

Educating a global workforce?

Lesley Farrell and Tara Fenwick

Abstract

In the public rhetoric, at least, education is the answer to most, if not all, the questions raised by the global knowledge-based economy. In this chapter we begin an examination of what education promises the global workforce, and what the global workforce, and the knowledge-based economy, might reasonably ask of education. Different perspectives on the knowledge-based economy imply different constructions of 'knowledge'. Workers are characterised within these frameworks as 'knowledge workers' (an elite), or, perhaps, 'knowledgeable workers' (the non-elite majority) and questions arise around what they are required to learn, to know, and to be able to do. The global knowledge-based economy produces profound challenges to work-related education at every level. While these challenges manifest themselves in uniquely local ways at specific local sites, they are produced, and must be addressed, in contexts that are uncompromisingly global. If work-related education is to contribute to positive outcomes for people and for local communities we (workers, corporations, educators, researchers, policy makers, politicians and international organisations) must find new ways to pay attention to the ways in which a workforce in the knowledge-based economy can be understood to be 'global' as well as 'local', and what workers need to be able to know and be able to do to move across and within these spatial and temporal domains.

Introduction

What is involved, and what is at stake, in educating a global workforce for a knowledge-based economy? In this chapter we examine current rhetoric of education in a knowledge-based economy -- what is work-related education, what roles does it play and who it is for? What does it mean to identify a global workforce, and what kinds of workers comprise such a workforce? We begin with the growing emphasis placed on education as a 'driver' of the knowledge-based economy and move to a discussion of the knowledge implied in such education. We then consider the circumstances under which the (or even a) workforce can be characterized as global (or local) and what the implications might be for the education of the people and communities and organizations that make up that workforce

Education as a 'key driver'

The global economy is generally understood to be a high skills economy. By this we mean that, in many parts of the world, mental labor is viewed as replacing or substantially augmenting physical labor and natural resources as the basis of economic productivity (eg. de Ferranti, Perry and Lederman 2004). Aside from the problem of separating mental from physical as though these are distinct domains of activity, in this context education is viewed as a primary driver of economic transformation, becoming a (in some cases *the*) fundamental plank of national and international economic and social policy:

When European leaders set the goal for Europe of becoming the number one knowledge economy, they declared that what was needed was 'not only a radical transformation of the European Economy, but also a challenging programme for the modernization of social welfare and education systems'. In 2002 they added that, by 2010, Europe should be the world leader in terms of the quality of its education systems (OECD 2005: 3).

In comparing the economic performance of the United States with that of the European Union, the OECD argues that an emphasis on education clearly confers benefits, not only on national

economies, but also on society more generally and on individuals specifically. Since the US is purportedly 'underperforming' on global tests of educational achievement like the PISA (Program for International Student Assessment) managed by the OECD, its place as the leading performer in the global knowledge economy is considered to be under threat (OECD 2005).

While competition between the economic superpowers of the West is nothing new, the World Bank (2003) maintains that developing countries are now enmeshed in the same competition, requiring radical reform of education and training systems for their economic development. This entails not just greater financial investment in education and training, but wholesale transformation of social, cultural and pedagogical assumptions underpinning local education systems:

developing countries and countries with transition economies risk being further marginalized in a competitive global knowledge economy because their education systems are not equipping learners with the skills they need. To respond to the problem, policymakers need to make fundamental changes. They need to replace the information-based, teacher-directed rote learning provided with a formal education systems governed by directives with a new type of learning that emphasizes creating, applying analyzing, and synthesizing knowledge and engaging in collaborative learning across the lifespan (World Bank 2003:xvii-xviii).

Clearly for some countries, perhaps for many, this implies a complete reconfiguration, not only of vocational education and training but also of schooling, higher education and professional education. In some critical senses, all education is understood as work-related education. It is difficult to overestimate the fundamental changes that such a reconfiguration implies. For good or ill, it challenges traditional relationships between students and teachers (and, thereby, traditional understandings of the relationships between parents and children, the individual and the community, the individual and the state) and it challenges traditional understandings of what counts as legitimate knowledge and who is authorized to legitimate it. The economic and policy demands of transformations on this scale can be profound. In some cases comprehensive new approaches to technical and vocational education have been developed that incorporate explicit demands of global corporations and international standards frameworks. Slowinski (1998) demonstrates that global corporations exert influence over European national education policies both directly, through their corporate training demands, and less directly through their effective lobbying of the European Union (EU) to shape regional educational policies. However, while the EU has a specific education policy mandate, other regional trade agreements like the North American Free Trade Agreement (NAFTA) and Asia Pacific Economic Co-operation (APEC) exert influence over the education and training policies of their regions obliquely by implying certain levels and kinds of skills. Dale and Robertson argue that the International Monetary Fund, Organisation for Economic Co-operation and Development and the World Trade Organisation

play the role of the collective capitalist state. They are able, through conditionality, loans, debts and other strategies, to impose the model not only on the leading nations, but on the whole world. (2002:14).

In some cases especially in countries which are reliant on international aid for the development of mass education systems, these demands have relocated control of education outside the local national community. In the case of Africa, for instance, Brock-Utne (2000) considers the role of Norwegian funding channeled through UNICEF and argues that 'the partnership

[between the African countries and the donor agencies] is as unequal as it can be' and results in education where education is, focusing on literacy (usually in a European language) and ignoring local skill development which might conceivably lead to self-employment or employment in the local community.

One prominent sign of these transformations is the promotion of English as the language of instruction in many developing countries. This has the dual advantage of making English language curriculum materials instantly available to help transform education systems and at the same time produce the English-literate workforce required for participation in the global economy. There is, however, a price to pay. In sub-Saharan Africa children are often taught in English from the beginning of their schooling, despite national Government Policies to the contrary and the fact that teachers in rural areas have little experience in using English and little teacher training (Brocke-Utne 2000, Grov 1999). The policy of the Complementary Opportunity for Primary Education (COPE) program, funded by UNICEF, requires English to be the language of instruction. Inman (2005) reports a similar situation in Bangladesh. As Chase-Dunn (1999) argues, Western imports of education have included values of individualism, rationalism, efficiency, and emphasis on science and progress as well as on (individual) human rights. Framing education in English seems to help standardize Western measures of skill, technology, innovation and productivity in ways that are quickly recalibrating regional economic and political relationships.

Education can, however, be viewed as a driver of globalization in quite a different sense, one in which Western views and values about education are as available to disruption as any others. Edwards and Usher (2000) argue that contemporary forms of Open and Distance Learning favoured by many Western universities drive globalisation precisely because they disrupt (rather than reinforce) common understandings of Western educational institutions (like training colleges, and universities) and of what counts as established knowledge. Open and Distance Learning programs detach the student from their local community, creating a virtual community in a 'diaspora space'. In non-formal educational spaces, the import of English also enables counter-globalisation discourses to unfold and find support in developing countries, and fosters linkages of their labour and civil rights activists with resources and networks globally.

A significant feature of claims about the critical role of education and training in national and individual advancement is the way economic and social well-being are conflated. In policy rhetoric at least, educational reform is presented as the solution to all kinds of persistent social problems including gender inequality, race and ethnic inequality, social fragmentation, and growing gaps between rich and poor posed by a global economy. As Brown and Lauder (2006) argue,

Not only is education seen to hold the key to a competitive economy but it is also seen to be the foundation of social justice and cohesion (25)

The World Bank supports this view with regard to the simultaneously economic and socially transformative potential of education in developing countries:

By improving people's ability to function as members of their communities, education and training increase social cohesion, reduce crime, and improve income distribution (2003: xvii).

Claims like these are sometimes based more on pious intention than on firm social and economic data. Some kinds of education can be argued to increase social cohesion and, presumably, therefore reduce crime, but it is very difficult to say the extent to which even the best education and training programs improve income distribution, under what circumstances, and for which groups. Brown and Lauder contend that current approaches to education policy-making focus on lifting standards as a whole, not on reducing the gaps between performance and reward for particular groups of people. In the USA, for instance, the census data reveals that university graduates earn on average 91% more than people who have only completed their secondary education (OECD 2005). However, since averages can be misleading, it is important to disaggregate the data. When that is done it seems that longstanding gender and racial inequalities are far from being eradicated:

White men with a bachelors degree earn about \$10,000 a year more than Black or Hispanic men with the same qualification. The difference between White men and Hispanic females widens to virtually \$20,000 (Brown and Lauder 2006: 39).

In this case at least, it seems that traditional race and gender disparities persist despite the global knowledge economy and, while education is without doubt increasingly necessary for any kind of employment, it will not, of itself, improve income distribution within nations.

The knowledge-based economy has had a similarly complex effect on regional income disparity. While some, like Friedman (2005) argue that 'the world is flat' by virtue of ubiquitous internet access, allowing India and China (amongst other nations) to become major players in global supply chains, others, like Brown and Duguid (2002) argue that the Information and Communication Technologies serve only to make disparities more difficult to see. They point out that nations which have invested heavily in the technological education and training of their workforce, but with less economic and political power in the global arena, tend to engage in high technology industries in a subordinate role,

they revolve at the will (and mercy) of the leading regions, working on problems delegated from the hub that have little or no local significance (431).

The core-periphery relation in the global division of labour has been transformed. Labour intensive manufacturing has shifted to poor and developing regions, while accelerated innovation and the focus on 'value-added' in wealthy regions (as well as trade agreements favouring their own commodities) has undermined the market for primary commodities on which many developing economies have depended (Tikly, 2001). The problem for such countries is complex and difficult to solve. If they train a highly skilled workforce in a local context which does not have the specific history and economic and political support of the major players (the right 'ecology') then they may find that these high-value, expensively trained workers are 'poached' by the major players and the local skill base is depleted. If they do not train their local workforce for new industries then they will not be players at all.

Education is, then, critically important in the knowledge-based economy but the outcomes it provides for individuals, social groups, or national regional economies, are neither obvious nor predictable. As Tikly (2001) argues, different sectors within education can have positive or negative correspondences with the global economy at different times. Elite education of high skills development and social capital can increase integration and participation in global economy, but also promote worker migration to wealthy

regions. Basic education and low-skills training can improve conditions for the poor but also create wider exclusionary divides within and across regions. Education generally can legitimise an existing global order that, as Stiglitz (2002) claims forcefully, garners a disproportionate share of benefits for the West at the expense of the developing world, but education also fuels resistance by providing forum and focus for critical correspondence with the status quo. Tikly suggests, for example, that “post colonial elites of sub saharan africa may also use their participation in global forums to form a bulwark against Western economic and political hegemony” (p. 162).

What education, what knowledge?

While there seems to be almost universal agreement that we all operate in a knowledge-based economy, there is no clear agreement over what such an economy might be, or how it might be different from the economies that have gone before. There is, indeed, no clear agreement about what constitutes the ‘knowledge’ that drives the knowledge economy, about who or what (the people, the technologies, the organizations) participates in such knowledge, or about how they make it or about how they use it.

Broadly speaking as Powell and Snellman (2004) argue, there has been a fundamental shift in the way we understand the knowledge-based economy: from being a *subset* of economic activity to functioning as a *dimension* of economic activity. For some time, in popular rhetoric certainly as well as in academic literature, “the knowledge economy” was treated as a discrete economy, a subset of global, networked economic activity. It was marked by a heavy emphasis on scientific theory building, on technical forms of technological innovation, and on ‘knowledge intensive’ industries like biotechnology, nanotechnology, certain kinds of engineering, etc. in which productivity growth was unquestionably rapid. Within this framework knowledge intensive industries were understood to drive profound economic and social changes on a global scale well beyond their industry sectors. This understanding supported the view that the knowledge economy operated in ways that were substantially different from other sectors of the economy, and from the way that economies were understood to function in the past. Some argued that these industries created new kinds of jobs for the elite few (notably Reich’s (1991) ‘symbolic analysts’) and these highly valued workers demanded and developed new kinds of work practices and new kinds of work organization marked by personal mobility and autonomy.

The academic debate (and, to some extent, the policy debate) has moved away from this characterisation of a knowledge economy to focus on what is understood to be a new orientation to all economic activity. Fundamental to this approach is the view that economic activity is differentially globally networked, linking people and organisations and practices in distributed production and supply chains. These networks make new demands on the capacity of people and organisations to produce new knowledge. Powell and Snellman adopt this perspective when they define the knowledge economy as

production and services based on knowledge-intensive activities that contribute to an accelerated pace of technological and scientific advance as well as rapid obsolescence. The key components of a knowledge economy include a greater reliance on intellectual capabilities than on physical inputs or natural resources, combined with efforts to integrate improvements in every stage of the production process, from the R&D lab to the factory floor to the interface with customers. (2004:201)

This approach, now articulated in policy documents of the OECD, suggests that the most fundamental shift in economic activity is the erasure of established categories like industry or high tech sectors and even the previously undisputed distinction between products and services:

increasingly, knowledge and related intangibles not only make businesses go but are all or part of the 'products' firms offer. Old distinctions between manufactured objects, services and ideas are breaking down (Davenport and Prusak 1998:47).

From this perspective, economic activity has not so much been transformed as it has been hybridized. Snellman and Powell draw our attention to 'new economy' businesses like Amazon.com that rely on complex applications of ICT (information and communications technology) to figure out what their customers are buying and, in doing so, produce new trends: at the same time they utilize an industrial era warehousing system (albeit one that is globally distributed) to store and track their products. Similarly, eBay utilizes sophisticated internet technologies to tap into a range of global niche markets and relies heavily on a postal system developed centuries ago. In the same way, 'old economy' businesses, like automotive manufacture and mining for instance, exploit the design possibilities of digital technologies to simultaneously develop and produce goods, and rely on the communicative potential of email in a globally distributed supply chain.

The shift in understanding of the knowledge- based economy has altered notions of what constitutes knowledge, who needs to know it and how it might be learned. From an emphasis on technical knowledge there is now a greater emphasis on capacity to make and use new knowledge in collaboration, that is, to view knowledge as a social production. While technical knowledge remains important, its rapid obsolescence makes training precarious. More critical are skills associated with integrating new technical knowledge into existing work practices, and with problem solving more generally. Associated with this shift is increasing emphasis on what have been called 'soft skills', especially communication skills and, more contentiously, skills of self presentation, self-marketing and self management (Thompson et al 2001). Communication skills are self evidently necessary when workers operate in distributed environments (when they are not in physical proximity) but are also fore-grounded when knowledge is understood to be social – to be produced by people in collaboration. At a more fundamental level, literacy, especially in English, is critical if workers are to be able to participate in many of the international and corporate quality assurance practices that require documentation. The Quality Manuals of global corporations, for instance, often extend to the work practices of local companies that supply the global corporation. They may require that workers on the factory floor work in teams solve problems and document their problem solving practices. If the problem is solved, but the team fails to document its processes, then the company may be in danger of losing its preferred supplier status (Farrell 2006, Hull 2000, Jackson 2004).

This is not say that all workers are now, or can be, knowledge workers in the generally accepted sense of the word, released from the burden of physical labour to solve problems and innovate, autonomous in their organizations and mobile at their own initiative across corporations and geographical boundaries. Several commentators argue that for most people, in most parts of the world, the technical aspects of work are standardized and that little innovation at the technical level is required or even permitted (Thompson et al 2001, Brown and Lauder 2006). People comprising the bulk of the global workforce will rarely use the technical knowledge they have learned but they will use all the communicative strategies they

have developed, in formal education as well as on (and off) the job. It is in this arena that routine knowledgeable workers will be required to innovate. In short, most work involves knowledge production of new and different kinds and even the most relentless physical labour is caught up in a web of documentation demanded by the global knowledge economy.

Who is the 'global workforce' to be educated?

While it is certainly true that a relatively small group of elite knowledge workers are innovators and designers trading their skills on a global market, the rest of us tend to live and work in the same location in relatively routinized activities that may appear to have far more to do with local concerns and relationships than with global linkages. So how can we think about a global workforce? While certain segments of the workforce (elite knowledge workers, 'guest workers') are global in the sense that they are increasingly mobile across national boundaries it is also true that far more workers are affected by the mobility of work itself. In short, companies outsource work. As capital seeks the cheapest and least regulated production zones, and the most lucrative markets, certain kinds of work activity moves rapidly around the globe. From this mobility and distribution of work springs demand for greater standardization of knowledge, greater coordination and control of supply chains, and tighter connections threading together far-flung communities and individuals.

As we were finalizing this chapter Australian newspapers were reporting two stories about globally mobile workers. The first story was concerned with fast food chain McDonald's recruitment of staff from the Philippines, Britain, the Middle East and India to work in remote towns in Western Australia. McDonald's management argued that they had tried to recruit locally but had failed because the resources boom in Western Australia had created a labour shortage as potential workers took up comparatively much more highly paid positions with mining companies. However, while there is certainly a skilled labour shortage in most parts of Western Australia the indigenous population (about 15% of the total population in this area) is suffering from massive unemployment – about 40% of indigenous people in the area cannot find work. A local government official offered the view that international corporations had to be prepared to put effort into training local indigenous people if they were to keep their promise to employ locally.

The second story was concerned with the meat industry's attempt to extend the importation of temporary workers under a special visa program. The meat industry argued that there were not enough skilled workers to supply the industry, and that workers had to be imported. The union argued that there was no skill shortage in the area -- the industry simply wanted to hire workers satisfied with lower wages, workers who had had fewer or ambiguous industrial rights under their temporary visa arrangements. The Government was reportedly reluctant to offer permanent residence (and the associated rights) to these workers, arguing that temporary visas allowed for a more flexible workforce in the meat industry.

These two instances illustrate one way that workers can be considered global. In each case migrant workers are imported because of a real or perceived local skill shortage, while training a potential local workforce was not pursued. . In each case the workers reside in Australia under a special visa and their rights as residents (and as workers) are thereby restricted. This practice is hardly exclusive to Australia – the category of 'guest worker' or 'migrant worker' has been a vexed one for many years in Europe and recently in Canada where vigorous debates rage about the extent to which the position of worker should confer the full entitlements of citizen, or at least of permanent resident.

A global workforce is not, however, necessarily composed only of workers (whether they are at the top end or at the bottom end of the food chain) who move around the globe. The outsourcing of production and functions like accounting or customer service is now a ubiquitous organizational practice. In these arrangements it is the work which is mobile -- the workforce which may be considered global but relatively stationary. The work practices and even conditions are subject to such highly prescriptive internationally standardized protocols, procedures and documentation that local policies and practices matter less. These processes and protocols can be part of individual corporate deals, like the Quality Manuals of the major global automotive companies (Sholtz and Prinsloo 2000). At other times they are part of international quality assurance certifications programs like QS or ISO. Whatever is the case they require that workers, whether they are located in Boston, in Bangalore or in Bermuda, fill out the same forms, observe the same quality assurance practices and sometimes adopt the same problem solving practices.

From this perspective, a significant part of work-related education is global too, and work related education is critical to creating a global workforce that is, nonetheless, geographically and temporally distributed. Motorola's 'Six Sigma' training program, for instance, is undertaken by Motorola workers all over the world, and is syndicated to other global corporations. It is also part of some Universities' MBA programs. Its pervasiveness means that Motorola has a pool of managers at any location who have learned the Motorola way and the Motorola value system. In important respects we can say that education and training, organized on a global scale, are core networks through which a global workforce is created.

We must, however, avoid the temptation to simplify and trivialise the importance of location - local knowledge, local history and geography, local people and local problems - in claiming that workforces are global. Global workforces are local workforces too. Clearly certain kinds of economic activity cluster in certain physical locations despite the 'death of distance' sometimes attributed to Information and Communication Technology (ICT), faster transportation and open global markets. As Porter asks:

if location matters less why then is it true that the odds of finding a world-class mutual - fund company in Boston are much higher than in most any other place?

If the finance industry, with its heavily reliance on ICT and on open global markets, is tied so firmly to place it can hardly be surprising if other industries are also tethered in sometimes invisible ways to their specific locations. While the idea that knowledge, economic activity and workforces are all globally networked is an important idea, it can also be misleading. Knowledge is embedded in local communities and economic activity shapes local and regional development. Brown and Duguid (2002) use the example that the hub of ICT, Silicon Valley, relies on people who choose to relocate there physically (from India as well as from the West) even though the cost of living is very high and the lifestyle stressful. The place itself embeds the history of Silicon Valley, with over 90 years' involvement in technological innovation, the immediate presence of a depth and breadth of highly experienced people, expertise and infrastructure, and close material links to complementary industries. So in all,

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'the networked economy is not just a technological network carrying digital information, but a social network supporting the creation of human knowledge' (436).

Silicon Valley is uniquely situated - geographically, socially, economically and historically. Those conditions cannot be replicated elsewhere, or at least not without resulting in economic servitude. The lesson to be learned from Silicon Valley, argue Brown and Duguid, is to exploit the local. Their point is that, for many countries local, historically and culturally embedded knowledge and economic activity may be at least part of the solution as well as the problem. Brazil is often cited as an example of a country that has successfully developed a lucrative niche market in the very high-tech, highly productive biotech industry by exploiting local knowledge ecologies (Ferrer, Quach, et al 2005, Saliveria and Borges 2005). The knowledge of agriculture workers, as well as the biochemists and the ICT experts, has been critical to the development of biotechnology in the fields of health and agriculture, producing an ecology that could not be replicated in the most well resourced high tech environment. In that sense at least, the individuals, the industry and the national economy are all less vulnerable than they might otherwise be to appropriation.

Education and the global workforce

We began this chapter by asking what education promises the global workforce, and what the global workforce, and the knowledge economy, might reasonably ask of education. So far we have argued that debates around the knowledge-based economy (however it is understood) have offered a generally uncritical rationale for the development of work-related education. Clearly all aspects of education and training are being recruited to support and develop a knowledge-based economy. What educators and policy makers at national, regional and international levels need to do now is to cast a critical eye over the past and to consider, with far greater clarity than we have managed in the past, what role work-related education should play in the future. As part of those deliberations we need to consider who work-related education is intended to benefit and what kinds of knowledge-based economies it should be helping to build. A first step in this process is to view economic globalization in a less deterministic way than is often the case in education research and debate, and to view workers and work-related educators as having some agency in the complex and contradictory processes of economic globalization we have referred to above. Appadurai's invitation (2001) to educators is to worry less about globalisation from above, with its standardisations and homogenisation, and to focus more on globalisation from below – the problems of ordinary people in the global everyday. This focus is upon the potential that global networks offer for the circulation of ideas – human imaginations – and resources that seek generate collective patterns of dissent and new designs for collective life. These alternative imaginings and possibilities can feed directly into immediate and specific needs of local communities. Globalisation from below involves local and global players collaborating in

...internal criticism and debate, horizontal exchange and learning, and vertical collaborations and partnerships with more powerful persons and organizations together form a mutually sustaining cycle of processes (2002p. 24)

This kind of process invokes powerful non-nation actors of all sorts – NGOs, institutions, firms, transnational advocates, academics, international agencies, public intellectuals – in a relationship of dialogue rather than one of domination with local and regional communities. For Appadurai the main problem is the growing disjuncture between the globalisation of knowledge and the knowledge of globalisation. He proposes that this dialogue, this education, needs to open spaces: to bridge languages, to study globalisation from below (its institutions, its horizons, its vocabularies), and to share knowledge about globalisation drawing on multiple global resources. Local workforces can operate more powerfully in local economies when connected with, not just used by or sold, the flow of capital, ideas, technologies and strategies

circulating in global knowledge economies. If we think about work-related education from this perspective we may view its challenges somewhat differently. We may direct our attention much more to the skills and knowledge that people and communities enact to leverage global networks at local sites, and less to urgent calls fitting people to standardized processes, migration routes, consumption patterns and knowledge protocols.

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