IN REAL-LIFE LEARNING, WHAT IS MEANT BY 'REAL'?

The Concept of Reality and its Significance to IS Curriculum

Arthur Tatnall
Centre for International Corporate Governance Research, Graduate School of Business, Victoria University, Melbourne, Australia Arthur.Tatnall@vu.edu.au

Abstract: What do we mean when we refer to 'real' life learning? How do we define the term 'real'? One possibility is that we mean that the learning takes place in actual (real) business organisations. Another is that we are referring to the acquisition of useful skills that have some every-day or employment-related (real) application, or perhaps we mean using technologies and case studies from (real) business organisations. Whether or not a technological artefact, programming language, or systems design concept is considered to be 'real' within the Information Systems community is generally related to its use in industry and commerce. But can a programming language, for instance, be real in education only, even if it is not used in commerce and industry? This rather philosophical paper addresses the issue of 'what is real' in the context of Real-life learning, and especially in regard to the content of IS curriculum, in the hope that this might shed some light on what this learning should involve.

Key words: Real-life learning, information systems curriculum, industry, reality.

1 INTRODUCTION

One of the questions often asked of a new technology or technological concept is whether it is 'real'. By this we often mean: 'is it something that can now be used, or that will be of use to us in the business or consumer world we know?'

> "What is REAL?" asked the Velveteen Rabbit one day, when they were lying side by side near the nursery fender, before Nana came to tidy the

> room. "Does it mean having things that buzz inside you and a stick-out handle?" (Williams 1922 :14)

But the concept of 'real' can be interpreted in many ways, particularly as it applies to information systems (IS) education. One possibility is that we mean that the learning takes place in actual (real) business organisations. Another is that we are referring to the acquisition of useful skills that have some every-day (real) or employment-related application. Maybe we mean that the teaching approach used to deliver the content is based on the use of (real) business problems, or that we use case studies from (real) business organisations. On the other hand, perhaps we mean that educational content being delivered is practically relevant, or that the technologies and concepts we are discussing or using are commonly used outside education. In this paper I will concentrate on the latter: the concept of 'real' in relation to IS curriculum.

2 APPLES, MOBILES, TRAINS, MONSTERS, VELVETEEN RABBITS AND REALITY

The question of whether or not something is 'real' has often also been put of computers and other technological entities (Tatnall 2000). The Apple II computer was briefly popular with business in the late 1970s and early 1980s because it allowed users to run VisiCalc - the first spreadsheet program (Sculley and Byrne 1989). Sculley, CEO of Apple during this period, notes that VisiCalc was responsible for "putting the Apple II on many business desks" (Sculley and Byrne 1989 :207) but that when the IBM PC came along with Lotus 1-2-3 in 1983, business dropped the Apple and VisiCalc in favour of the IBM combination. The Apple II was thus never entirely 'real', except perhaps in education where it was real for several years when many schools made good use of this machine. It was the spreadsheet program that business wanted, and the Apple II was just a means of delivering this. The IBM PC, on the other hand, quickly moved from the status of an expensive toy used only to play games and run Lotus 1-2-3, to being considered a real and useful machine (Sculley and Byrne 1989). Following the IBM PC's successful acceptance by business, other microcomputers of the MS-DOS variety soon also came to be considered real.

In the early to mid-1980s the Apple II was certainly 'real' in many schools as it represented the computer industry and the possibilities available to students when they left school. It was not so much the use of the machine 'across the curriculum' that made the Apple II real in education, but its use in 'computer awareness / computer literacy' courses and the like that taught about what a computer was, how it worked, and how it might be used by

business. The fact that it was not the Apple II *itself* that was used by business did not matter. What mattered was that this machine represented business use of computers and could thus be considered to be 'real'. When the Apple Macintosh was released in 1984 it was a long time before it was used enough by business to eventually be considered real, even in a limited way.

'Is it a real ... ?' tends to be a question asked by human actors of non-human actors in an attempt to decide how seriously to take them; to decide whether they are worth further investigation and could possibly be of some use. People asked this question, although probably not in these words, of the first mobile phones, of electronic organisers and of other technological innovations they were unsure whether they could find a use for (Franklin 1990). It is interesting to note that in respect of a given (non-human) actor the question 'Is it real?' is fairly uncontroversial and most people will agree on the answer. Although they would probably use a quite different vocabulary to express it, almost everyone would agree that mobile phones, PCs, laptops and the Internet are now 'real', but that PDAs, Videophones and SmartCards are at present probably not real.

It is probably true to say that initially most new technologies are not considered to be real, and only become real after some time. People need a period in which to evaluate the innovation to see whether or not it might be of use to them and so become something they might think of as real. This raises the question of how something becomes real.

> "Real isn't how you are made," said the Skin Horse. "It's a thing that happens to you. When a child loves you for a long, long time, not just to play with, but REALLY loves you, then you become Real." (Williams 1922 :14)

Perhaps, like toys, an item of technology only becomes real when enough people really 'love' it, but love it not just to play with. Perhaps it becomes real when they find what they see as a significant use for it. When it is just fun to play with it is still a toy, but when we can use it for something significant that we want to do it is well on the way to becoming real. In actor-network terms (Callon 1986a; Law 1991; Latour 1996), things become real when they have gathered enough intermediaries, enrolled enough allies, and have made enough associations to be seen to be of use by lots of people.

Like most new technology, the innovative Parisian public transport project known as Aramis (Latour 1996) was not seen as being real at the beginning of its development. In common with other technological projects it could not possibly be real at the beginning as it did not then exist for people to see and to evaluate whether it might be something they could use. The problem was that Aramis never did succeed in becoming real and hence eventually died. Latour describes Aramis as "merely realizable" and "not yet

real" (Latour 1996 :85) and notes that Aramis should have taken on reality by degrees.

> "But anything can become more real or less real, depending on the continuous chains of translation. It's essential to continue to generate interest, to seduce, to translate interests. You can never stop becoming more real." (Latour 1996 :85)

VAL, Aramis' predecessor, also began as a technological project but went on to be fully implemented in the French city of Lille. Unlike Aramis it did succeed in becoming real, and the people of Lille found it useful.

> "VAL, for the people of Lille, marks one extreme of reality: it has become invisible by virtue of its existence. Aramis, for Parisians, marks the other extreme: it has become invisible because of its nonexistence." (Latour 1996 :76)

Victor Frankenstein (Shelley 1818) never permitted his creation to become real. His revulsion at what he had created, and his refusal to accept the creature or even to give it a name, meant that the creature's quest to become real, and so to be accepted, was doomed to failure. But if Frankenstein's monster never succeeded in becoming real in the world of Shelley's novel, in many ways it has become real, even if only as a concept, in our world. We have found a use for the analogy of Frankenstein's monster to describe any 'unnatural creation' of modern technology. For instance, in an article on human cloning Weiss (1999) raises the spectre of Frankenstein's monster without any further explanation, confident that this concept is well known to his readers. The concept of creating something that seems to go against the natural order of things (Anderson 1999) is one that is closely linked in our minds with the monster of the novel, and Frankenstein's monster has become real in that sense. In using the concept of a monster like this, we have made it 'real' in much the same way that the term Luddite has become real as a concept used to refer to those people who oppose the increased use of technology. Of course the Luddites (Grint and Woolgar 1997) did actually exist whereas Frankenstein's monster is only a work of fiction, but in each case it is the *concept* that is real, and it is real because we have found a good use for it.

Mythology about computer companies has also come to be very 'real' to many computer users. The myth that IBM is a bureaucratic company that supplies over-priced hardware and conservative solutions to business problems; the myth that Apple is a small innovative company that produces simple-to-use computers and cares deeply about education; and the myth that all Microsoft is interested in is making money by writing quick-and-dirty software of low quality, probably all have some basis in reality but have been taken far beyond this in the popular imagination. To many people,

these myths have become 'real' and an accepted part of the way they see the world. They have become real to the extent that they affect the way we relate to these companies and whether we willingly purchase and use their products. These concepts have shaped our view of the world of technology and computing in much the same way that concepts of Frankenstein's monster and the Luddites have shaped this view.

There are thus many different ways that something can be seen as real, and different ways that this can affect what we do, but once something becomes real it will remain real providing that the allies who made it real remain loyal.

> "The Boy's Uncle made me Real," the Skin Horse said. "That was a great many years ago; but once you are Real you can't become unreal again. It lasts for always." (Williams 1922 :15)

3 REAL PROGRAMMING LANGUAGES

One of the first tools by which computer professionals defined themselves was the use of programming languages. But to be considered a computer *professional* it could not be just any programming language that you used; you had to use a 'real' programming language (Maynard 1990; Juliff 1992) or else you were seen as just a hobbyist playing with a toy. In similar vein, the operating system you worked with was another way of determining whether you were a 'real' computer professional. Apple II DOS was definitely not considered real whereas CP/M and Unix were. At one extreme some would also not consider MS-DOS, Microsoft Windows or Mac OS as real either; to them it had to be something like MVS or OS/400. Franklin puts it this way:

> "The historical process of defining a group by their agreed practice and by their tools is a powerful one." (Franklin 1990 :16)

Whether or not a programming language is considered to be 'real' within the Information Systems community is generally related to its use in industry and in commerce. Cobol and Fortran are considered real because they have long been used, and indeed relied upon, in business and science respectively. Pascal, with its academic origins and quite small user-base in business has never been thought of as real (Juliff 1992). Basic, which was invented forty years ago as a simple teaching language, has had great difficulty shaking off its unstructured, 'quick-and-dirty' image, and its image as a language for beginners in programming. Although never seriously used as a mainframe programming language, the growth in respectability of the microcomputer in the 1980s contributed to making Basic, and later Visual Basic (VB), the 'real

programming languages' they are seen as being today. Not all computer professionals *like* Visual Basic, but few would challenge its reality. In actor-network terms (Latour 1996), what matters is the length of the network, its allies, and the intermediaries it is able to marshal on its behalf. VB's network is now long; it has attracted many allies and has been able to make use of many intermediaries.

Pascal was seen only to be used in education, despite the fact that it did have some practical uses, and thus was often not considered real. While the traditional universities might take the view that although a given language was not used much in business, if it was a 'good teaching language' they would 'use it anyway' (Juliff 1992). This view was, however, much harder to sustain in the more practically-oriented Universities (or Institutes) of Technology where applied knowledge was considered much more important (Maynard 1990). Educational institutions have always had to suffer the criticism of being detached from the 'real world', and have attempted to address this criticism in two different ways. In relation to information systems, the traditional universities have often taken the line that it is their purpose to educate, not train, and so it does not matter if the programming languages they teach with are not those used in industry as long as they are appropriate for teaching programming. Institutions such as Universities of Technology, on the other hand, have generally attempted to make their educational offerings more relevant to commerce and industry and so be seen to cater for the 'real world' in this way. These institutions have defined their educational context as containing the real and relevant (Seddon 1995) but to do this they have considered it necessary to use only 'real' programming languages and other real 'industry standard' technology where this has been possible. In doing so they have defined Information Systems curriculum as necessarily practical and proceeded to use teaching practices to reinforce this definition. As Seddon says:

> "... this 'reality' is not only the tangible, obdurate, empirical world of everyday experience; it is also discursively constituted through practices that re-present and therefore, define, the 'real' and what is 'relevant'." (Seddon 1995 :401)

Can something, such as a programming language, be real in education only, even if it is not much used in commerce and industry? It may be possible to argue that this is the case in some situations, but with the definition accepted by computer professionals and by academics at institutions like Universities of Technology, there is only one version of real: it must be extensively used in business. Although conceding that at primary and secondary school the situation is different and that something might be seen as real in this context, arguing this in Australia at a University of Technology would be very difficult.

4 GAINING A 'REAL PLACE' IN THE INFORMATION SYSTEMS CURRICULUM

Programming languages like Visual Basic and Java are now quite real in the Information Systems curriculum of many universities, but this has not always been the case. In the mid to late-1990s neither had many allies and neither had yet managed to further its network of associations. How does something gain a 'real place' in the curriculum? My research (Tatnall 2000) suggests that a programming language, IS concept or technology becomes *real* in the Information Systems curriculum of a university when the consensus among academic staff is that it occupies a useful place and fits in well with the university's educational mission of preparing its students for the future. It becomes real when it has enrolled enough of the academic staff in its support, and mobilised (Callon 1986b) them to speak on its behalf.

When a technology has acquired an educational network that would be difficult to disassemble, it becomes real. A technology's progress towards becoming real in the curriculum could be pictured as follows:

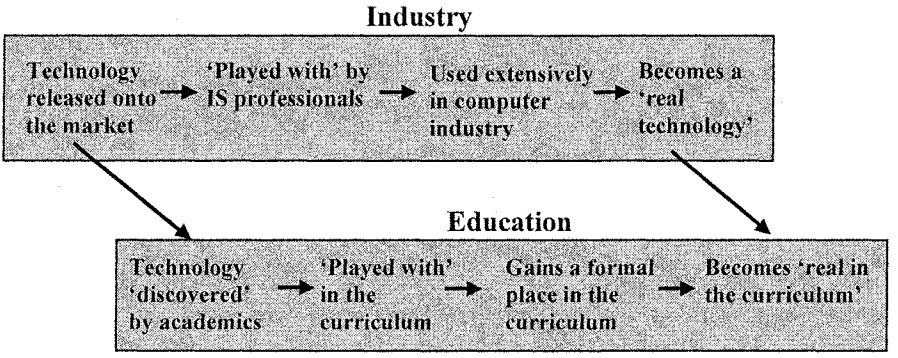

Figure 1: Becoming 'real' in the Information Systems curriculum

A 'real' place in the curriculum is however, not guaranteed forever and a technology needs the support of all its allies to keep this place, under challenge from other technologies.

> "Nothing becomes real to the point of not needing a network in which to upkeep its existence." (Latour 1991 :118)

5 CONCLUSION

How important is it for information systems curriculum content to be seen as 'real'? The answer is that it all depends on the particular university involved. For some, more traditional, universities this is seen as an irrelevant concept, as all that matters is that something is considered 'academically worthwhile' – whatever they might mean by this. In other universities, especially in Universities (or Institutes) of Technology, there is felt to be a particular need to relate IS curriculum to the needs of the local industry and of students. It is in the latter case that issues of 'real' IS curriculum content will be debated.

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