

Education and the margins of the network society: a debate with Manuel Castells

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This chapter is one of a series of debates with Manuel Castells, reading between the lines of his writing about the 'network society'.

In his trilogy, *The Information Age*, as well as in a series of reports and papers, Castells touches on the implications of the network society for higher education and for Africa. I start by outlining Castells' concept of the nature of work in the new global economy, and in particular his distinction between 'individualised work' and 'generic labour'. This highlights the structural basis for social exclusion in the network society - a risk for geographical areas such as Africa, but also for the ghettos of the new metropolises.

From this I move on to education and, specifically, the current claims for the potential of distance learning on the World Wide Web. Although Castells does not consider this field specifically in his work that is reviewed here, his models for the workings of networks allow us to understand some of the trends, and to infer their implications.

The chapter includes Castells' responses, and his views on the future possibilities for the network society in Africa.

Education and the Margins of the Network Society

Martin Hall

Introduction

This paper reads between the lines of Manuel Castells' recent writing about the 'network society'. In his trilogy, *The Information Age*, as well as in a series of reports and papers, Castells touches on the implications of the network society for higher education and for Africa. I start by outlining Castells' concept of the nature of work in the new global economy, and in particular his distinction between 'individualised work' and 'generic labour'. This highlights the structural basis for social exclusion in the network society - a risk for geographical areas such as Africa, but also for the ghettos of the new metropolises. From this I move on to education and, specifically, the current claims for the potential of distance learning on the World Wide Web. Although Castells does not consider this field specifically in his work that is reviewed here, his models for the workings of networks allow us to understand some of the trends, and to infer their implications.

The global economy

World economies have existed since the 16th century. A global economy, in contrast, is 'an economy with the capacity to work as a unit in real time on a planetary scale' (Castells 1996: 92). In this 'space of flows', capital is managed in real time by globally integrated financial markets, and production and distribution are managed in a 'global web'. Today's global economy comprises the three major regions of North America, the European Union and the Asian Pacific region: 'around this triangle of wealth, power and technology, the rest of the world becomes organised in a hierarchical and asymmetrically interdependent web, as different countries and regions compete to attract capital, human skills and technology to their shores' (Castells 1996: 101). Because the creation of this global economy has involved a structural transformation in the relations of production and power, Castells sees this as a new social form, 'informational capitalism' (Castells 1998: 340). How did this new world order come about? Castells traces its genesis to the 1970s, and to technological innovation and productivity growth driven by competitiveness and demand for profitability. Firms were driven by fears of declining profitability to adopt new strategies in order to establish new markets which would absorb a growing productive capacity in goods and services. This in turn promoted enhanced communications capabilities and information technologies: 'what has changed is not the kind of activities humankind is engaged in, but its technological ability to use as a direct productive force what distinguishes our species as a biological oddity: its superior capacity to process symbols' (Castells 1996: 92).

This transformation has profound implications for the nature of work. Because capital accumulation resides in the flow of investments, rather than in the production of goods and services, it creates a demand for mobile, 'individualised labour', which Castells terms 'self-programmable'. Members of this new elite are able to constantly retrain themselves - to 'learn how to learn' and to take up key roles in the network economy. This successor to Organisational Man is celebrated by Charles Leadbeater in his 'blueprint for the 21st century':

Most of us make our money from thin air: we produce nothing that can be weighed, touched or easily measured. Our output is not stockpiled at harbours, stored in warehouses or shipped in railway cars. Most of us earn our living providing service, judgement, information

and analysis, whether in a telephone call centre, a lawyer's office, a government department or a scientific laboratory. We are all in the thin-air business. (Leadbeater 2000: ix)

Leadbeater's new world contrasts with the lot of those excluded from the information elite - those whom Castells terms 'generic labour'. In the network society, generic labour is exchangeable and disposable, and is assigned given tasks that do not lead to development and consequent empowerment. The critical factor in determining who has the opportunity to join the information elite and who is restricted to the pool of generic labour is, of course, education. And this in turn renders access to education as the key social issue of the network society -- the large number of workers who have become unattached to traditional, social structures of work, but are not reattached to the information economy. In a society where education, information and knowledge are the critical sources of wealth and influence, class formation takes place in the classroom. Who gets into the education system determines who gets what in capital, communication and political influence. (Carnoy and Castells 1999)

One proxy for this new social division is the 'digital divide' - the distinction between those with access to new technologies, and those without such access. By the end of 1999, one in three Britons was on-line. But gaps in access based on wealth were increasing, with 59 per cent of the most affluent socio-economic classes online, and only 14 per cent of unskilled people using on-line resources (Travis 1999). The same pattern was evident in the United States, where the government has identified the 'digital divide' as a leading economic and civil rights issue. A study based on December 1998 census bureau data, found that households with incomes of US\$75 000 or over were more than 20 times as likely to have access to the Internet than those at the lowest income levels, whites were more likely to have access to the Internet from home than blacks or Hispanics from home and work combined, and black and Hispanic households were two fifths as likely to have home access to the Internet as white households. This divide had increased by more than six per cent since 1994 (National Centre for Educational Statistics 1999; National Telecommunications and Information Administration 1999).

The digital divide in Africa is well established, and the spread of the Internet can be seen as both mimicking earlier patterns of colonialism and following the contours of discrimination (Hall 1999; in press). Information technology is widely seen as the key to bridging South Africa's 'skills divide'; however, little of the country's developing information technology industry is in black hands (Templeton 2000). A recent article entitled 'Geeks in the bushveld' (The Economist 2000) suggests that, rather than heralding an 'African Renaissance', information technology may be widening social divisions through the extensive automation of service industries. For example Nedcor, a major financial services conglomerate, has reduced its operating costs by 25 per cent over the last three years through automated operating and customer services, thus absorbing the consequences of 'white flight' without the necessity for training skilled black professionals.

Castells' argument is that the 'digital divide' is a structural feature of the network society, rather than merely an unfortunate side effect that can be ameliorated by enlightened social policies. He sees networks as gatekeepers to 'network enterprise': 'inside the networks, new possibilities are relentlessly created. Outside the networks, survival is increasingly difficult. Under the conditions of fast technological change, networks, not firms, have become the actual operating unit' (Castells 1996: 171).

Why does this happen? Castells argues that competitiveness in the global economy depends on technological capacity (understood as the articulation of science, technology and industry); access to large, integrated and affluent markets; an appreciable differential between production costs at the production site and prices at the market; and a political capacity to steer growth strategies. Because

these are all features of developed economies, the network society is reinforcing historical patterns of domination. Castells believes that this leaves Africa in a particularly vulnerable position. Writing some time before the collapse of the Asian economies, Castells argued that:

Overall, the systematic logic of the new global economy does not have much of a role for the majority of the African population in the newest international division of labour. Most primary commodities are useless or low priced, markets are too narrow, investment too risky, labour not skilled enough, communication and telecommunication infrastructure clearly inadequate, politics too unpredictable, and government bureaucracies inefficiently corrupt (since no official international criticism has been heard about other bureaucracies equally corrupt but still efficient, for example, in South Korea until the presidency of Kim Young Sam). Under such conditions, the only real concern of the 'North' (particularly of Western Europe) was the fear of being invaded by millions of uprooted peasants and workers unable to survive in their own countries. This is why international aid was channelled to African countries in the hope of still taking advantage of some valuable natural resources and with the purpose of preventing massive famines that could trigger large-scale migrations. Yet what can be said of the experience of the transition of Africa into the new global economy is that structural irrelevance (from a systems point of view) is a more threatening condition than dependency. (Castells 1996: 135)

Can systematic social exclusion in the network society be overcome? Networks are automata that have their own 'social morphology' that induce inequalities of consumption and therefore exacerbate the distinction between 'individualised labour' and 'generic labour' (Castells 2000); the marketing and distribution of distance education through the Internet is a good example of this 'social morphology' that will be discussed later in this paper.

This leads Castells to conclude that 'there is little chance of Social change within a given network or network of networks' (Castells 2000: emphasis added). There are, he argues, two alternatives to the burgeoning growth of dominant networks. The first of these is the creation of 'cultural communes' that deny the logic of the network society, close in on themselves and cut themselves off from the world. The second comprises alternative projects that build different sorts of networks - 'new history making' (Castells 2000).

Higher education

First, though, it is necessary to look more closely at some of the dominant trends in education in the network society. In his 1999 report to Unesco, Castells argues that the network is the 'real operating unit' of the global economy. This is because the 'real time' of the global economy results in the simultaneous concentration of decision-making and the decentralisation of execution. This solves a major limitation of industrial capitalism; the contradiction between growth and size, on the one hand, and flexibility on the other. The possibilities of 'real time' reward flexible, individualised labour and render anachronistic the socialisation of work that was characteristic of industrial economies. It is this that leads Castells to conclude - building on his work with Carnoy - that the 'social sustainability of work flexibility' is the 'real issue for the 21st century' (Castells 1999; see also Carnoy and Castells 1999).

This model can be transferred directly to higher education. Although the source of an unresolved tension in traditions of liberal education, it has long been recognised that schools and universities play a major role in the 'socialisation of work'. Indeed, Bourdieu would argue that the production of socialised labour has been the only real function of university systems (see Bourdieu 1996; Egan 1997;

Ryan 1998). Today, however, the flexible and individualised knowledge economy of the Internet is seen as the key to the future of all higher education (Daniel 1996). In one of many recent policy studies of this kind, the British Committee of Vice-Chancellors and Principals has concluded that 'borderless education' will be characterised by a customer-focused approach to education and training, by the dissolution of boundaries between public and private institutions, and by the increased use of branding to ensure successful competition in the global marketplace (Tysome 2000).

Many believe that 'commodification' of education in this way is the result of 'Managerialism' in universities that has led to the inappropriate intrusion of 'the market'. One of the best-known advocates of this position is David Noble, recently pictured holding a hammer that was used by Luddites to smash mill machinery two centuries ago. Noble sees a clear distinction of interest between university administrators and commercial partners, on the one hand, and students and teachers, on the other. He argues that the rush to implement information technology in higher education is driven by profit motives. This commercialisation started with the commoditisation of research in the 1970s, leading inexorably to the commoditisation of the core educational functions of the university at the end of the century. As a result, the educational process is transformed into 'commercially viable proprietary products that can be owned and bought and sold in the market' (Noble 1997). This intrusion of the market is being promoted by an alliance of vendors of network hardware, software and 'content', by corporate training advocates, university administrators, 'technozealots' and charitable foundations. It is inevitable that teachers will become labour in a production process, with their activities restructured in order to reduce their autonomy. This will result in alienation from intellectual property as universities assert rights of ownership over course notes, teaching materials and other 'content' (Noble 1997, 1998a, 1998b).¹

Noble's argument is attractive and persuasive because it tracks the authentic experience of many in universities. It is, however, inconsistent with interpretations of the contemporary global economy by Castells and others, because it casts its critique in the political economy of industrial capitalism rather than in the 'informational capitalism' of the network society. Noble would prefer the traditional residential university with small classes, face-to-face contact with small groups of students and information technology subservient to the primary purposes of education. Although, as will be argued below, these qualities are essential to counter social exclusion, it is unlikely that it will be viable to form retrospective enclaves under the emblem of the Luddite's hammer - the customer-focused, branded products of 'borderless education' will sweep by such islands, leaving them isolated.

Castells argues, contra Noble and others, that information technology is embodied in the social relationships of the network society, and is therefore part of both production and power relations, rather than a thing apart. He encourages us to view information and communication technologies (ICTs) as the essence of the ecological relationships through which humans act on their environment, and on one another. This means that, as the network society continues to grow, the Internet will become the universal tool of interactive communication and information technologies will enhance and accelerate the production of knowledge and information (Castells 2000).

Recent trends in the adoption of the Internet for the delivery of education seem to support Castells' view, rather than Noble's contention that 'the bloom is off the rose' (Noble 1998b). Between 1995 and 1998, distance education programmes in the United States increased by 72 per cent and by 1998, 1680 institutions were offering some 54 000 on-line courses to an enrolment of 1.6 million students. The National Centre for Educational Statistics found that an additional 20 per cent of institutions intended to offer distance education courses in the near future. It seems probable that the use of the Internet will soon be universal in United States colleges and universities (National Centre for

Educational Statistics 1999). One measure of the intensity of development in this area is expenditure on advertising. For example, advertising volume in the main section of the Chronicle of Higher Education in April 2000 was 60 per cent on-line platforms, 20 per cent information technology systems and 10 per cent hardware. The remaining 10 per cent was divided between on-line bookstores and the more traditional advertisement of financial services for the higher education sector,

It is also clear that the development of new information technologies in higher education is a source of massive investment. This was evident in one of the earliest 'e-universities', The Harvard Business School's course platform - introduced in 1995/1996 and now providing on-line learning for 1 600 full-time Master of Business Administration students, 5 000 executive education students and 66 000 alumni - cost US\$8 million to establish and requires an annual expenditure of a further US\$8 million to maintain (MacColl 1999). As Dale Spender, who has developed policy in this area for Australian universities, concludes:

there is no incremental way a traditional university with bricks and mortar and schedules and lectures can be reinvented as an e-university with the necessary information technology infrastructure, the learning packages and the skilled staff to deliver to the world's students. (Spender 2000)

The British Committee of Vice-Chancellors and Principals concluded that it can cost up to £2 million to establish a single degree Programme on the Web (Tysome 2000).

The complexity and cost of establishing virtual universities is promoting large-scale partnerships of common interests, often unrestrained by geographical boundaries. Recent alliances have included Princeton, Stanford and Yale (Carr 2000), Leeds, Sheffield, Southampton, York, California at San Diego, Pennsylvania State University, University of Washington and University of Wisconsin-Madison (Goddard 2000a), and the partnership between News International (publisher of the Times Higher Education Supplement) and twenty-one Scottish universities to market and distribute distance learning courses (Goddard 2000b). The 'Fathom' project brings together Columbia, the London School of Economics, the British Library, the New York Public Library, the Smithsonian's National Museum of Natural History and Cambridge University Press: Columbia is reported to have committed 'tens of millions of dollars' to the enterprise (Carr and Kiernan 2000; www.fathom.com). The British government's e-university initiative is based on a commitment of £200 million for set-up costs over two years, and will comprise a consortium of universities, private sector corporates and overseas partners. It will market on-line education in China, India, Brazil, Argentina and South Africa in conjunction with the British Council (Goddard 2000a, 2000b, 2000c; Jobbins 2000).

The emerging character of virtual education, then, conforms with Castells' model of trans-national organisations in the network society, in which the opportunities of 'real time' allow massive investment and growth without compromising flexibility. The potential destination of the virtual university is mapped out in Charles Leadbeater's ever-creative imagination. He sees the new 'knowledge capitalism' as the opportunity to export the British advantage in higher education through 'great academic brands like the London School of Economics'. The British Broadcasting Corporation, he believes, could link all British universities in a vast virtual library:

if we simply put all those books on-line we could make the United Kingdom's virtual university library available to all sorts of new universities around the world. Once we have invested the fixed cost in creating a virtual university library the marginal, additional cost of making it available to other users would be quite small.

The consequence would be to 'establish Britain's reputation as a worldwide centre for learning and education'. Because marginal costs would be negligible, set-up costs would soon be recovered, and revenues would flow back from the margins to the centre (Leadbeater 2000: 243).

Virtual classrooms?

What could such virtual classrooms be like? John Tiffin and Lalita Rajasingham (1995) have produced a detailed 'vision of what education and training could become as information technology develops'. They start by casting the conventional classroom as a set of 'critical subsystems': desks (for writing and reading as an individual activity) and a blackboard ('a subsystem for reading, writing and drawing as a communal activity'). Blackboards are technologies for short-term memory, used for the symbolic representation of knowledge and problems, while textbooks are technologies for long-term memory. From this, they move to the concept of the 'virtual learning space' — 'any kind of distributed virtual reality that can be used for learning' - enabling in turn the 'virtual school' in which there are no restrictions of size, or in the distance between learners. Critical subsystems are then recast as information systems employing new technologies and operating in 'real time', unconstrained by distance: e-mail to guarantee individual access to teachers and quick turn-around in assignments, discovery learning using the Web and full virtual reality to develop problem-solving capabilities unbounded by space. This is expressed in a design for a 'multi-level telelearning system' incorporating individual learners with personal computers, small group networks, course networks and 'virtual learning institutions' (Tiffin and Rajasingham 1995: 118). Tiffin and Rajasingham's 'virtual classroom' was designed in virtual prehistory. Nevertheless, many of the technological developments that they anticipated have come about over the intervening five years - bandwidth has increased in breadth and declined in price, real-time video and sound transmissions have become a reality, and connectivity has expanded.

There is, however, more to the virtual classroom than getting on-line, as Tiffin and Rajasingham well recognised:

This weaving together of the weft of the learner and teacher with the warp of knowledge and problem is something that no text or handout can do. It is the essence of education, something we can recognise in the competence of good teachers, but something that defies analysis because it is dynamic and intuitive and does not work on demand, even with the most gifted teachers. (Tiffin and Rajasingham 1995: 63)

Far less work has been done in understanding these pedagogic implications of virtual education. Fabos and Young (1999), in their review of the literature, found that extensive claims for the efficacy of on-line education have not been matched by a demonstration of results. Communication exchange projects, for instance, seek to build classroom connections between schools, with learning projects based around the use of e-mail. This is said to have skills-benefits (writing and keyboard skills), social benefits (multicultural awareness) and economic benefits (preparing students for the global workforce). More complex forms of telecommunication exchange involve a number of classrooms and a moderator who co-ordinates collaboration and dialogue between classrooms following a particular curricular theme. Examples are the AT&T Learning Network, Apple's Global Education Network and Global Schoolhouse. But there is little conclusive evidence that any such uses of information technology have a substantial education benefit - the 'weaving together of the weft of the learner and teacher with the warp of knowledge and problem'.

The overall emphasis of most exchanges simplistically remains on unification (e.g. promoting a collaborative global community and developing a 'sensitivity for humanity' and teamwork on

a worldwide scale) rather than on self-reflection and critical understanding of difference. (Fabos and Young 1999: 240; see also Doheny-Farina 1996; Hawisher and Selfe 2000).

Michael Harris, a member of the founding editorial team of the journal *Internet in Higher Education*, concludes: 'I have not been able to uncover any systematic evidence of careful consideration to questions of the "effectiveness" of various pedagogical approaches. Neither faculty or students seem much interested in the questions of the "quality" of the learning experience' (Harris 1998: 248).

It seems apparent that any correction of these deficiencies will lead to a re-emphasis on the importance of interaction between groups of learners and teachers. Tiffin and Rajasingham are well aware of this, which is why they stress the importance of full virtual reality in their model of the virtual classroom. And this leads us to a contradiction at the heart of the e-university project. Effective learning in the virtual classroom - as opposed to the efficient transmission of information - will depend on small group size. However boundless education might become, no model for 'deep learning' has yet been developed that allows delivery on a mass scale without a concomitant increase in the number of teachers. As Doheny-Farina puts it, in criticising Tiffin and Rajasingham's vision of the future, 'if you provide synchronous distance education, you may indeed reach more students, but you must either hire more teachers or increase teachers' workloads and class sizes' (Doheny-Farina 1996: 110). This is David Noble's 'Achilles heel of distance education':

In the past as well as the present, distance educators have always insisted that they offer a kind of intimate and individualised instruction not possible in the crowded, competitive environment of the campus. Theirs is an improved, enhanced education. To make their enterprise profitable, however, they have been compelled to reduce their instructional costs to a minimum, thereby undermining their pedagogical promise. (Noble 1999)

How many students can fit into a virtual classroom and still learn? A recent study by the University of Illinois suggests a maximum number of between twelve and 20, depending on the nature of the course, with rare exceptions where enrolments can reach 65 students: 'the scenario of hundreds or thousands of students enrolling in a well-developed, essentially instructor-free on-line course does not appear realistic, and efforts to do so will result in wasted time, effort and expense' (University of Illinois 1999). Studies of individual contexts support these conclusions. To cite just one example, a pilot study for the Open University's new course, 'You, Your Computer and the Net' (which had an enrolment of 12 000 students in 2000), found that it was essential for each tutor to form a community in which there was a continual flow of messages and ideas. This involved new skills, such as 'weaving' (an open-ended pulling together of ideas and teasing out new strands of discussion) and the encouragement of 'chat' so that students could 'see' one another (Cox et al. 2000). Such a community cannot be formed without a low ratio between students and tutors. Reflection on Ulster University's experience with a fully on-line M.Sc. in biomedical and medical sciences led the course convenor to conclude that 'the biggest thing you've got to plan for is human contact through phone, e-mail and videoconferencing' (Wojtas 2000).

This takes us back to Castells' key distinction between 'individualised labour' and 'generic labour'. Success in the network society depends on learning how to learn, and on continual access to new knowledge and training, providing the flexibility needed to 'live on thin air'. Education that will enable and support such 'knowledge workers' is offered through the Net, providing the flexibility that is essential to the new global economy. However - and despite claims to the contrary - it would seem that the essence of success to such borderless learning lies not in connectivity itself, but in the quality of interaction between small groups of learners and teachers. In turn, this suggests that, rather than

declining in cost with the declining cost of bandwidth, the relative quality of virtual education will be indexed to the labour costs of specialised and highly skilled educators.

If this is indeed the case, then the rise of virtual education will accentuate the distinction between individualised and generic labour, rather than narrowing the 'digital divide'. In Stephen Doheny-Farina's words:

The ideal is to put students into small classes with skilled, dedicated teachers, supported by communication technologies appropriate to the area of study (and sometimes books are the most appropriate), but the ideal has always been a luxury. The gap between the educational haves and the have-nots will widen, not decrease, with increased Net access. Ironically, when we talk nowadays about educational have-nots, we are talking about schools and students who have no access to the Net. As the Net becomes ubiquitous, the real problem will be limited access to face-to-face teaching and learning environments. (Doheny-Farina 1996; 116)

Virtual universities?

Increased access to quality higher education is now recognised as essential to the future of the developing world - a reversal of earlier assumptions that tertiary provision was insignificant in comparison with basic literacy. The World Bank's recent Task Force on Higher Education and Society sets out an agenda for the revitalisation of higher education, and sees distance education, using the new information technologies, as integral to this vision:

The Task Force believes that distance education offers many exciting possibilities. Innovative curricula can be combined with interactive, Internet-based technology, traditional educational media such as television and print, written materials and direct contact with tutors. It needs, however, to be thoroughly integrated into the wider higher education system, subjected to appropriate accreditation and quality standards, and linked to the outside world. Research into how this can be achieved and how distance education can fulfil its potential needs much greater attention. (Task Force on Higher Education and Society 2000: 49-50)

Recent trends add emphasis to the need for further research and highlight the simplicity of many assumptions, such as those of the World Bank in establishing its African Virtual University as a panacea for university revival (Hall 1998). 'To introduce more computers into a bureaucratic school system, or to provide more Internet access without knowing what to search for, is tantamount to inducing cognitive chaos' (Castells 1999).

What direction should research into such 'alternative networks' take? I would suggest that the heart of the matter is not the extent of the 'information superhighway' or the cost of connectivity. Within a few years, wireless, broadband access will be a basic service, available to most people. The issue will rather be that of content.

The structure and form of the network society seem to create an inexorable tendency to enhance social differentiation and to seek profits on the margins, where electronic delivery renders distribution costs minimal. When applied to the provision of education, this economic mode stretches the distinction between high-quality learning - available to the information elite with low learner-teacher ratios at high costs - and standardised packages of information, delivered at low cost and with little or no interactivity. This is evident in the form that the African Virtual University has taken. Although claimed as a revolution in learning, a closer look shows that courses comprise prepackaged video cassettes and occasional satellite feeds in which teachers in North America respond to questions put at the same time by classes of 40 students in several different countries, using the telephone. From

late 2000, students will be required to pay fees for such courses (World Bank 1999). In educational terms, there is little in common with the Harvard Business School's on-line platform, or with courses at the Open University.

The challenge of the 'alternative network' in education, then, is that of providing access to learning that takes advantage of the new possibilities of the Internet while tackling the consequences of marginalisation and underdevelopment. And this raises in turn long-standing issues that have mostly been forgotten in the rush of enthusiasm for the virtual classroom: issues raised in John Dewey's pragmatism (1997), in David Kolb's work (1984) on experiential learning, by Ira Shor's 'critical teaching' (1992), and in Paulo Freire's models for literacy (2000). I would suggest that it is here that we will find the key to using new technologies to make 'new history'.

Considering this tradition of 'critical pedagogy' provides a sense of the shape of an alternative approach to networked education. The key factor will be the ability to turn the low marginal costs of commercially distributed education products - the packets of standardised information that critics such as Noble and Doheny-Farina see as an inevitable consequence of the Internet revolution - into useful education resources that empower individuals, rather than consigning them to the pool of 'generic labour'. This will require educational designs that enable people to learn from the experience of their everyday lives - from their local experience rather than from the attenuated environment of the 'virtual classroom',

Discussion

In the lively discussion that followed Hall's presentation at a seminar in Cape Town, the following points were made:

Discarded labour as Africa's key problem

While Hall's paper focused on the dichotomy between individualised and generic labour, Castells reminded the seminar that the real issue for Africa was a third category: discarded labour, or people who are not recognised as labour by the network. (This is the basis of his devastating critique of systematic social exclusion in areas such as sub-Saharan Africa and the ghettos of the United States - areas which he has labelled the 'black holes of informational capitalism')

Castells explained that, according to his analysis, much of Africa fell into the category of discarded labour. Africa's predicament originated in colonial and post-colonial dependency, but was aggravated by 'predatory' African states. Flexible global networks are able to close down in areas perceived as problematic, and the effects of this 'cruel and brutal' marginalisation are felt by those whose lives are rooted in the area - 'capital disinvests, software engineers migrate, tourists find another fashionable spot, and global media close down in a downgraded region' (Castells 1998: 5). The overall result of this process is that Africa loses value to the global networks: 'the automaton would be better off if Africa could be totally marginalised'. In this context, Castells expressed a degree of faith in South Africa as 'Africa's hope' for global reintegration. (This seemed somewhat in conflict with his book, where he points out that South Africa is more likely to be in competition with its neighbours than in synergy.)

The real digital divide starts when you are connected

Extending Hall's discussion, Castells problematised the technological determinism which underlies many notions of 'the digital divide'. According to such accounts, access to the Internet is all that

counts in counteracting social marginalisation. Castells predicted that high levels of access would shortly be achieved, except for those who were 'switched off everything else, and therefore off the Internet'. South Africa might take slightly longer than necessary to reach this goal, and thus lose the advantage of being an early adopter, if it could not get rid of its telephone monopoly (Telkom). Nonetheless, access to the network is not an end in itself and, as Castells pointed out, 'the real digital divide starts when you are connected'. With access to the Internet, you still need the capacity to know what information you want, where to find it and then what to do with it, and education bridges this gap between information and knowledge. Consequently, 'learning how to learn' should be viewed as the critical skill and overall learning goal of the educational system. In support of this point, Castells cited Martin Carnoy's view that the key skills for success were mathematics, language and Internet literacy. Castells added that, since another goal of education was personality-building, an associated challenge for educators lay in building the flexible and adaptive personalities that could survive the fast-changing network society, but who nonetheless 'knew who they were' and had strong values.

Alternative networks require even more education

Responding to Hall's exploration of the possibilities for alternative networks, Castells agreed that it was possible to use alternative networks to change the structural logic of society - 'the fact that something is structural doesn't mean that it can't be changed'. Nonetheless, he pointed out that participating in such an alternative system required even more education than participating in the dominant network: 'if you want to change the system, you have the double task of understanding the system and figuring out how to change it'.

Education will never be the same

In relation to distance education, Castells again critiqued the technological determinist 'false promise' of on-line education: 'Log in, have education, become Bill Gates'. Traditional vocational education also came under fire. Castells recognised that the fundamental changes brought about by the possibilities of on-line education had changed the higher education playing-field forever. Nonetheless he cited the commercialised low-level degrees peddled by on-line institutions such as the University of Phoenix (the largest on-line university programme in the United States) as an example of overly focused and practical vocational training which, ironically, has little value to business. Given the new demands of global capital, claimed Castells, such 'traditional vocational training is obsolete'.

Referring to Hall's discussion of David Noble, Castells identified the hidden elitism in this particular leftist critique of mass distance education - 'the world is not made of Cambridges and Oxfords'. In addition, education has been fundamentally changed by the arrival of the Internet - 'education will never be the same again'. Particularly for the developing world, giving up the technological logical possibilities of the Internet 'is plain stupid'. His reference to Oxford was particularly scathing. Oxford's claims of high-quality education are based on the system of personal tutoring, although it is self-admittedly not one of the world's leading research institutions. Castells' question, 'Without research, what do you tutor?' could certainly be applied to the current proposals to stratify South African higher education into separate research-oriented and vocational training institutions.

In contrast, Castells cited two positive examples of the use of ICTs in educational interventions. In both cases, innovative uses of tutoring and technology were deployed in combination. Brazilian scholarisation programmes Proformação and TVEscola used video, the Internet and layers of tutors for in-service teacher training in 100 000 schools. Castells' second example, The Open University of

Catalonia's on-line doctoral programme focusing on life in the information society, utilises a worldwide network of personal tutors for its on-line students.

Freire is not enough

Castells' final comment on Hall's use of critical pedagogy was to express a sense that the Freirian approach had particular limitations in today's educational context, since Freire's basic premise of articulating 'what people know but can't formulate' was developed for a world where the amount of information available was not expanding at today's rate, and was not so crucial for economic survival. Consequently, for Castells, expressing what people already know remains secondary to developing people's capacity to 're-learn'.

South African telecommunications policy

In reply to Castells' recommendations that the Telkom monopoly be ended, Thami Nxasana, an executive of Telkom, explained 1996 legislation that established the current telecommunications framework, and set Telkom's targets for universal service. In an illustration of the reach of 'borderless' education, Nxasana explained that Telkom had signed a telecommunications training agreement with the University of Malaysia. This clearly illustrated the warning that by the time South African educational institutions woke up, they could be 'outsourced online'.

The unpredictable complexities of South African social networks became astonishingly clear when Nxasana strongly supported Castells' notion of Marxism as a powerful analytical tool. As a telecommunications executive, Nxasana could be read as a 'node' in a multinational telecommunications 'dominant network'. At the level of Castells' usual abstractions, he should consequently act and speak only the automaton's language of profit. Instead, however, he cited his experience of alternative networks - global worker solidarity in the labour movement in the 1980s - and asked: 'Why, despite all this technology, do we still have deserts of poverty?'

Castells expressed his surprise at hearing a telecommunications executive invoking Marxism, and warned jokingly that Nxasana should not push the Marxist line too strongly with Telkom's Malaysian shareholders. He restated his thesis that, in the new economy, telecommunications formed the basis of productive forces. For Castells, flat rates for Internet access and an end to telecommunications monopoly are absolutely essential in facilitating universal access to the Internet - which should be viewed as a basic human requirement: the electronic equivalent of drinkable water and electricity.

Dave Kaplan, from the South African Department of Trade and Industry, commented that difficult political choices were being made because of the state's effectively reduced sovereignty over economic issues. By focusing on the development of South Africa's competitiveness and banking on the presence of scarce skilled labour, the state was cornered into effectively advantaging the already empowered. Nonetheless, the state (in its traditional role of mediating social conflict) would be responsible for containing the possible social upheaval and political fallout that might result from such decisions. In reply, Castells agreed that Kaplan had articulated an absolute dilemma, but that the alternative was not worth contemplating - 'while you create low-level jobs, the global economy speeds away in the other direction'. He suggested that the priority focus should be on developing the 'human capital' to make the economy competitive (this includes making venture capital available to small entrepreneurs). At the same time, the government should consider embarking on social policy measures, such as the rollout of ICTs which were labour-intensive, but would also add to wealth creation.

Notes

¹ For a South African version of this argument, see Bertelsen 1998.

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