

Globalisation and the Knowledge Economy: Implications for Education Policy in Aotearoa/New Zealand

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ABSTRACT

By "knowledge economy" I mean to stress the received (mainstream) economic view, which involves the following characteristics that I have renamed as: the economics of abundance; the annihilation of distance; the de-territorialisation of the state; the importance of local knowledge; investment in human capital. I discuss these characteristics more fully below. This received view is both largely untested and uncritically adopted. In this policy-oriented paper I am concerned to focus upon how the so-called knowledge economy, in part, prescribes education policies. Thus, it is not principally a paper designed to explore the theoretical cadences of Foucault's studies of the human sciences or Lyotard's "logic of performativity" in the postmodern condition (but see Peters 1995, 1996, 2001), although the paper in the final section, indicates several lines of critique that might be followed.

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We live in a social universe in which the formation, circulation, and utilization of knowledge presents a fundamental problem. If the accumulation of capital has been an essential feature of our society, the accumulation of knowledge has nor been any less so. Now, the exercise, production, and accumulation of this knowledge cannot be dissociated from the mechanisms of power; complex relations exist which must be analysed (Foucault, 1991: 165).

There should be a new agenda for social science today because the age of labor and property is at an end. Nonetheless, modern society is still widely conceived in terms of property and labor. Labor and property have an extended and close association in social, political and economic theory and reality. In practice, individuals are forced to define their identities on the basis of their relation to these factors. However, as labor and property (capital) gradually gave way to a new constitutive factor, namely knowledge, older struggles and contests, centered for instance on the ownership of the means of production, also make room for rising sentiments of disaffection with beliefs and values once associated with labor and property and ultimately result in very different moral, political and economic debates and conflicts (Stehr, 1994: iix).

Introduction

Fundamental to understanding the new global knowledge economy has been a rediscovery of the economic importance of education (Papadopoulos, 1994: 170). The OECD and the World Bank have stressed the significance of education and training for the development of "human resources", for upskilling and increasing the competencies of workers, and for the production of research and scientific knowledge, as keys to participation in the new global knowledge economy. Both Peter Drucker (1993) and Michael Porter (1990) emphasise the importance of the economics and productivity of knowledge as the basis for national competition within the international marketplace. Lester Thurow (1996: 68) suggests that "a technological shift to an era dominated by man-made brainpower industries" is one of five economic tectonic plates which constitute a new game with new rules: "Today knowledge and skills now stand alone as the only source of comparative advantage. They have become the key ingredient in the late twentieth century's location of economic activity". Equipped with this central understanding and guided by neoliberal theories of human capital, public choice and new public management, many Western governments have begun the process of restructuring their national education systems and, especially, in higher education, redesigning the interface between universities and business.

These observations and predictions are hardly novel. In the mid-1980s Charles Handy (1984) charted the future of work in a book of the same title. He suggested, among other things, that the full-employment society was becoming the part-employment society; "labour and manual skills" were yielding to "knowledge" as the basis for new business and new work; "industry" was declining and "services" were growing in importance; "hierarchies" and "bureaucracies" were going out, "networks" and "partnerships" were coming in; the one-organization career was becoming rarer, job-mobility and career changes more fashionable (Handy, 1984: x).

Handy assumes that we are facing more than a cyclical adjustment; the employment society is ending and he seeks new meanings and patterns of work, inevitably turning towards education as the panacea, not only as the means for generating new wealth, credentials and technology but also as a creator of labour-intensive employment and as a good in itself- a mark of any civilised society (Handy, 1984: 133). In promoting a new education agenda, based upon greater choice, flexibility, and variety, he argued for the "home as classroom" and the "workplace as school" (146-147).

David Hargreaves (2000), quoting the new master futurists Drucker, Cairncross, Canter and Leadbeater, focuses upon the transition to a knowledge economy and its consequences for educational systems and schools in particular. He predicts that while literacy (including IT literacy) and numeracy will remain part of the core curriculum, the school will come under increasing pressure to provide new forms of knowledge, which he lists as follows: metacognitive abilities and skills - thinking about how to think and learning how to learn; the ability to integrate formal and informal learning, declarative knowledge (or *knowing that*) and procedural knowledge or (*know-how*); the ability to access, select and evaluate knowledge in an information soaked world; the ability to develop and apply several forms of intelligence as suggested by Howard Gardner and others; the ability to work and learn effectively and in teams; the ability to create, transpose and transfer knowledge; the ability to cope with ambiguous situations, unpredictable problems and unforeseeable circumstances; the ability to cope with multiple careers - learning how to "re-design" oneself, locate oneself in a job market, choose and fashion the relevant education and training. He places the emphasis on "knowledge management" which he sees as playing a vital role in the move to the "learning society". Part of the answer for him of an effective education system is to *train* (his word) all education leaders in knowledge management. In essence, it seems, knowledge management will help us to transfer knowledge within and between institutions, and also to make explicit and share the professional knowledge of teachers which is often tacit and locked in teachers' heads. (It is a discourse of which I am highly suspicious).

These kinds of observations on the future of work and education have been around for many years although the explicit theoretical attempt to link "knowledge" and "economy" through re-

designing national systems is a recent twist to an old policy narrative.¹ This lecture, taking its inspiration from Foucault, investigates this new policy twist, identifying the different discursive strands and examining national policy constructions in the United Kingdom, Scotland and New Zealand, and their implications for education policy, as representative examples from advanced liberal states. In OECD countries there is a strong family resemblance with regard to such policies. The UK, US and New Zealand are simply examples of a much larger range of countries that have developed similar policies, including Australia, Canada, and Euroland. Nor is the policy metanarrative of the knowledge economy restricted to OECD or rich Western countries. I spent a month in China in August 2000, in part, examining the restructuring and current reform of Chinese universities in relation to the so-called knowledge economy.

By "knowledge economy" I mean to stress the received (mainstream) economic view, which involves the following characteristics that I have renamed as: the economics of abundance; the annihilation of distance; the de-territorialisation of the state; the importance of local knowledge; investment in human capital. I discuss these characteristics more fully below. This received view is both largely untested and uncritically adopted. In this policy-oriented paper I am concerned to focus upon *how* the so-called knowledge economy, in part, *prescribes* education policies. Thus, it is not principally a paper designed to explore the theoretical cadences of Foucault's studies of the human sciences or Lyotard's "logic of performativity" in the postmodern condition (but see Peters 1995, 1996, 2001), although the paper in the final section, indicates several lines of critique that might be followed.

Discourses of the "Knowledge Economy"

We can identify a number of separate discourses from economics, management theory, futurology, and sociology that have contributed to the shaping of the present policy narrative of the "knowledge economy".

The Economics of Information and Knowledge

The discipline of economics accounts for at least five important strands, all beginning in the post War period and most associated with the rise to prominence of the neoclassical second (1960s-1970s) and third (1970s-Today) Chicago schools,² including: the economics of information pioneered by Jacob Marschak (and co-workers Miyasawa, and Radner), and George Stigler who won the Nobel Memorial Prize for his seminal work in the "economic theory of information"; Fritz Machlup's (1962) groundwork and development of "the economics of the production and distribution of knowledge" (see Mattessich, 1993); the "economics of human capital" developed first by Theodore Schultz, and later by Gary Becker in New Social Economics; Public Choice theory developed under James Buchanan and Gordon Tullock; and New growth theory, which has highlighted the role of education in the creation of human capital and in the production of new knowledge and explored the possibilities of education-related externalities, not specified by neoclassical theory. We might mention also the application of free-market ideas to education by Milton and Rose Friedman, although Friedman's form of monetarism has become relatively less important.

Management Theory

Management theory plays a strong role in relation to the "knowledge economy", from Taylorism and the development of the system of mass production, through to new theories on the organisation of work, including: new forms of team-work, just-in-time production systems, lean production, "kaizen" (or continuous improvement), total quality management, eco-management, benchmarking etc.; a new concept of continuous change described under the label of "the flexible firm" meaning more

innovative, horizontal and flexible structures based on so-called high skill, high trust and increased involvement of employees. A critical field that has emerged recently and is growing quickly is that of knowledge management; described at one site as embodying "organizational processes that seek synergistic combination of data and information processing capacity of information technologies, and the creative and innovative capacity of human beings" (for the best general site, see: <http://brint.com/km/>). Knowledge management is part and parcel of the new theoretical discourse that has grown up in relation to the central concept of the knowledge economy.

Sociology of Knowledge and Education

Another major strand, which stands, in part, as critique of the positive economics strand, is sociological and focuses upon the sociology of knowledge and education, which are two fields that have provided grand theories concerning the place of knowledge and education in the modern world. Nico Stehr (1994), for instance, traces the concept of the "knowledge society" to Robert E Lane's (1966) "knowledgeable society", Peter Drucker's (1969) *The Age of Discontinuity*, and Daniel Bell's (1974) *The Coming of Post-Industrial Society*. He chooses to label the now emerging form of society as a knowledge society because "the constitutive mechanism or the identity of modern society is increasingly driven by 'knowledge'" (Stehr, 1994: 6) and he maintains that "'knowledge' ... challenges as well as transforms property and labor as the, constitutive mechanisms of society" (7). To Stehr's list I would add, the early classics by Alain Touraine (1974) *The Post-industrial Society* and Yoneji Masuda (1980) *Information Society: as Postindustrial Society*.³

Sociology of the Labour Process

Sociological studies of the nature of work and, in particular, the literature on the labour process dating from Harry Braverman's (1974) *Labor and Monopoly Capital*, which first put the thesis of deskilling and intensification of management control, are a valuable source of information still relevant in the knowledge economy. Paul Thompson (1989) provides the best overview of this debate and the various phases it has passed through to the more recent "flexible specialisation" thesis.

Futurology, Futures Research, Forecasting, Foresight

This is a relatively new constellation of fields and disciplines that address the impact of world trends and develop visions of the future with the idea of bridging business, science and technology and government. This new area has had a strong impact recently on policy. The UK Foresight programme was launched in 1994 and can be found at: <http://www.foresight.gov.uk/> (see, in particular, the list of Future sites).⁴

Communications and Information Technology

This heterogeneous body of literature traverses many areas and resists easy classification or characterisation, especially as contributions come from a wide range of disciplines including, electrical engineering, computing science, telematics, informatics, cybernetics and, of course, the "soft" promotional work which is done in the name of business by large multinationals like IBM and Microsoft, that have penetrated education like no previous media form. In addition, to these "mainstream" C & IT discourses, which directly contribute to the notion of the received view of the knowledge economy, there are more critical literatures such as the monumental recent work of Manuel Castels on the "information age" (1997, 1998, 2000). (See also Peters and Roberts, 1998; Blake and Standish, 2000).

These are, of course, disparate disciplines, fields and discourse that start from different operating assumptions, employ different methodologies, and also reach different and sometimes opposing conclusions. The art of policy scholarship is, in part, to become aware of these different strands as they enter into policy narratives, to disentangle them and to comment upon the inconsistencies. The art of policy development or formulation, on the other hand, is to take the best of what is available (often comprised of incomplete and partial explanations, and new and largely untested approaches), and to weave them into policy approaches and narratives that coherently define a vision, within the political parameters of government policy manifestos. The idea of the "knowledge economy" is, it seems, an idea whose time has come, and national governments the world over - nudged and patrolled by world policy institutions like the World Bank, OECD, IMF to name a few - have taken on in earnest the task of transforming their economies and societies in accordance with its implicit prescriptions.

Definition and Characteristics of the "Knowledge Economy"

Let me turn directly to the received definition of the "knowledge economy" before moving on to examine national policy constructions built around the notion. I emphasise that I am simply representing the claims made for or about the knowledge economy by others, although I have paraphrased the main characteristics. Let me start with some policy definitions. The United Kingdom's White Paper *Our Competitive Future: Building the Knowledge Driven Economy* (1998a) defines a knowledge-based economy in the following terms:

A knowledge driven economy is one in which the generation and the exploitation of knowledge has come to play the predominant part in the creation of wealth. It is not simply about pushing back the frontiers of knowledge; it is also about the more effective use and exploitation of all types of knowledge in all manner of activity.

The report suggests that "knowledge" is more than just information and it goes on to distinguish between two types of knowledge: "codified" and "tacit". Codifiable knowledge can be written down and transferred easily to others whereas tacit knowledge is "often slow to acquire and much more difficult to transfer".

Taking another example, New Zealand's Ministry of Research, Science and Technology, has very recently completed a comprehensive review of the priorities for public good science and technology, under the umbrella of the so-called *Foresight Project*. In its report "knowledge economies" (1998) are defined in the following terms:

Knowledge economies are those which are directly based on the production, distribution and use of knowledge and information. This is reflected in the trend towards growth in high-technology investments, high-technology industries, more highly-skilled labour and associated productivity gains. Knowledge, as embodied in people (as 'human capital') and in technology, has always been central to economic development. But it is only over the last few years that its relative importance has been recognised, just as that importance is growing.

This description is accompanied by a description of the "knowledge revolution", sprinkled with references to Alvin Toffler (1997), Peter Drucker (1993), Don Tapscott (*The Digital Economy*, 1996), Nicholas Negroponte (*Being Digital*, 1996), Charles Handy (1984), Kevin Kelly (1998), Hazel Henderson (1996), and Paul Hawken (1995) (for a critical discussion of the *Foresight Project*, see Peters and Roberts, 1999: 66-73).

The knowledge economy allegedly differs from the traditional economy with an emphasis on what I have called the "economics of abundance", the "annihilation of distance", the "de-territorialisation of the state", the "importance of local knowledge", and "investment in human capital". Let me briefly expand on each of these characteristics.

Analytics of the Knowledge Economy

It is argued that the knowledge economy is different from the traditional industrial economy because knowledge is fundamentally different from other commodities, and that these differences, consequently, have fundamental implications both for public policy and for the mode of organisation of a knowledge economy. Joseph Stiglitz's (1999a) "Public Policy for a Knowledge Economy", a paper that he delivered to the United Kingdom's Department for Trade and Industry and Center for Economic Policy Research on the release of the UK White Paper, provides a useful analytical template for understanding some of the important economic characteristics of knowledge economy.

I will not attempt to explain all of the features that Stiglitz mentions in his paper but will highlight what I take to be the important aspects of his argument. Stiglitz (1999a) argues that the knowledge economy is different from the traditional industrial economy because knowledge is fundamentally different from other commodities, and that these differences, consequently, have fundamental implications both for public policy and for the mode of organisation of a knowledge economy. He suggests that "movement to the knowledge economy necessitates a rethinking of economic fundamentals" because, he maintains, knowledge is different from other goods in that it shares many of the properties of a *global* public good. This means, among other things, a key role for governments in protecting intellectual property rights, although appropriate definitions of such rights are not clear or straightforward. It signals also dangers of monopolisation, which, Stiglitz suggests, may be even greater for knowledge economies than for industrial economies.

Stiglitz asserts that the World Bank has shifted from being a bank for infrastructure finance to being what he calls a "Knowledge Bank". He writes: "We now see economic development as less like the construction business and more like education in the broad and comprehensive sense that covers, knowledge, institutions, and culture" (Stiglitz, 1999a: 2). Stiglitz suggests that the shift in focus came in part from the realisation that accumulation of capital could explain only a small fraction of the increases in the incomes per capita in countries of East Asia, whose miraculous growth is attributed to closing the knowledge gap. This is despite the recent financial crisis and meltdown of the economies in South and East Asia, and particularly that of Indonesia.

Stiglitz argues that knowledge is a public good because it is non-rivalrous, that is, knowledge once discovered and made public, operates expansively to defy the normal "law" of scarcity that governs most commodity markets. Knowledge in its immaterial or conceptual forms (ideas, information, concepts, functions and abstract objects of thought) are purely non-rivalrous, that is, there is essentially zero marginal costs to adding more users. Yet once materially embodied or encoded, such as in learning or in applications or processes, knowledge becomes costly in time and resources. The pure non-rivalrousness of knowledge can be differentiated from the low cost of its dissemination, resulting from improvements in electronic media and technology, although there may be congestion effects and waiting time (to reserve a book, or download from the Internet).

While non-rivalrous, knowledge can be *excluded* (the other property of a pure public good) from certain users. The private provision of knowledge normally requires some form of legal "protection" otherwise firms would have no incentive to produce it. Yet knowledge is not an ordinary property right. Typically, basic ideas such as mathematical theorems, on which other research depends, are not patentable and hence, a strong intellectual property right regime might actually inhibit the pace of innovation. Even though knowledge is not a pure public good, there are extensive externalities (spillovers) associated with innovations. As he notes, the full benefits of the transistor, microchip or laser did not accrue to those who contributed to those innovations.

Stiglitz maintains, that while competition is necessary for a successful knowledge economy, knowledge gives rise to a form of increasing returns to scale, which may undermine competition for with large network externalities, forms of monopoly knowledge capitalism (for example, Microsoft) become a possible danger at the international level. New technologies provide greater scope for

the suppression of competition and, if creativity is essential for the knowledge economy, then small enterprises may provide a better base for innovation than large bureaucracies.

On the basis of this analysis Stiglitz provides a number of pertinent observations on the organisational dimensions of knowledge. He maintains that just as knowledge differs from other commodities so too knowledge markets differ from other markets. If each piece of information differs from every other piece, then information cannot satisfy the essential market property of *homogeneity*. Knowledge market transactions for non-patented knowledge requires that I disclose something and thus risk losing property. Thus, in practice, markets for knowledge and information depend critically on reputation, on repeated interactions, and on trust.

On the supply side, knowledge transactions within firms require trust and reciprocity if knowledge workers are to share knowledge and codify their tacit knowledge. Hoarding creates a vicious circle of knowledge restriction, whereas trust and reciprocity can create a culture based on a virtuous circle of knowledge sharing. On the demand side, learning cultures will artificially limit demand for knowledge if it denigrates any requests for knowledge as an admission of ignorance.

He argues that these knowledge principles carry over to knowledge institutions and countries as a whole. If basic intellectual property rights are routinely violated, the supply of knowledge will be diminished. Where trust relationships have been flagrantly violated, learning opportunities will vanish. Experimentation is another type of openness, which cannot take place in closed societies or institutions hostile to change.

Stiglitz is, perhaps, most interesting when he outlines what he calls "the marketplace of ideas" in terms of pluralism in project selection, robustness, and the failure of central planning for gathering, processing, and transmitting knowledge. He argues that centralisation and attempts to "command" decentralised behaviour in a centralised framework had some success in the industrial economy, but its limitations, including agency problems of motivation, became more obvious and pronounced as we moved to the knowledge economy. Stiglitz suggests that moving from simple repetitive work under central control (Taylorism) to more complex knowledge-based work requires a move towards a more decentralised and participative workplace, organised as horizontally coordinated semi-autonomous teams. The transfer of localised tacit knowledge takes place best through horizontal apprentice-like relations, not vertical training from managers to workers. Better decisions are likely to be made lower in the hierarchy closer to the sources of knowledge. These arguments for fuzzy job boundaries and job rotation cut against the traditional arguments for specialization and division of labour.

Finally, he argues that changes in economic institutions have counterparts in the political sphere, demanding institutions of the open society such as a free press, transparent government, pluralism, checks and balances, toleration, freedom of thought, and open public debate. This political openness is essential for the success of the transformation towards a knowledge economy.

National Policy Constructions of the "Knowledge Economy"

United Kingdom: Building the Knowledge Driven Economy

It is policy understandings based upon these characteristics that have helped recently to shape national policy constructions of the "knowledge economy" not only in the West - USA, United Kingdom, Ireland, Australia, Canada and New Zealand - but also in the developing world, most notably, China and South East Asia. The United Kingdom's White Paper *Our Competitive Future* (Great Britain, Department of Trade and Industry, 1998), for example, begins by acknowledging the fact that the World Bank's 1998 *World Development Report* took knowledge as its theme, citing the report as follows:

For countries in the vanguard of the world economy, the balance between knowledge and resources has shifted so far towards the former that knowledge has become perhaps the most

important factor determining the standard of living ... Today's most technologically advanced economies are truly knowledge-based (<http://www.dti.gov.uk/comp/competitive/main.htm>).

The White Paper also mentions that the OECD has drawn attention to the growing importance of knowledge indicating that the emergence of knowledge based economies has significant policy implications for the organisation of production and its effect on employment and skill requirements. The report suggests that already other countries, including US, Canada, Denmark and Finland, have identified the growing importance of knowledge and reflected it in their approach to economic policy.

The report emphasises so-called "new growth theory", changing the ways in which education and technology are now viewed as central to economic growth. Neoclassical economics does not specify how knowledge accumulation occurs and, therefore, cannot acknowledge externalities. Further as there is no mention of human capital, there is no direct role for education. By contrast, new growth theory has highlighted the role of education in the creation of human capital and in the production of new knowledge (see, for example, Solow, 1956, 1994). On this basis it has explored the possibilities of education-related externalities. In short, while the evidence is far from conclusive at this stage there is a consensus emerging in economic theory that education is important for successful research activities (for example, by producing scientists and engineers), which is, in turn, important for productivity growth; and, education creates human capital, which directly affects knowledge accumulation and therefore productivity growth (see 3.4 ff "Knowledge as the source of growth"). The report emphasises that not only R&D expenditures provide a positive contribution to productivity growth but also that education is important in explaining the growth of national income (see also Romer, 1986, 1990).

The White paper emphasises that "knowledge economy" does not mean a return to interventionist strategies of the past but neither does it mean a naïve reliance on markets. As Tony Blair expresses the role of government in the *Foreword to the White Paper* (1998a):

The Government must promote competition, stimulating enterprise, flexibility and innovation by opening markets. But we must also invest in British capabilities when companies alone cannot: in education, in science and in the creation of a culture of enterprise. And we must promote creative partnerships which help companies: to collaborate for competitive advantage; to promote a long term vision in a world of short term pressures; to benchmark their performance against the best in the world; and to forge alliances with other businesses and with employees.

In education there is a strong emphasis on the culture of enterprise and building skills of entrepreneurship which is not very different, if at all, from the policy emphases initiated by Lord Young under the Thatcher Government. There is an equal emphasis on the promotion of research, on industry-education relationships especially in higher education, on workplace learning, on building a culture of learning (including the establishment of individual learning accounts).

Let me quickly demonstrate the "fit" of this economic policy orientation for education policy in Scotland and New Zealand.

Scotland: Targeting Excellence for the Knowledge Economy

The Scottish Office released its White Paper *Targeting Excellence: Modernising Scotland's Schools* in 1999.⁵ The subtitle with which I start this section is a chapter heading that includes the following excerpt:

The knowledge economy will pose challenges and opportunities. Knowledge and know-how are taking over from buildings and machinery as the most valuable assets of business. The speed at which information can cross the globe, the sophistication of modern products and services, and the sophistication of the modern consumer all point to increasing globalisation of the economy, and to increasing customisation of goods and services to meet peoples' individual needs. Innovation, fresh thinking, the acquisition and application of knowledge, and high levels of

customer awareness are likely to be among the critical factors in achievement in the future. Competitive advantage will come from the application of intellect and knowledge to business problems. The skills Scotland will need to be successful can and should be fostered and grown in schools.

The White Paper lists initiatives already underway, including: the implementation of the National Grid for Learning by 2002; investment in training teachers in the use of ICT; development of the Scottish Virtual Teachers' Centre; the "Think Business" programme to bring entrepreneurs into the classroom; promoting enterprise skills in schools; support for the National Centre: Education for Work and Enterprise; and investment in industry and enterprise awareness for teachers and schools. And it also identifies the next steps as: extension of the National Grid for Learning to enhance Lifelong Learning, in particular support for community access; new guidelines on improving work experience; new guidelines on careers education; and expanding the Education for Work and Enterprise agenda.

New Zealand: Education for the Knowledge Economy

The Information Technology Advisory Group (ITAG), appointed by the Minister for Information Technology, has recently published a report entitled *The Knowledge Economy* (ITAG, August 1999) which begins its Executive Summary with the following assertions:

More than 50 per cent of Gross Domestic Product (GDP) in the major OECD economies is now based on the production and distribution of knowledge. We are leaving the Industrial Age behind and moving into the Information Age.

In the US, Australia, the United Kingdom, Canada, Finland, and Ireland, the growth of the Internet and other related new technologies have become the catalyst for the creation of 'knowledge economies'.

Countries that have encouraged their people through education and life-long learning and by investing heavily in research and development (R&D) are well positioned to take advantage of these new global markets. Australia, Finland, Ireland, Canada, Singapore, and the United States are countries which have embraced the knowledge economy (some still with a strong commodity sector), and are experiencing strong GDP growth as a result. There is much we can learn from them (<http://www.knowledge.gen.nz/>).

The report is interesting in terms of the claims it makes about "knowledge": "know-how" and "know-who" is more important than "know-what"; knowledge gained by experience is as important as formal education and training, and; lifelong learning is vital for organisations and individuals. The report goes on to suggest that intellectual capital is a firm's source of competitive advantage and that information and communication technologies "release people's creative potential and knowledge". It details what New Zealand's competitors are doing and indicates that Ireland accomplished a great deal by: investing heavily in education, especially technical education; correcting major imbalances in the government finances and putting fiscal and monetary policies in order; controlling excessive costs and keeping wage increases moderate; opening up the economy and privatising many state-owned enterprises; positioning Ireland as the "hub" between Europe and the global marketplace (Ireland trades 153 per cent of its GNP); enacting strong legislation designed to open up previously sheltered activities to competition in the interests of consumers; and creating incentives and stimulating the economy through lower taxation.

The six crucial issues that New Zealand faces are specified as: education; Maori (the indigenous inhabitants of NZ) success in the knowledge economy; immigration and the "brain drain"; research and development; a culture of innovation; and, changing the export mix. The first five of these issues, arguably, concern education but in this context let me quickly focus upon the first issue as the report deals with it. The report suggests four major lessons of the new economics in relation to education:

- It is a lack of investment in human capital, not a lack of investment in physical capital, that prevents poor countries from catching up with rich ones. Educational attainment and public spending on education are correlated positively to economic growth (Barro and Sala-i-Martin, 1995; Benhabib and Spiegel, 1994).
- School quality measured, for example, by teacher pay, student-teacher ratio, and teacher education is positively correlated to future earnings of the students (Card and Krueger, 1992).
- Education is important in explaining the growth of national income. Life-long learning is also crucial (Aghion et al., 1998).
- People with human capital migrate from places where it is scarce to places where it is abundant (Lucas, 1988). 'Human capital flight' or 'brain drain' can lead to a permanent reduction in income and growth of the country of emigration relative to the country of immigration.

On the basis of this analysis it goes on to suggest that New Zealand needs more technical graduates and also needs to increase ICT literacy (and ICT courses) for students and teachers. The Report became part of a wider National Government innovation and enterprise strategy leading into recent elections held on 27 November, 1999.⁶

Towards a Critique of the Knowledge Economy: New Challenges

A certain tedium has crept into official policy documents and academic papers that derives from the new hyper-discourse and seemingly endless inflated claims that entertain the prospect of the so-called new knowledge economy and its implications for education. This may be precisely because under the combined impact of economic globalisation, the rapid spread of the new information technologies, and the promotion of a neoliberal paradigm of free trade, there has been, in fact, an accelerated set of changes occurring both in the economy, the nature of "work", and education. It is as though world policy institutions, extra-national political organisations and national governments, have been trying to devise policies that can embrace the nature of these changes, but reality apparently quickly makes obsolete even the best predictions.

In this general context, the language of policy takes on a different kind of tone, especially when the same entrenched clichés about "the future" seem to occur in document after document. Policy, in other words, has become the "language of futurology", steeped in hyperbole and laced with prediction. The rules of this policy language-game seem to be based upon the invention of new metanarratives (over-arching concepts or visions of the future) as a method of picturing these changes and presenting a coherent policy narrative. Thus, the terms "post-industrial society", "information society" (which have been around since the late 1960s) and "global information economy" abound in policy documents. More recently, the terms "knowledge" and "learning", conceptualised both in relation to "society" and "economy", have come to occupy centre stage in national policy documents concerned to map the impact of global trends and to encourage greater competitiveness and more synergistic relationships between education and the economy.

Let me briefly indicate the lines of my critique, although I am at pains to add that I am not against the notions of the "knowledge economy", or its cognates "knowledge society" and "learning society" *in toto*, or its employment as a direction for education policy. Before we can be either for or against such notions there is a need to clarify the concepts involved. There are benign and less benign versions of these concepts. For instance, there is a view of the "knowledge economy", understood within the social democratic tradition, where the economy is seen to be subordinate to the state and the question of national sovereignty. On this model the accompanying notion of the "knowledge society" provides grounds for both the reinvention of education as a *welfare right* and the recognition of *knowledge rights*, as a basis for social inclusion and informed citizenship. This view is to be contrasted with a view where the "knowledge economy" is simply an ideological

extension of the neoliberal paradigm of globalisation and the term stands for a "stripped down" functionalist view of education in service of the multinationals.

First then, a set of conceptual criticisms: these new policy language-games, on the whole, do not make standard philosophical distinctions as, for example, between "knowledge" and "information", nor do they operate with robust concepts of "learning" or "knowledge". More importantly, the distinction is not drawn analytically between "knowledge economy" and "knowledge society", which is as fundamental as the distinction between "economy" and "society". The latter notion, for instance, might enable one to talk of education and knowledge rights in the new "knowledge economy", and, therefore to address more directly questions of social inclusion.

These national policy constructions revolve around a narrow, instrumental approach taken to the economics of knowledge and to intellectual culture in general, which does not acknowledge or sufficiently differentiate among various definitions of knowledge: economic, sociological, and philosophical. Often these policy documents obfuscate the issues by using interchangeably the terms "knowledge" and "information". In traditional analytic philosophy it is argued that the concept of knowledge has three conditions: a belief condition, a truth condition and a justification condition. In other words, for a statement to count as knowledge it must satisfy belief, truth and justification conditions. This philosophical account of knowledge, very important in defining "education" in analytic philosophy of education, while it has its difficulties, it does allow us to distinguish "knowledge" from "information". Information considered as data transmitted from a "sender" to a "receiver" does not necessarily have to satisfy the belief, truth or justifications conditions. Thus, "education for the information economy" and "education for the knowledge society" take on quite different meanings.

Second, the meaning of the concept of the "knowledge economy" is not yet properly established. If the concept means something more than a certain percentage of the working population employed in "knowledge" occupations then it is necessary to explore conceptually the links between "knowledge", "economy" and "learning", especially if it is the case that the term signals an emerging phenomenon. Also, it is clear that the empirical evidence for the "knowledge economy" as a new stage of capitalism or for a new "weightless" economy is still weak, at best, as are the empirical connections between the processes involved. Is it the case that capital can be substituted infinitely for manual and skilled labour? Is it the case that knowledge becomes a new factor of production, as some scholars claim, or is it simply that nascent forms of intellectual and human capital have become important? What is the relation between investment in human capital and economic growth or productivity? What are the differences between state and private forms of investment in human capital, especially in relation to higher education? Should education be seen solely as a form of investment in human capital?

In this respect the landmark research on the concept of the "learning society" undertaken by the Economic and Social Research Council's (UK) *The Learning Society Programme* (1994-2000), under the directorship of Frank Coffield, provides some important evidence on higher, vocational and workplace education, and the intersection or transition between education and work (see also Coffield, 1995). Coffield (1999) himself talks of "breaking the consensus" prevailing in the United Kingdom, a consensus built on the tenets of a narrowly construed education policy incorporating both the notions of "lifelong learning" and "learning society", and based upon a simplified version of human capital theory. In that address he examined the problem of human capital theory and its legitimation as policy, and began to discuss alternative visions of the "learning society". Recent works (Coffield, 2000a and b) take both this critical contestability of current policy and its visionary element a considerable step further, as is clearly implied in the twin tides. Coffield (2000a: 7) explains:

One of the achievements of the programme is to have explored critically the concept of a learning society and, by examining the definitions used by the 14 projects, it is possible to discern at least 10 contrasting ways in which the term is used.

And he lists them as: skills growth; personal development; social learning; a learning market; local learning societies; social control; self-evaluation; centrality of learning; a reformed system of education; and, structural change. What this demonstrates is how cognate concepts like the "learning society" (which is a soft policy focus of the knowledge economy) can take on plural meanings and practices.

Third, the discourse of futurology such policy discourses often embrace is at once populist and ahistorical. We should remember that the discourses of futurology and of futurisms (in the plural) have always been a defining feature of modernism and modernity, and these discourses become more prominent at the end of centuries. They are essentially millennium products. Often such policy discourses are grounded in the corporatist management theory of scenario-building, and it is not always clear in these future-oriented narratives who is telling the story or whose interests are at stake. A new form of knowledge managerialism has quickly developed and its proponents have taken upon themselves the policy expertise for deciding the new meanings of the concepts of "knowledge" and "learning" in their novel constellations with the economy. Most often these discourses do not consider the history of the notion of the "knowledge society" or its theoretical antecedents in the "post-industrial society" or the "information society" which are not uncontested terms. Rather, they are value-laden and theory-laden concepts that have been part of social and cultural theory for over thirty years. The document writers also run together terms not distinguishing the discursive strand of the economics of information, knowledge and education. Moreover, with the coalescing of literatures that occurs in the policy document of this kind, often what occurs is the predominance of an economic definition of knowledge that then serves to construct education policies, without careful thought of other approaches or the criticisms they might generate. Even in terms of the limited approach of economics of knowledge the documents do not tend to recognise knowledge as a global public good (see, for example, Stiglitz, 1998, and 1999a, b, c).

Fourth, when we talk of the knowledge economy we must realise that knowledge has a strong cultural and local dimension as well as a more global (I hesitate to say "universal") dimension. I was surprised to learn Joseph Stiglitz emphasises the *cultural dimension to knowledge development*. Given my left-wing credentials (such as they are) I never thought that I would end up referring in any positive sense to the World Bank. Stiglitz's point that the World Bank sees economic development less like the construction business and more like education is crucial to understanding what others have called the shift to the "sign economy" or the "symbolic economy", that is an economy based on the production and consumption of symbolic goods. In other words, if we return to Figure 1 from the first lecture, we can understand more clearly the collapse of the distinction between what Marxists called base and superstructure, between the economic realm and the realm of culture. Today, at the beginning of the twenty-first century, we see the beginnings of a shift toward the "symbolic economy", where culture, knowledge and education, broadly defined, become all-important to development.

Over twenty years ago, Jean-François Lyotard (1984) drew out attention to the way in which all the new developments in knowledge were significantly language-based- the development of cybernetics, telematics and informatics, computer algorithms and languages, new algebras, choreographies and the like. He was pointing to the confluence of what Richard Rorty (1967) called the "linguistic turn" and what others have called the "cultural turn". What I have in mind is well expressed by E. Doyle McCarthy (1996: 108) who provides us with a powerful re-reading of the sociology of knowledge, going back to the classic texts. Elucidating the central claim of this tradition that *society is constitutive of human being* or what Arthur Child called "the intrinsic sociality of mind", she argues that *"knowledge is best conceived and studied as culture ..."* suggesting that "As powerful cultural forms, knowledges also constitute meanings and create entirely new objects and social practices" (McCarthy, 1996: 1). Beginning with the observation of the ways in which Marx's distinction between the realms of material substructure and cultural superstructure have been superseded in the last century, McCarthy observes:

We live in a world almost overwhelmed by its own inventiveness, its own artificiality. Our realities exist in transmission - on screens and cables - and our sense is that those who possess and control knowledges and images and sounds effectively control our realities. Material life, as we understand it today, has become inescapably semiotic; we consume products that serve as signs of things and, more importantly, of ourselves. Our world of things exists no more to communicate, to 'say something', than to serve a practical need or function. As theories of discourse have gained ascendancy in the academy, talk ... talk ... talk hounds us in daily life. People, led by the 'talk shows' of radio and television, never seem to stop talking. In our time are we witnessing the death of conversation by talk? 'Culture' also serves to account for our growing sense of 'construction' and 'difference' in a world that 'whatever it is, is no longer One' (Lemert, 1994: 146).

To claim that *knowledge is culture* is to insist that the sciences - both natural and social - "operate *within* culture - that they contain and transmit and create cultural dispositions" (108). Yet Stiglitz, I think, provides only half the solution - the promotion of knowledge culture (wrongly defined in the singular) while forgetting about cultural knowledges, the other half of the equation, or at least I wish to argue. We should speak of knowledge cultures (in the plural) and cultural knowledges, just as we should acknowledge alongside the knowledge economy, the economy of knowledges.⁷

Postmodernisation as a "chaotic", non-linear kind of economic development that can skip so-called "stages" is possible and, maybe, even desirable. Post-war modernisation theory, based upon a Western homogenous model, has often been damaging not only to "developing countries", but also to understanding the process of development. The deconstruction of "development" discourse, which started in the late 1980s, has revealed the "arbitrary character of the concepts, their cultural and historical specificity, and the dangers that their use represents in the context of the Third World" (Escobar, 1995: 13). One group utilising a "systems of knowledge" approach, which suggests that cultures are characterised by ways of knowing, in addition to rules and values, indicate that "Development has relied exclusively on one knowledge system, namely the Western one" (13). In other words, non-Western knowledge systems were discarded, traditional knowledge structures were ignored, and yet it is these knowledge systems and structures - the source of normative orientations, myths, and traditions - that provided alternatives to economic and reductionistic ways of thinking. This line of thinking is important to pursue as much for "developing" countries as for those countries, like New Zealand, whose economies, relatively speaking, are "declining".

Let me illustrate this briefly, in terms of a recent trip to Beijing.⁸ Across the road from my hotel was the largest "New World" department store I have ever experienced, larger than the California shopping malls and overflowing with Western goods, including the latest items of consumer and popular culture: CDs, TVs, walkmans, Hi-fi, mobile phones, and a huge range of consumer items that we now take for granted. Clearly, Beijing had become part of the global circuit of commodity flows of consumer goods that define important aspects of postmodernism as the "cultural logic of late capitalism" (Jameson, 1990). Indeed, the case has been made for mapping Chinese postmodernity (Dirlik and Zhang, 2000) both as a concept in its own right referring to postrevolutionary and postsocialist China, and also in juxtaposition to Euro-American postmodernity, as a theoretical means for illuminating the conditions of postmodernity more generally. The "spatial fracturing and temporal desynchronization" that characterises the coexistence of precapitalist ("traditional" and in some places "tribal"), regnant socialist, capitalist, and postsocialist economic and social forms, as Arif Dirlik and Xu dong Zhang (2000: 3) argue, "represent a significant departure from the assumptions of a Chinese modernity, embodied above all in the socialist revolutionary project".⁹

Fifth, there are important changes concerning both the shifting nature of work and its organisation. One of the assumptions behind national policy construction of the "knowledge economy" is not only that it is the future basis for national competitiveness and success in the global economy but also that it will be able provide the necessary new jobs for successive waves of "knowledge workers". While unemployment levels are historically at their lowest for many years in the United Kingdom, questions of the intermediate and long term shift in the nature of work, work organisation, and in new forms of employment related to the knowledge economy, require much

more reflection and empirical research. Jeremy Rifkin (1995), for example, argues convincingly on the basis of empirical data for "the end of work" in his analysis, of the US economy. He suggests that as automation becomes more sophisticated, the tertiary labour force (i.e., the knowledge sector), faces massive displacement. This applies to more than just the primary or secondary sector. He suggests that the current technological revolution and laboursaving mechanisms have driven down wages and threatened livelihoods. Others have suggested that the social consequences of the disappearance of work are clearest in America's inner cities (Wilson, 1980, 1987).

The shift from industrial capitalism to information or knowledge capitalism is transforming the West into "workless worlds" where only an elite technical labour force will find jobs. In this context we must rethink the purpose of civil society and, particularly, the role of national education systems. As Rifkin (1998) argues:

Corporate downsizing, increasing automation of the manufacturing and service sectors, the shift from mass to elite workforces, growing job insecurity, the widening gap between rich and poor, an aging population, and globalization of the economy are creating a host of new uncertainties and challenges for millions of Americans as well as American businesses. At the same time, government at every level is being fundamentally transformed. The 'welfare state' is being pared down, and entitlement programs are shrinking. The social net is being streamlined and overhauled, and government subsidies of various kinds are being reduced or eliminated.

In this context we must rethink the purpose of civil society and, particularly, the role of national education systems. Rifkin (1998) argues, "The so-called third sector is likely to play a far more expansive role as an arena for job creation and social-service provision in the coming century." What Rifkin calls the "end of work" is the end of "work" under industrial capitalism, and as Andre Gorz (1999: 1), the utopian Marxist sociologist, claims we must learn to think of work in the philosophical and anthropological senses:

We must dare to prepare ourselves for the Exodus from 'work-based society': it no longer exists and will not return. We must want this society, which is in its death-throes, to die, so that another may arise from its ruins. We must learn to make out the contours of that other society beneath the resistances, dysfunctions and impasses which make up the present. 'Work' must lose its centrality in the minds, thoughts and imaginations of everyone. We must learn to see it differently: no longer as something we have - or do not have - but as *what we do*. We must be bold enough to regain control of the work we do.

Work in a genuine sense is, for Gorz, the means to self-realisation. In the Hegelian and Marxist senses the nature of work is tied up not only with "practico-sensory activity" but with *poiesis*, and self-creation.¹⁰

Finally, and perhaps, most importantly, we must not become so locked into national policy constructions and their ideological narratives, to such a degree that as servants of the state we spend all our time satisfying the state's policy requirements and do not have time-informed critique for perceiving the social consequences of policy. In this regard I think that the observations of Lynne Chisholm (1999: 3) should be considered carefully:

New information and communication technologies offer ultimately non-controllable access to diverse and plural worlds - yet they do not assure the acquisition of the ethical and critical faculties needed for personal orientation and balance in negotiation of those worlds ... Knowledge societies thus theoretically offer 'unprecedented means to empower social actions and to add to the self-transforming capacity of society' [Stehr]. Yet in practice they appear to be highly susceptible to recreating and reinforcing systematic social inequalities and to exacerbating economic and social polarisation.

The opening quote from Foucault with which I began this lecture discusses the formation, circulation, and utilisation of knowledge as a fundamental problem and compares the accumulation of knowledge to the accumulation of capital. These remarks, made by Foucault in the late 1970s, help us to chart the genealogy of his own project in relation to the emergence and shift of epistemes or distinctive formations of systems of knowledge. It was in this period that he coined the term

"power/knowledge". Both the remark and his studies of the history of systems of thought are wonderfully prescient for a critical understanding of the knowledge economy. It is the case that certain knowledge formations existed before capitalism but, perhaps, at this juncture, with full-blown notions of the knowledge economy looming large in policy terms, it is now impossible to pursue the question of knowledge separately from the question of capital.

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Figure 1

Characteristics of the Knowledge Economy

Source: Adapted from Joseph Stiglitz (1999a) .

- *Economics of abundance:* The economics is not of scarcity, but rather of abundance, for unlike most resources that become depleted when used, information and knowledge can be shared and actually grow through application.
- *The annihilation of distance:* The effect of location is diminished through new information and communications technologies; virtual marketplaces and organizations offer round-the-dock operation, and of global reach.
- *The de-territorialisation of the state:* Laws, barriers and taxes are difficult to apply on solely a national basis as knowledge and information "leak" to where demand is highest and the barriers are lowest.
- *The importance of local knowledge:* Pricing and value depends heavily on context as the same information or knowledge can have vastly different value to different people at different times.
- *Investment in human capital:* Human capital (i.e., competencies) is the key component of value in a knowledge-based economy, and knowledge-based companies seek knowledge locked into systems or processes rather than in workers because it has a higher inherent value.

Figure 2

Analytics of the Knowledge Economy

The Scarcity-defying characteristics of ideas

- (i) *Non-Rivalry*
- (ii) *Conceptual vs Material Knowledge*

Intellectual property rights

- (i) *Excludability*
- (ii) *Externalities*
- (iii) *Competition*

Organisational dimensions of knowledge

- (i) *Knowledge markets*
- (ii) *Knowledge transactions within firms*
- (iii) *Openness and knowledge transfer*
- (iv) *Experimentation*

The marketplace of ideas

- (i) *Pluralism in project selection*
- (ii) *Robustness*
- (ii) *The failure of central planning*
- (iii) *Decentralisation and participation within firms*
- (iv) *Openness in the political process*

Notes

1. See, for instance, the European Commission's White Paper Teaching and Learning: Towards the Learning Society (1995) and The European House of Education - Education and Economy, a New Partnership, Working Document SEC (1999) 796, 21st May.
2. See: <http://cepa.newschool.edu/het/schools/chicago.htm>
3. There is a strong sociological literature that focuses on contemporary analyses of individualisation processes, including: Beck (1992), Giddens, (1992), Beck, Giddens and Lash (1992). The sociology of postindustrialism overlaps with both more philosophical debates on modernity and postmodernity; see, particularly, Lyotard (1984) and Habermas (1987); and studies of globalisation, see, for example, Amin (1996), Held (1995); and in education, Burbules and Torres (2000).
4. One of the earliest futures study was Alvin Toiler's (1972) collection and his subsequent work which is well known. See also *my* book, with Peter Roberts, called University Futures (Peters and Roberts, 1999), and a recent excellent collection entitled Global Futures (Pieterse, 2000). Pieterse (2000) distinguishes among: the mainstream managerial approach to futures based on forecasting and risk analysis; critical approaches to futures that are critical of dominant futures reflecting institutional vested interests; and alternative futures, which seeks to be inclusive without being alarmist.
5. For a summary of the White Paper, see <http://www.scotland.gov.uk/library/doucments-w6/edsp00.htm>
6. The web links mentioned are as follows:

The Foresight Project, <http://www.morst.govt.nz/foresight/front.html>

Tertiary Education in New Zealand: Policy directions for the 21st Century, <http://www.minedu.govt.nz/tertiary/review>

What Bright Future means for research, science and technology, <http://www.morst.govt.nz/bright/index.htm>

Knowledge Management, <http://www.brint.com/km/>

New Zealand Trade Development Board, <http://www.tradenz.govt.nz>

BIZ, <http://www.bizinfo.co.nz>
7. The notion of economy of knowledges lies behind my recent book *After the Disciplines: The Emergence of Cultural Studies* (Peters, 1999).
8. On this visit to China, actually in August 2000, I stayed several days in the center of Beijing at a hotel that had satellite TV. I was in China to talk to Chinese intellectuals about Chinese postmodernisation, to learn something about the restructuring of Chinese universities and to give some lectures at a number of Chinese universities on two topics: postmodernity, and education policy and the knowledge economy. One night sitting in my hotel room I tuned into CNN's world news to view a magazine piece on information technology. This programme detailed two little interventions or information experiments. The first concerned a traditional, pre-industrial, Columbian village, located in the interior. It was still tribal, cut off from the rest of the country, and owed its existence to subsistence agriculture. An American anthropologist importing PVC piping into the village developed a power source from the local irrigation system, at least enough to charge a battery from which the village could run a laptop computer. Now, in this development scenario, in this dramatic leap-frog from the pre-industrial to the knowledge economy, the village rapidly became transformed. The most adept at keyboard and computer skills in the village, a teenager as it happens, downloaded and later developed or sequenced education programmes from the best sources on the web. He acted as a service-facilitator and aid to the teacher. At night, those in the village he had taught helped to hold "evening classes" with agricultural workers, downloading information on crops to help improve their agricultural base. The other "story", dressed up in CNN American news-hype, concerned some "street kids" of the urban dispossessed in New Delhi slums. A computer engineer who owns his own successful digital company set up a vandal-proof street computer screen with a manual gear stick only. Before long the street kids who congregated around this street installation had taught themselves sufficient computer skills not only to navigate the Internet, but also through innovative moves and links to actually create their own web site! What these "feel-good" stories demonstrate is

not simply isolated mini-successes and the dramatic effects of postmodern global technologies on traditional societies but also they are indicative of much grander development scenarios.

9. Dirlik and Zhang (2000), having examined postmodernisation, elaborate the grammar of Chinese postmodernity in terms of "decentralization, transnational mobility, economic and cultural diversity, consumerism, and some emerging or renewed sense of location, individuality, and diversity" and "cultural postmodernism" or "the cultural vision developed out of the experience of postmodernity" and as illustrated in "fashion, music, architecture, video, art, literature, and theoretical discourses" (8).
10. Philosophers of education have had little to say about work, its centrality for society and education, or about the new forms it will take in the knowledge economy. For some recent discussions of the philosophy of work and its importance for education see White (1997) and Winch (2000). For myself I think we need to become more aware of the theology of work, the history of the concept "work", and the ideology of work, before we can begin to understand new forms or to develop education policies based on the future of work.

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