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Editorial

Fruitful Interdisciplinary Interactions

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It is a pleasure to be involved with this issue of the International Journal of Multidisciplinary Comparative Studies.

Of course, that's quite a mouthful, and an impressive collection of adjectives: "international", "multidisciplinary" and "comparative". I think that it is worth reflecting on those for a moment. International means at the boundary of two or more nations, and by implication at the boundary of two or more national cultures. Multidisciplinary means at the boundary of two or more disciplines. And comparative means at the boundary between two or more categories. So whatever else one might expect of the journal, its title suggests that we should expect it to be luminal, at the boundary of everything. But it will not, I hope, be found to be marginal in any other sense.

I will not be the first, and doubtless I will not be the last, to observe that such luminal spaces tend to be much more interesting than areas that are settled in the centre of a single nation, discipline or category. It is an observation that is not infrequently made by those who occupy hybridised areas, such as bio-medicine, social psychology or astro-physics, not to mention neuro-practically-anything. The argument seems to be that in the middle of established disciplines things are more or less settled; these are areas where what Kuhn would call "normal science" prevails. Scientific revolutions happen at the growth areas, the tips of the roots of knowledge where things are changing rapidly. On this view, disciplines might be viewed as tectonic plates where not much is happening. But in the earthquake zones at their edges, where plates collide, that is where everything interesting will happen. It may be dangerous to live on slopes of a volcano, but the occasional eruption will ensure that the fertile soil is periodically refreshed.

The trouble with that analysis is that the fruitful interactions between disciplines, say between physics and chemistry do not occur when the marginal concepts of physics come into contact with the marginal ideas of chemistry. On the contrary, really fruitful interdisciplinary interactions happen when the core ideas of one discipline can be found an application in another, even metaphorically. How should we understand the flow of electricity in wires? Well, why not think of it like the flow of water in pipes? It may not be a perfect analogy, but it did prove fruitful; it led to the invention of the Leyden jar – a bottle for keeping electricity in. Nobody thinks of Leyden jars exactly like that today, but the metaphor of water flow is still often used to explain electricity.

Good ideas are in short supply, so they had best be applied everywhere that they possibly can. So if we have an inverse square law to explain universal gravitation (not to mention the calculus that Newton used to develop it) then it would be a shame to waste it. How about an inverse square law to explain the attraction between electrical charges?, or the attraction and repulsion between magnets? And though nobody any longer speaks in terms of fluxions, the tiny particles that Newton posited as the foundation of his method of calculus, the ideas persist in or talk of lines of magnetic flux, or magnetic fields, and fields of influence. And those concepts have stimulated mathematicians to develop theorems and intellectual frameworks, most obviously Gauss' Theorem which seems to crop up everywhere.

Similarly, once the physicists had got hold of a good idea in the form of an exponential increase or decay, there was no shortage of places that it could be applied; charging capacitors, radioactive decay, chain reactions and many others. And that was before Thomas Malthus applied it to population growth. Alright, actually it was after Thomas Malthus, but scientists have never been very accurate in their depiction of history. Social Darwinism seems to have emerged before, and inspired, Darwinism, but that hardly undermines the idea that our knowledge has often been extended by fruitful transfer of key ideas from one area of understanding to another. Good ideas are in rather short supply and we had best exploit any idea that we have to its fullest possible extent.

That makes a journal like the International Journal of Multidisciplinary Comparative Studies, which celebrates studies that stand at the interstices of so many fields, extremely important. One is never quite so aware of what it is that makes a discipline as when one steps out of it, to look at its historical or social development, for example, any exactly the same way as one is never quite so aware of what constitutes the core of one's own national culture as when one goes abroad to live in another. For that reason, the creation of spaces that are international, multidisciplinary and comparative is so important.

And so I come to the specific content of this issue. Most of the articles that are included in this issue deal in one way or another with education. That seems to me not to be accidental. In many ways that which is educational is automatically international, interdisciplinary and comparative. In the first place, most careers in education are second careers, in the sense that teachers have normally followed some other specialised career before turning to education. Geography teachers normally think of themselves as geographers first, and educators second. Art teachers often think of themselves as artists first and teachers second. And so on. Indeed, in higher education it is not uncommon to find specialists who identify so strongly with the discipline that they teach that they do not think of themselves as educators at all. In my experience, the most marked examples of this tendency are to be found in engineering departments.

This duality of the educator's identity is not just a question of personal career history, however. Teachers necessarily bring two frameworks to bear on their work, content knowledge and pedagogical knowledge; knowledge that they wish to teach, and knowledge about how to teach, or perhaps more specifically of how their students learn. While this may be a problem for governments and bodies that oversee programmes of teacher development—should they prioritise content knowledge or pedagogical knowledge?—it can produce some startlingly fresh insights.

In my time working in the scholarship of learning and teaching in higher education, the most exciting work generally occurred when specialists reflected on their own teaching using the intellectual framework that they had learned as part of their primary discipline. The database designer had plenty of interest to say about the nature of "learning objects" and meta-information, while the media specialist had extraordinary insights into how a lesson plan might be designed to maximise communication. A colleague of mine in the business school who taught courses in marketing always started the first class with the end of unit examination: "If you are going to sell anything, the first thing to do is to persuade the customer that they need it".

This is not to suggest that educational theory is marginal or unnecessary. Properly considered, we are all educators now; we all need to sell something, persuade somebody, communicate something. Everybody needs to understand who their friends, colleagues, customers and audience learn. But the theory of education has always benefited from insights from diverse fields, from philosophy, from psychology, from cybernetics and from communication studies. Education can be seen as standing at the intersection of many different fields.

In the same way, education has always been an international concern. Of course, one can go back to Plato, and his concern to advance the education of Athens by examining the education of Sparta. But one educational pioneer after another has been ignored in his or her own country, but lionised in another. The Swiss Pestalozzi found acclaim in Germany, the German Froebel did not live to see his kindergarten system take off in the United States, and the Italian Montessori found initial success in England rather than in her home country. It is hard to say why such international transfer seems to be at the heart of educational reform, but it is a recurrent theme of educational history. So it should not be a surprise that an issue of a journal devoted to international and multidisciplinary comparisons devotes a great deal of space to education, and that educational studies provide fresh insights to old topics.

And so it is that this issue of the International Journal of Multidisciplinary Comparative Studies includes such gems as a reflection on educational methods by a specialist in teaching computer programming, or an outline of how education contributes to the development of globally competent citizens. Indeed, from my point of view, one of the fascinations of studying education is that it is impossible to avoid the complexities involved in the analysis of learning. When we find out something about how people learn, it takes a will of iron to prevent oneself reflecting about what it means for how we learn ourselves, or how the institutions that we populate learn and develop policy.

Education is not merely an interaction between one teacher and one learner. It is a cultural phenomenon, through which the wisdom of one generation, or what they perceive to be their wisdom, is put before the new generation, who in tern make their own selection. It is also a social mechanism which is intimately implicated in how life-chances are distributed. And it is, as we are constantly reminded, an economic phenomenon, through which future productive citizens acquire the skills that will allow them to earn a living.

There are those who have the strength of will to ignore this multilevel complexity of education, but fortunately they are not to be found between the covers of this journal.

Lifelong learning and social inclusion, education and the development of personal identity and the experiences of teachers who move from one educational system to another, either temporarily or permanently, all embrace aspects of multidisciplinary and international comparison that will reward the reader, and if not provide answers, at least stimulate interesting, and hopefully fruitful questions.