disseminated more efficiently
> - resources on research should be available to teachers, enabling them to be critical and thoughtful consumers of evidence
> - barriers between teachers and researchers should be removed
> - teachers should be driving the research agenda, by identifying questions that need to be answered.
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> In some of the highest performing education jurisdictions, including Singapore, he explained: "it is almost impossible to rise up the career ladder of teaching, without also doing some work on research in education."
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> Dr Goldacre said:
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> "This is not about telling teachers what to do. It is in fact quite the opposite. This is about empowering teachers to make independent, informed decisions about what works, by generating good quality evidence, and using it thoughtfully."
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> "The gains here are potentially huge. Medicine has leapt forward with evidence-based practice. Teachers have the same opportunity to leap forwards and become a truly evidence-based profession. This is a huge prize, waiting to be claimed by teachers."

As the Editor of a journal that is dedicated to supporting the development of evidence-based practice, and traditionally with a focus on general education, I might have been expecting a 'bonanza'; a flood of papers to be submitted. However, regrettably, the reality has rather turned out to be the opposite. This journal has an open access policy that was implemented by the Design and Technology Association with the support of Loughborough University, so that teachers can access the latest research without the need to pay a subscription. The Association's Education and International Research Conferences (2002-2012) ran in parallel in order to facilitate interaction between teachers and researchers. These conferences ran in direct succession to the IDATER conferences (1998-2001) during which leading researchers such as Professors Bruce Archer, John Eggleston and Phil Roberts helped to lay the foundations for appropriate designerly approaches to research and evidence-based practice. The proceedings of all these conferences and journal research papers dating from 1970 have been put online and are freely accessible to all via a research hub (www.dater.org.uk). So some reasonable efforts had been made that could have provided a foundation for an era of evidence-based practice, but it has not materialized.

So, it is time for Design and Technology teachers and the Design and Technology Association to reflect on the next steps. At the early IDATER conferences there were well over 100 delegates and many of them were Advisory Teachers who provided a direct link between research and

practice. Who fulfils such a role now? It might have become a key role for academics engaged in teacher education within Universities, but in England at least, their numbers are diminishing in the drive towards 'school-based training'. Research relating to Design and Technology continues to be published internationally, and much of it in subscription journals, but how are teachers going to find out about it? Much of the research infrastructure that was being established in order to meet the objectives provided by Ben Goldacre has been eroded by education policies that have not taken the requirements for the development of evidence-based practice into account. The development of such infrastructure is inevitably a slow process, but it can be quickly undermined. In England, in my view, it has been undermined through a series of policy initiatives in which the importance of evidence-based practice has not been sufficiently valued. Deliberate or not, the inevitable outcome is that greater numbers of the submissions to this journal will be generated from research in other countries, in other design areas, and for other age ranges, particularly higher education. Whose task is it to connect the world's of Design and Technology education research and practice as they seemingly drift apart?

There is also one other matter that needs to be addressed in resolving the issues surrounding the dissemination of research findings, namely 'Impact Factors'. It seems that rarely a month goes by without prospective authors asking what the journal's Impact Factor is. Our equally regular answer is that the journal is currently indexed by:

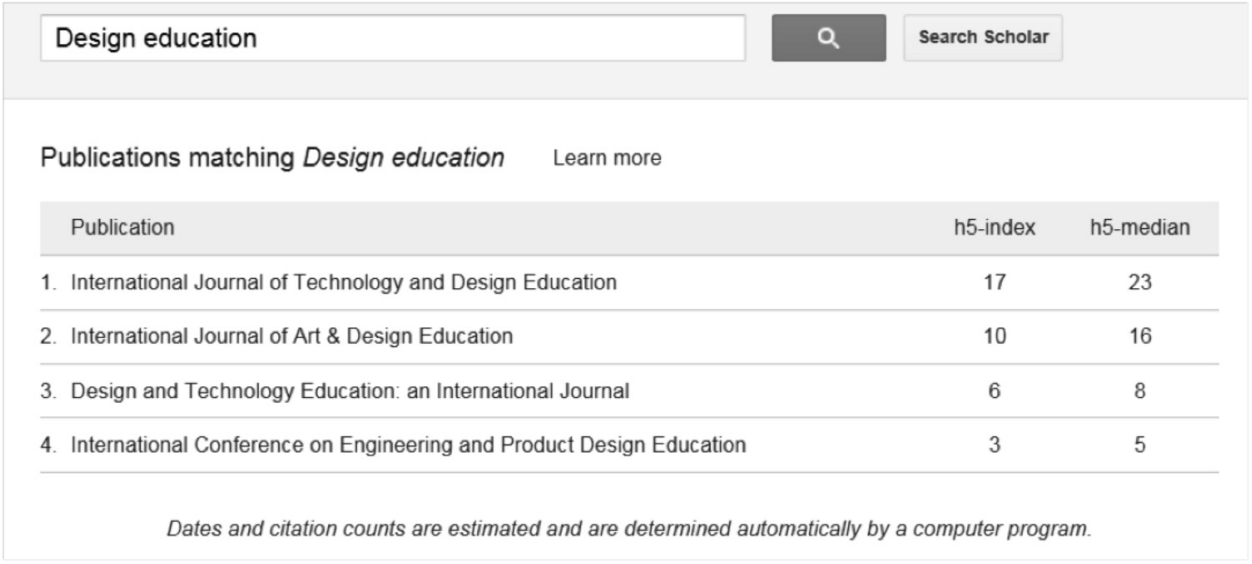
- British Education Index
- Educational Research Abstracts online (Routledge)
- ERIC (Education Resources Information Center) database
- DOAJ (Directory of Open Access Journals)
- Cabell's Directory
- Google Scholar

Impact Factors are awarded on the basis of evidence generated by Thomson ISI (Institute for Scientific Information) and consequently an application was made to Thompson ISI several years ago. The journal was not awarded an Impact Factor because its citations were assessed as being too low. It is not my intention to quibble over the decisions made by Thompson ISI, but, together with the reality that university managers often use Impact Factors, as a simple management tool through which to guide their staff, some important research is inevitably published elsewhere, and, in particular, in subscription-based journals where it will not be read by teachers. If the relationship between research and practice in Design and Technology education is the desired 'impact' of highest priority, rather than citations in academic journals, then this must also be addressed. How are the barriers introduced by the use of Impact Factors as policy instruments within universities to be overcome?

For one bright spot on the horizon we must be grateful to Google Scholar who have just started their version of 'Metrics' as shown below.

Google Scholar is again measuring citations, but at least the system is inclusive rather than exclusive.

This Issue of the journal contains 4 papers describing the research of 4 international authors – from Finland, Iceland, USA and Malaysia. Mika Metsärinne and Manne Kallio's paper describes the analysis of empirical data gathered through an evaluation by the Finnish National Board of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2. International Journal of Art & Design Education	10	16
3. Design and Technology Education: an International Journal	6	8
4. International Conference on Engineering and Product Design Education	3	5

Dates and citation counts are estimated and are determined automatically by a computer program.

Education (FNBE) from 152 schools. In the authors' words 'Three main orientations for learning were found: Learner-Centred Learning, Teacher-Directed Learning and Collaborative Learning. Furthermore, two orientations were formed of technical and textile technology areas of the subject.' The paper explores how experiences in one of these areas predicts performance in another with a view to 'developing the subject more towards the learners' point of view.'

Brynjar Olafsson and Gisli Thorsteinnson's paper concerns the curriculum development project, 'Reading Woods with Schools', which focused on cross-curricular outdoor education in Iceland. The participants were 105 teachers from twenty-two elementary schools: these teachers were trained via an in-service teaching course and given a woodland area prior to the project. The aim was to ascertain how teachers could utilise woodland in enabling students to gain an understanding of the ecosystem of the woods, use of the woods in craft, learn about sustainability and understand that woods are resources that influence the wellbeing of the human race. The research is considering aspects of design education in a broad cross-curricular context and the findings indicate important features of good practice.

Tilanka Chandrasekera's paper documents alternate modeling strategies utilizing technologies such as Virtual Reality (VR) and Augmented Reality (AR) in Architectural and Interior Design education in the USA. A 'Technology Acceptance Model' was used to better understand how students perceive design solutions in early design studios and consider their perceptions of VR and AR models in relation to physical models. The analysis focuses on a project case study where 15 undergraduate students were asked to design a monument for love, using a song as an inspiration.

Sylvia Chin and Chien-Sing Lee's paper concerns the development of an e-learning framework that has been designed to increase meaningful learning and multi-dimensional thinking. It describes the theoretical positions that underpin the development of the framework and its evaluation in the context of a package related to learning entrepreneurial skills. The evaluation is carried out with 14-15 year old students from SMK Bario, Sarawak (Sekolah Menengah Kebangsaan, a local secondary school) to explore the transition to a blended learning format that combines face-to-face sessions with distance communication.

This issue also contains the reflection piece – *Inside or outside?* – by Richard Kimbell and reviews of two books: *Technology Education for Teachers*, which was edited by P John Williams and has been reviewed by Andy Mitchell and *Graphicacy and Culture: Refocusing on Visual learning* by Xenia Danos, which has been reviewed by Gill Hope

References

Goldacre Ben, 2013a, 'What's evidence today could be policy tomorrow', The Guardian, 18 March, 2013.

Goldacre Ben, 2013b, 'Teachers! What would evidence based practice look like?', Bad science, www.badscience.net/2013/03/heres-my-paper-on-evidence-and-teaching-for-the-education-minister/#more-2849

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