

Computer-Supported Collaborative Learning

Rupert Wegerif

Dialogic Education and Technology

Expanding the Space of Learning

 Springer

Dialogic Education and Technology

COMPUTER-SUPPORTED COLLABORATIVE LEARNING

VOLUME 7

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For Julieta

EXERGUE

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用

Tao Te Ching, verse 11

[Thirty spokes meet at a nave;
Because of the hole we may use the wheel.
Clay is moulded into a vessel;
Because of the hollow we may use the cup.
Walls are built around a hearth;
Because of the doors we may use the house.
Thus tools come from what exists,
But use from what does not.

From: <http://www.edepot.com/taoc.html>]

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Chapter 1

INTRODUCTION

Challenge of the changing chronotope

Capital by its nature drives beyond every spatial barrier. Thus the creation of the physical conditions of exchange – of the means of communication and transport – the annihilation of space by time – becomes an extraordinary necessity for it.¹

(Marx, Grundrisse, 1857/2005 p. 538 from: <http://www.marxists.org/>)

1 THE CHALLENGE

Years ago I sometimes used to phone my bank to get business done and I talked to people I knew, such as the bank manager, in the bank's building on the high street of my local town. Then I found myself talking to people I did not know with pleasant Scottish accents. Recently I had a surprise when I phoned my bank to pay a routine household bill and found myself talking to someone whom I guessed was in India. She seemed a bit uncertain when I asked her about herself, as if she had been warned not to deviate from her script, but nonetheless, with some prompting, I discovered myself in cheerful conversation with a graduate called Alia in busy call centre in Bangalore. As a boy growing up in England, India seemed to me to be a remote and exotic place. Now I was meeting with this same India inserted into the routine activity of paying my bills.

¹I challenge Marx's account of history explicitly in my concluding chapter, but I find the idea of the annihilation of space by time extraordinarily prescient for someone writing in the middle of the Nineteenth Century.

Change often occurs in such small increments that any really big change can be difficult to see. My sense of shock at talking to Alia in India stemmed from the fact that I became personally aware, as if for the first time, of a really big change that had been happening all around me for some time. Since the age of trains new communications technology has always been promising to make the planet smaller. The quotation with which I begin this chapter shows that, even in the nineteenth century Marx claimed that new technology was leading to 'the annihilation of space by time'. In the 1960s Marshall McLuhan referred to the way in which new media such as television were creating a 'global village'. My conversation with Alia brought home to me that, in one small way at least, this once remote sounding promise of technology had finally arrived.

Manuel Castells, a sociologist widely credited with being the best commentator on the Internet revolution that is now happening all around us, argues that new communications technology is leading to a new form of social organisation. There have, of course, been many prophets predicting future revolutions but Castells is more compelling than most because he largely contents himself with documenting actual change. In his trilogy *The Information Age: Economy, Society and Culture* he synthesises a vast range of data in a way that allows the trends to emerge. He argues, sticking closely to the evidence, that there is a convergence towards what he calls 'the Network Society'. He defines this as: 'a society where the key social structures and activities are organized around electronically processed information networks' (Castells, 2002).

In a sense Castells's Network Society is the realisation of Marx's exaggerated claim that time would annihilate space. Of course there have always been networks but the advent of the Internet has transformed the nature of these networks. The difference now is the mediating role played by near instantaneous electronic communication. Castells argues that: 'the economy is not just a world economy but a global economy because it works as a unit in real time on a planetary scale' (Castells, 2005). Whereas in the past the nodes in the economic network were physically located and the links between them were external ones, now physical location is subservient to the network itself and links between nodes are internal ones such that billions of dollars can be transferred from one side of the planet to the other in seconds or, indeed, in as little time as it takes to think about doing it.

One of the interesting conclusions that Castells draws from his analysis is that the social activity that is perhaps most challenged by the shift towards a network society is education. The advent of the Internet, he claims, 'calls into question the entire education system developed during the industrial era', (Castells, 2002, p. 278). This book is offered as a partial response to the challenge he lays down. It begins with the question: what kind of pedagogy do we need to develop for the children of the Internet revolution? The argument of the book, in a nutshell, is that, having posed the challenge to

education, new information and communications technology (ICT) may also offer the means to its solution. However, this solution should not be understood in a narrow technological sense as an answer to the question 'how to do it'. The challenge we face is not only a technological challenge it is also a conceptual challenge. Developing a new pedagogy for the Internet age is not only about developing new practices it is also about developing a way to understand our new situation. By claiming, as he does, that current education systems embody a model of education forged in the industrial era, Castells implies that education is still dominated by the industrial metaphor of the production of material goods. This is already an insightful challenge to the proliferation throughout the educational literature, particularly the educational technology literature, of metaphors of education as a process of production and construction with many references to tools, scaffolding and the construction of knowledge, as if knowledge was some kind of object or even some kind of edifice. However, to really understand the issues at stake in education in the twenty-first century, I think that we need to dig a little deeper than the shift from the dominant metaphors appropriate to an industrial economy to those appropriate to a global networked economy. More insight can be generated if we focus on the shift in the dominant metaphors of *space* and *time*, from physical space–time to dialogic space–time.

2 THE 'SPACE' OF LEARNING?

Bakhtin is known for his work on dialogue but he also had interesting things to say about 'space'. In particular he argued that space, as this is presented in novels, is always indivisible from time and he referred to the presentation of space and time together in a text as its 'chronotope' (Bakhtin, 1981, p. 250). He applied this idea to the analysis of genres of Greek novels showing how they could be defined through different configurations of space and time. This idea of a chronotope foregrounds something important to understanding the nature of the impact of new technologies. As both Marx and Castells point out, one of the apparent consequences of the advent and proliferation of faster communications technologies is a different relationship between space and time.

Marx and Castells were analysing at the macro-level of society as a whole. One of the themes in this book is that, even at the micro-level of educational activities, different pedagogies and technologies also produce different 'chronotopes'.

The idea that the micro-genesis of understanding in education can be analysed in terms of space is not a new one. Vygotsky proposed that important learning, the learning of new concepts for example, takes place in a 'zone of proximal development' (ZPD) which he defined as the distance

between a child's actual developmental level, shown by independent problem solving, and their potential development shown by their ability to solve problems with an adult (Vygotsky, 1978, p. 86). According to Vygotsky, teachers work in this zone to draw students ahead of themselves. In describing the activity of education in terms of a space of learning Vygotsky's ZPD is a seminal idea. However, this idea of space seems to be thought by Vygotsky and his followers largely on the model of a physical space in a way that is limiting for our understanding of education. His illustrations and description of the ZPD suggest a space of quite circumscribed freedom that opens up within a larger fixed space to serve the function of moving a child from an initial state to a known goal state. Although he did not himself coin the term 'scaffolding' for this process it fits his account very well. The idea of education as scaffolding is that the teacher provides a support to help the learner achieve a goal that they cannot initially achieve unaided and then gradually removes these supports until the learner can achieve the goal.

The concepts of ZPD and scaffolding have proved to be powerful ways of understanding some aspects of education but not all aspects. It does not address easily, for example, the question of how we might teach in a way that promotes creativity, reflection and 'learning to learn'. One way in which we can expand our understanding of the space of learning is to acknowledge that the ZPD is not only a kind of physical space in which co-construction occurs, on the metaphorical model of the mat in front of the child on which bricks are placed, but, more fundamentally, it is also a 'dialogic space' in which learner and teacher engage with each other and, in a sense, learn to see the task through each others eyes. It is not enough for the child to perform the task correctly with the aid of the teacher, this would be training, not education. For there to be education going on, as opposed only to training, the child must understand the meaning of the task. Understanding requires that the child takes on the point of view of the teacher. However, dialogic space, the space of perspectives in a dialogue, is very different from physical space. Most of our ways of thinking about education, including notions such as ZPD and scaffolding, seems to presuppose a way of thinking influenced by the properties of a physical space when in fact education actually takes place in the very different realm of dialogic space.

3 FROM PHYSICAL TO DIALOGIC SPACE

Dialogic space opens up when two or more perspectives are held together in tension. This starting point is already a fundamental challenge to the dominant tradition of western thought, which begins with the assumption of

identity. Aristotle points out that two objects cannot inhabit the same space at the same time. It follows, according to Aristotle, that two different things cannot be the same thing or that a thing is what it is and cannot be another thing (Aristotle, 350BCE/2006). In the form of the principle of identity, that $A = A$ and $A \neq A$, this simple insight of Aristotle is the basic assumption behind classical logic and is so embedded in our thinking that it can be found in most theories of education. Aristotle's insight seems to make perfect sense because we are so used to accepting our physical bodily experience as the only way of understanding space. However, new technology has brought in quite different experiences of space, and from these experiences, different metaphors can arise.

In 1992 I was a post-graduate student in a computer science department in Queen Mary and Westfield University College in the East End of London. Everyone was very excited because we had taken delivery of our first decent virtual reality kit. With my fellow students standing around a fairly empty lab I donned cyber-goggles and a cyber-glove and entered bodily into a completely different space. From the point of view of the other students I was staggering drunkenly around the room and their job was to prevent me bumping into the walls and the furniture. However, from my point of view, I was in a strange grid-like world interacting with giant chess figures. All I could see of my body was a ghostly image of my cyber-glove. By lining this up with the controls on the chess figures, such as a huge red chess knight that loomed up in front of me, I could grasp these and control them. If I did it wrong then I walked right through the figures. Somehow I managed to get lost and move away from the chess world that I was supposed to be in. I found myself in a dark space without apparent dimensions or forms. Turning back I saw the world I had left behind glowing in the distance, shaped like a big shoe-box, its three-dimensional grid lines outlined in green light.

This experience was a powerful learning experience for me. It was like leaving normal space behind and looking at it from outside. A sort of 'out of body' experience in a way. In virtual space Aristotle's principle of identity did not appear to apply. I could not only occupy the same space as the red chess knight, but, with the right programming, I could take on the body and position of the red chess knight and experience reality from this perspective. If we ask, with Aristotle, where is the proper location in physical space and time of the Red Chess Knight, there is no easy answer. I guess one could point to programme code or to the behaviour of electrons in a computer chip but that would not be very helpful. My virtual reality experience gave me a new metaphor for physical space, this was the shoe box of three dimensions that I had seen glowing in the distance. On this metaphor physical space is just one perspective on reality, a perspective that is therefore within the larger 'space' of possible perspectives which is 'dialogic space'.