Chapter 1

Building the Future of Education:
The Case for More Research, Experimentation, and Innovation in Education

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ABSTRACT

The chapter will begin with a discussion of the current array of failings in the education systems of both developed, and developing countries, and will continue with an analysis of the concept of the iron triangle. Within that context, suggested goals of education, as well as an agenda as to how these might be attained will be presented. At the end, discussion of i²Flex (Avgerinou, Gialamas, & Tsoukia, 2014) as an educational innovation will unfold with the view to addressing how the earlier mentioned educational issues could be solved via its implementation.

BACK TO THE FUTURE

Suspend your disbelief for a moment and join me in performing a thought experiment. Imagine that you are able to travel back in time to late 19th Century Britain, then the world's most technologically advanced nation. Whilst there, you meet and are able to persuade the Reverend Edmond Warre, Head Master of Eton College, and Florence Nightingale, founder of the first modern nursing school at London's St. Thomas Hospital, to accompany you back to the early 21st Century. Upon arrival, they ask you to take them on a visit to Eton and St Thomas Hospital as they exist today. What do you imagine their reactions to be?

The Reverend Edmund Warre would probably be intrigued by the personal computers and laptops that he would see but he would have no problem in understanding their use in schools primarily as advanced typewriters, one of the great inventions of his age. He would no doubt marvel at the Internet and its potential as an electronic library but would be aghast to learn of the principal uses to which it is being

put; and he might chuckle at the transformation of the once ubiquitous blackboard into the interactive whiteboard. In all other respects however, I suspect that the good Reverend would be quietly reassured that the timeless traditions of Eton and its approach to learning were still very much in place and that as a consequence (in his mind), a graduate of the school was once again the sitting Prime Minister. He would certainly have no trouble understanding the workings of education systems in the early 21st Century the essence of which has remained largely unchanged over the past 150 years.

In contrast, I imagine Florence Nightingale's reaction to bear out the author Arthur C. Clarke's third law of predictions "that any sufficiently advanced technology is indistinguishable from magic" (World Future Society, n.d.) Everything from antibiotics and other pharmaceuticals, to X-ray machines –never mind ultrasound, CAT scanners, robotic auto-analysers, laser scalpels and genetic profiling—would appear completely alien to her. She would be as awestruck and lost as you or I, were we to find ourselves tomorrow on board an actual Starship Enterprise.

Why such a stark contrast in the expected reactions from our late 19th Century visitors? Are healthcare and education two fundamentally different domains, such that any comparison is wholly misplaced? Does one domain, healthcare, lend itself more readily to changes in practice driven by scientific discovery whereas the other, education, is the product of cumulative experiences from the worldwide application of a model that generally works?

MIND THE RESEARCH FUNDING GAP

I recognise that the thought experiment that I have described above is now, as my colleague Keri Facer (2011) notes, "[a] familiar and banal [part] of the educational discourse" (p. 2). However, as Facer admits "there are elements of this story for which there is some evidence and empirical support" (p. 3). And it is not difficult to plausibly explain why education lags so far behind healthcare in terms of the application of scientific discovery to the norms and practices of the discipline; and this has very little to do with the inherent conservatism or technophobia of policymakers and educators. Simply put, as a global community we have over the past several decades invested far more in researching healthcare and related disciplines than we have done to understand the mechanics of education. In data published by the United States National Science Foundation (and reproduced by the American Association for the Advancement of Science) covering the period 1970-2014, education does not even feature as a separate discipline (www.aaas.org). Presumably, education is lumped together with the rest of the social sciences, the category (along with Psychology and 'Other') that consistently receives the least amount of research funding. By way of comparison, in 2014 the social sciences collectively received just over $1.2 billion in federal research funding as compared with almost $11.5 billion for engineering and almost $32 billion for the life sciences. Even allowing for the fact that research in engineering and the life sciences is generally more expensive than research in the social sciences, this is still a staggering difference. Whilst I do not have access to data for other developed countries, I suspect that the picture will be quite similar.

The great disparity in funding is surprising given the significant resources that as societies we devote to the practice of education. According to the Organisation for Economic Cooperation and Development (OECD, 2014) in 2011 (the last year for which comparative OECD data is available) developed countries spent on average 6.1% of their gross domestic product (GDP) on education. To put this into perspective, 6% of GDP represents over a $1 trillion dollars of public and private expenditure per year for each of

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