

'THE LEARNING ECONOMY, THE LEARNING FIRM AND THE LEARNING REGION':

A SYMPATHETIC CRITIQUE OF THE LIMITS TO LEARNING



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Abstract

The recent growing interest in 'learning' and 'knowledge' as a – maybe *the (only)* – route to corporate and regional economic success is one facet of the engagement between economic geographers and regional analysts on the one hand and evolutionary and institutional economists on the other. This focus on knowledge is often presented as a dramatic breakthrough, promising radical theoretical reappraisal and opening up exciting new possibilities for the conception, implementation and practise of policy. Recognizing the importance of innovation and knowledge creation to economic success is hardly novel, however. The paper first summarizes the claims made by the proponents of 'learning', and some links are drawn between the pre-eminent em-

phasis that they place upon knowledge and learning and other literatures that analyse ongoing changes in the organization of production and work in contemporary capitalism and which have different emphases. The aim is to situate and contextualize claims about the significance of 'learning'. These claims are then placed within the context of continuities and changes within capitalism, and the ways in which these have been understood, as a further step in this process of contextualization and situation. Finally, some conclusions are briefly drawn around the limits to learning, and questions of learning by whom, and for what purpose, in the context of the politics and policies of social, economic and territorial development.

Introduction

The context of, and focus of concern in, this article is the recent growing interest in – one might almost say obsession with – 'learning' and 'knowledge' as a – maybe *the (only)* – route to corporate and regional economic success. This is one facet of the growing, and generally productive, engagement between economic geographers and regional analysts on the one hand and evolutionary and institutional economists on the other (for example, see Maskell et al., 1998; Storper, 1997). This focus on knowledge, and the processes through which it is transmitted, is often presented as a dramatic new breakthrough, of epochal significance, promising radical theoretical reappraisal and opening up exciting new possibilities for the conception, implementation and practice of policy (for example see Braczyk et al., 1998). It would of course be futile to deny the significance of knowledge, innovation and learning to economic performance. Production as a process that simultaneously involves materials transformation, human labour and value creation, necessarily

depends upon the knowledge and skills of individual workers and on the collective knowledge of a range of social and technical conditions and processes that make production possible. This also directs attention to the institutional bases of knowledge production and dissemination, recognizing that these are social processes and 'instituted processes' of a Polyanian type. Competitiveness and economic success is thus seen to be grounded in a variety of types of knowledge and knowing.

The argument in the article, however, is that recognizing the importance of innovation and knowledge creation to economic success is hardly novel and that the contemporary focus on learning is in many ways simply a new twist on an old theme that 'knowledge is power'. This is an important insight. It is also a partial one – not least because of the relationship between the possession of power and the capacity to shape the production and/or appropriation of knowledge. Not all economies are capitalist but the historical geography of capitalism cannot be sensibly understood without giving due

recognition to the revolutionary impacts of innovation on the what, how and where of production. It would be a foolish enterprise to seek to deny the importance of learning and knowledge creation, and the institutional settings and forms in and through which these processes occur, to innovation and to the dynamic of uneven development in capitalist economies. Indeed, one cannot overemphasize that the creation of knowledge has been integral to the competitive dynamic of capitalist economies since they were first constituted as capitalist. As Marx stressed well over a century ago and Schumpeter later restated, much of the revolutionary dynamic of capitalism has *always* rested in its capacity to create new commodities and new ways of producing them via a sequence of radical transformations of the forces of production and of the organization of the labour process (for example, see Aglietta, 1979). So what, one might reasonably ask, is new? What, one might inquire, is all the fuss about?

The first point that can be made in response to these questions is that the current 'rediscovery' of the importance of knowledge and the processes through which it is produced brings with it a baggage of strong claims about new and enriching and empowering forms of work (for example, see Florida, 1995). The alienated and deskilled mass worker is apparently now no more than a subject of history. The emphasis on knowledge is also associated with claims about the possibilities for increasingly egalitarian, more equal and progressive forms of economic and social development. It likewise brings related claims as to new possibilities for urban and regional regeneration strategies, and suggestions of new developmental trajectories for problematic cities and regions (for example, see Morgan, 1995; Simmie, 1997). There is no doubt that in particular cases, times and places, such claims have a certain validity but they also require careful and critical scrutiny. Such a scrutiny must acknowledge the necessary structural limits to a capitalist economy and the disciplines (if not quite iron laws) that these set on what is both necessary and possible (as opposed to what may be desirable but impossible – to adopt a memorable phrase from Offe, 1975).

The structure of the remainder of the article is as follows. First, the claims made by the proponents of 'learning' approaches are briefly summarized, and

some links are drawn between the preminent emphasis that they place upon knowledge and learning and other literatures that analyse ongoing changes in the organization of production and work in contemporary capitalism and which have differing emphases. The aim is to situate and contextualize claims about the significance of 'learning'. Second, these claims are placed within the context of continuities and changes within capitalism, and the ways in which these have been understood, as a further step in this process of contextualization and situation. Finally, some conclusions are briefly drawn around the limits to learning, and questions of learning by whom, for what purpose, in the context of the politics and policies of social, economic and territorial development.

The learning economy: learning firms and learning regions

There has been a growing recognition of the importance of knowledge in the contemporary organization of production in what many commentators see as an era of globalization (for example, see Giddens, 1990; Strange, 1988). This takes a variety of forms but the central point is that the production, distribution and exchange of knowledge is claimed to have attained an unprecedented significance in the operations of the economy. Much of the discussion about the significance of knowledge takes place under the rubric, and around the theme, of 'learning'. There are, however, several strands to the learning literature, which highlight different aspects of, and ways of, learning: learning-by-doing (Arrow, 1962); learning-by-using (Rosenberg, 1982); learning-by-interacting (Lundvall, 1992); and learning-by-searching (Boulding, 1985; Johnson, 1992). Perhaps the most influential of these within recent debates has been Lundvall's emphasis on learning-by-interacting, informed by a concern to understand how (predominantly small) companies in open economies can remain competitive in an environment of rapid technological change and uncertainty. It essentially focuses upon companies learning about and adapting to 'best practice' via interaction with other firms and institutions as the route to competitiveness.

Lundvall (1995) has recently remarked that the term 'learning economy' signifies a society in which the capability to learn is critical to economic success. For Lundvall, contemporary capitalism has reached the stage at which knowledge is the most strategic resource and learning the most important process. There is a recognition that this process is to a considerable degree path dependent, although significant breakthroughs often involve shifting onto new, rather than further along existing, paths. The learning process could thus involve the capability to move from already successful to potentially even more successful new 'state-of-the-art' development trajectories, or to learn how to sustain currently successful trajectories of development, or how to shift onto more from less successful paths. Learning both presupposes and produces knowledge (although the learning literature tends to gloss over the different forms and processes of knowledge production: Odgaard and Hudson, 1998) but knowledge is not an undifferentiated entity and it exists in a variety of forms. There is, in particular, a critical qualitative difference between information, which is codifiable (and so commodifiable and tradable) knowledge that can be transmitted mechanically or electronically to others (for example, as bits along the fibre optic cables of a computer network), and in principle can become ubiquitously available; and tacit knowledge in the form of know-how, skills and competencies that can not be so codified and ubiquified. Foray (1993: 87) defines tacit knowledge as '... knowledge which is inseparable from the collective work practices from which it comes'. He goes on to emphasize that '... some tacit knowledge is always required in order to use new codified knowledge'. Foray thus stresses the asymmetric relationship between these qualitatively different types of knowledge. Acknowledging that knowledge is 'tacit' problematizes its communication and transmission to others who lack access to the unwritten codes of meaning in which such knowledge is embedded and upon which its meaning depends.¹ Such tacit knowledge may indeed be unique to particular individuals rather than collective in character – in which case the problems of communication are, a fortiori, problematic – but it *is* often collective rather than simply individual, locally produced and often place specific. Know-how thus cannot be divorced from its individual, social and territorial contexts and in that sense is only

partially commodifiable. It therefore can only be purchased, if at all, via the labour market as embodied knowledge and not in the form of patents, turn-key plant or other forms of 'hard' technology.

Recognition of the uncodifiable aspects of learning and knowledge creation² is important since it signifies that these processes are qualitatively different from the simple transfer of codifiable knowledge as information. As a consequence, learning involves more than simply transactions of information within markets or hierarchies. Lundvall (1992) has highlighted the national context of innovation systems and learning and the significance of shared language and culture as well as formal legislative frameworks in shaping trajectories of innovation and learning. This emphasis on the national as a key site of regulatory processes resonates with broader critiques of claims as to the decreasing significance of the national in the face of processes of globalization. The notion of 'globalization' has become increasingly contested and questioned, with a growing number of analysts stressing the continuing salience of the national in terms of the organization and regulation of the economy (for example, see Boyer and Drache, 1995; Gertler, 1997; Weiss, 1997).

While recognizing that the national territory can and continues to be a crucial milieu in some circumstances, it is also becoming increasingly clear that there is no a priori reason to privilege this particular spatial scale, irrespective of time and place. Nevertheless, the renewed emphasis on the salience of the national has implications not just for the proponents of globalization but also for those who wish to privilege the regional over the national in terms of the production of knowledge and learning (for example, see Storper, 1995, 1997). Regional and locality-based learning and knowledge-production systems can, however, be of equal or greater significance (Maskell, 1998; Maskell and Malmberg, 1995), not least in the context of arguments that innovation systems are constituted sectorally – and, at least potentially, globally – rather than nationally (Metcalf, 1996). The sectoral constitution of innovation systems globally across rather than within national boundaries emphasizes the significance of the place-specifically local within the global and of the links between corporate learning and territorially embedded knowledge (a point revisited below). Such tacit knowledge and

learning capacity is seen as *the* key competitive corporate and territorial asset. While the debates as to the relative importance of sectoral versus territorial bases of learning, and of the relative importance of different territorial scales in processes of learning and innovation, do not challenge the importance of knowledge per se to the contemporary economy, there are other reasons for treating such claims which foreground the role of knowledge and learning with a degree of circumspection.

A corollary of the renewed emphasis on the generalized significance of knowledge in production is a recognition of the need to move away from a conception of the old 'linear' R&D model as dominating the production of knowledge, associated in particular with a Taylorist conception of the technical division of labour. This approach was informed by a perceived need for the separation of mental and manual labour as the key to achieving scale economies and labour productivity growth within mass production systems. Such separate R&D departments and the associated routinization of R&D activities formed one element in an historically specific form of the organization of the labour process within large firms. Such an organizational model has now been recognized as an historically specific one, which in some circumstances remains appropriate and powerful but in others can incorporate crucial weaknesses, especially in an era of rapid shifts in product markets, for there are no necessary feedback loops from the users of and customers for innovations to those within the firm charged with responsibility for producing them. Consequently, new products may not be attuned to consumer tastes and fail in the market-place while, conversely, opportunities for new products may be missed. Furthermore, the growing significance of the symbolic meanings attached to consumption, a fortiori in circumstances in which the commodity is an event or spectacle rather than a material object, places an even greater premium on knowledge of consumer tastes and on the ability to shape them via advertising.

Knowledge creation and innovation is accordingly seen as something that must become all pervasive throughout the firm, at all levels and in all departments and sections. The ideal is to emulate the (originally Japanese) process of 'kaizen', continuous improvement through interactive learning and problem solving (Sadler, 1997), a happy state which it is claimed is brought about as a

consequence of the existence of an actively committed and engaged workforce within particular types of corporate organization, dedicated to enhancing corporate performance. The emphasis is upon creating dense horizontal flows of knowledge and information within, and vertical flows of knowledge and information between, the various functional divisions of the company, while opening the ears of those involved within the company to voices from outside its boundaries. The aim is to build a 'seamless innovation process', bringing together everyone in the firm involved in product development, from those who had the initial idea to those who finally took it to the market-place. Creation of multidisciplinary and cross-departmental 'concept teams' with responsibility for product development is seen as a way of sharply reducing the socially necessary labour time taken to bring new products onto the market. Increasingly these are organized as 'globally distributed teams' which 'meet' via video-conferencing and other forms of electronic technology. This reliance on such distanced social relationships of intellectual production, rather than face-to-face meetings, reflects increasing pressures on managerial time and resources but can also create problems as these teams seek to work to very tight deadlines (Miller et al., 1996). While these globally distributed teams are not quite 'virtual organizations' or 'virtual corporations' (Pine, 1993), they do represent a significant change in the organization of the processes of knowledge creation and innovation within companies.

Complexity theory strongly suggests the need to adapt a view of social systems as evolving in a non-linear fashion (Amin and Hausner, 1997). One implication of this in the context of innovations is that revolutionary innovations (both organizational, product and process) may be produced in unexpected ways. The emphasis now is therefore upon recognizing that innovation is an interactive process that involves the synthesis of different types of knowledge rather than privileging the formal scientific knowledge of the R&D laboratory over other forms of knowledge. As a consequence, there is considerable emphasis on acknowledging the legitimacy and 'voice' of different types of knowledge (not least as radical innovations may well challenge the dominant 'logic' within an industry), on reuniting the mental and the manual which were

turn asunder by Taylorism, on reinventing polyvalent multiskilled workers, and so enhancing corporate competitiveness by producing higher quality products more flexibly.

Such tendencies are observable in both small flexibly specialized firms and units and in new forms of high-volume production that seek to combine economies of scale and scope, ultimately in mass customized production with a batch size of one (Hudson, 1994a, 1997a, 1997b). Intensifying competition and shorter product life cycles (which may be part of an aggressive, offensive competitive strategy rather than simply a response to changes in consumer tastes) are necessitating a closer integration of R&D with the other functional sections within companies, with far-reaching implications for the internal organization and operation of those companies. This growing emphasis on the significance of learning and knowledge creation, and new forms of production organization, links in with propositions about the emergence of new forms of more rewarding, satisfying and engaging work than was available to the vast numbers of workers who manned the mass production lines of factories and offices, alienated in deskilled and dehumanizing jobs. It is, however, worth recalling that even at the high point of Fordism only a minority of labour processes were organized on Taylorist principles and that a considerable amount of manual work was performed by knowledgeable craft workers (Pollert, 1988). Innovation and learning have nonetheless become seen as creative processes that must be suffused throughout the entire workforce, capturing the knowledge of all workers to increase productivity and product quality and at the same time enhancing the quality of work. In essence, this amounts to the reinvention of polyvalent skilled craft workers, a return to a pre-Taylorist era prior to the invention of scientific management. Florida (1995) writes approvingly of the emergence of a new form of production organization in a knowledge-based economy, in factories that are claimed to be becoming more like laboratories, with knowledge workers, advanced high-technology equipment and clean-room conditions free of dirt and grime. This does indeed powerfully suggest that the old distinctions between manual and mental workers are being cast aside, that every worker is now becoming an innovative knowledge worker.

Know-how historically was, and in large measure still is, typically a kind of knowledge developed within, and then kept within the confines of, a firm. Furthermore, the boundaries of the firm still remain significant for knowledge that is central to the core competencies and strategic goals of a company. Nevertheless the increasing complexity of the knowledge-base upon which the totality of the production process depends is increasing the social division of labour in knowledge production and resulting in growing numbers of collaborative long-term relationships between firms (for example, see Kitson and Michie, 1998). A variety of processes, ranging from the growth of out-sourcing and contracting-out to the increasing prevalence of joint ventures and strategic alliances between even the largest global corporations, is indicative of a rather different model of shared corporate learning. As a result, know-who is becoming of growing importance in the production of know-how (Lundvall and Johnson, 1994). This growing emphasis on knowledge and learning therefore also links in with claims as to new forms of relations between companies, based on cooperation, trust, and the sharing of knowledge for mutual benefit. These forms of interactive interfirm relations for knowledge creation are particularly associated with the supply chains of major Japanese manufacturers (which is not to imply that they are in some sense culturally defined and confined to Japan and Japanese companies). Considerable emphasis is placed upon new forms of network relations, both 'horizontal' relationships between small and medium-sized enterprises (SMEs) and 'quasi-vertical' relationships between big firms and their suppliers and/or customers, which stress the sharing of R&D, of knowledge and the products of learning to the benefit of all partner companies in the network. For example, institutional innovations such as placing resident engineers in customers' factories allows efficient channels for intercorporate learning within networks of interfirm relationships.

Some of these networks are based upon spatial propinquity, others are not. A useful distinction can be drawn between spatial propinquity and organizational proximities (Bellet et al., 1993). The former may (but does not necessarily) facilitate the latter by increasing the probabilities of encounter between agents within a system but is not necessary for interaction between individuals or groups.

Organizational proximity does not necessarily require spatial adjacency or proximity but does presuppose the existence of shared knowledge and representations of the environment and world within which the firm exists, although the various units and sections of the firm may be in spatially discrete and distant locations. Such a form of proximity also enables the synthesis of varied forms of information and knowledge via cooperative and collective learning processes between firms within the institutions of an industry. Organizational proximity is therefore a necessary condition for creating innovations and resources through processes of collective learning and is simultaneously a product of these processes. However, the networks through which learning is enabled and expressed are not necessarily territorially defined and demarcated and in some respects the growing sophistication of IT and communications technologies has weakened this link further. The emergence of 'global distributed teams' in innovation and product development is indicative of this weakened link (Miller et al., 1996). Conversely, the technological facilitation of information flows has simultaneously enhanced the significance of place-specific tacit knowledge within key nodes of command and control and representation in a global economy (Amin and Thrift, 1994).

Some networks are without doubt deeply spatially embedded and recognition of this provides a bridge into more general notions of the significance of territorially based knowledge to economic competitiveness and success. The concept of the learning firm as an institution for the production of knowledge is thereby transposed into the notion of the learning region (Morgan, 1995; for related concepts see Camagni, 1991). This perspective stresses that regional economic success is heavily based upon territorially defined assets derived from 'unique', often tacit, knowledge and cognitive assets, and stresses the importance of spatial proximity in collective learning processes. Considerable emphasis is placed upon the pivotal role of regional institutional structures which allow regions (and firms within them) to adjust to, indeed anticipate and shape, changing market demands. Innovation and knowledge creation are seen as interactive processes which are shaped by a varied repertoire of institutional routines and social conventions. This involves not simply

intercorporate collaborative links but also links between companies, the (local) state and institutions in civil society, emphasizing the permeability of the boundaries between economy, state and civil society in the creation of regional competitive advantage.

This notion of a cohesive society, with permeable boundaries between economy, civil society and state, is powerfully captured in the concept of the 'negotiated economy', originally developed in relation to analyses of the specificities of the Danish case (Amin and Thomas, 1996) but of a more general provenance. Within the negotiated economy, the state fulfils a distinctive role as arbitrator and facilitator of relations between autonomous organizations, as well as continuing with its more traditional roles of providing specialized services and defining the legislative framework of rules and regulations. This is a model of state activity which highlights enablement and which falls between the concepts of the 'liberal' and 'interventionist' states (Offe, 1975). The concept of the negotiated economy can thus be linked with that of 'the learning state' and a mode of regulation positioned between market and hierarchy through which an enabling state seeks to create the conditions for a dialogic approach to conflict resolution and policy formation in general and innovation, knowledge creation and learning in particular. This approach rests on discursive, moral and political imperatives rather than formal contracts and legal sanctions in achieving consensus and taking decisions. It thus places the emphasis on shared values, meanings and understandings, specifically territorially embedded, and tacit knowledge and the institutional structures through which it is produced. These emphases are caught in notions such as those of 'institutional thickness' (Amin and Thrift, 1994), 'social capital ... [those] features of social organization, such as networks, norms and trust, that facilitate co-ordination and co-operation for mutual benefit', (Putnam, 1993) or, perhaps most powerfully, as 'regions as a nexus of untraded interdependencies' (Storper, 1995). As Storper (1995: 210) puts it, '... the region is a key, *necessary* element in the "supply architecture" for learning and innovation' (emphasis added) while the emphasis on 'untraded dependencies' or 'relational assets' focuses attention upon the necessary territoriality of critical elements

of non-market relations and tacit knowledge. This signals a decisive shift in focus from firm to territory as the key economic actor in the knowledge-based competitive struggle, to a collective and territorialized definition of competitive advantage which emphasizes the cultural and social underpinning of economic success. In so far as this represents a growing recognition of the limits of narrow neo-classical and technicist views of the economy based on analogies with the behaviour of physical systems (Barnes, 1996), then this in itself is a very important step forward – the rediscovery and re-emphasis of the economy as a social process. Equally, it is important to be aware of the limits to such an approach and emphasis.

Rather than privilege territorial over corporate knowledge production and learning (or vice versa), the critical point is to explore the *relationships* between these two institutional bases of learning. Camagni (1991: 127) emphasizes that firms seek to combine codified information and tacit knowledge into 'firm-specific knowledge'. More specifically, insofar as globalized forms of corporate organization are emerging, they are predicated upon the integration of fragmented products of local learning to further corporate interests. This may well involve disembedding them from the contexts in which they were initially produced, and perhaps therefore finding ways of converting tacit knowledge into codifiable information. Alternatively, in situations in which knowledge is so organizationally and technically specific to a firm and so deeply embedded that it cannot be alienated from its origins, it may simply involve big firms acquiring smaller ones as a way of gaining access to such knowledge (a familiar story within the historical geography of mergers and acquisitions: see Athreye, 1998). Global corporations are, it is suggested, developing organizational forms focused upon ensuring the repatriation of the varied results of different localized learning experiences and their integration within a collective body of knowledge to serve strategic corporate interests (Amin and Cohendet, 1997). The implication is that the processes of seeking to secure access to locally produced knowledges are also processes of intercorporate competition. The issue is therefore one of the relationships between knowledge production and acquisition and competition and cooperation between various territorial and corporate interests.

Old wine in new bottles: or another trip around the mulberry bush?

The learning firm is, however, hardly a novel concept in the sense that knowledge has always been crucial to capitalist development. There are, though, limitations in the way in which learning approaches deal with the production of knowledge. Their emphasis is upon learning as a way of catching up with 'best practice' in a selection environment, and adapting to significant innovations in organization, process or product. The issue of how radically new knowledge is produced, and redefines 'best practice' as radical innovations are created, is left largely unexplored (Odgaard and Hudson, 1998). Moreover, the emphasis on the transmission of knowledge per se in a 'learning economy' may well lead to an underestimation of the significance of other forms of learning that are more ubiquitous and central to capitalist competitiveness. Capitalist corporate success in production has always depended on ensuring one or both of two things, either finding ways of making existing commodities more profitably and/or finding or inventing new commodities to produce sufficiently profitably. Companies have evolved a variety of strategies to reduce the costs of production of existing commodities, involving a variety of 'spatial fixes' (Harvey, 1982) to enable the costs of producing with existing technologies to be reduced and for them to remain competitive. Such strategies typically involve a search for and learning about locations offering lower unit costs of labour or other material inputs to the production process. Storper and Walker (1989) contrast this approach based on 'weak competition' with a Schumpeterian one based on 'strong competition', a strategy based on the creation of new commodities and products and/or new ways of producing existing commodities rather than on seeking ways of making existing commodities competitively by searching out sources of lower cost inputs within the parameters of existing process technologies. Strategies of strong competition are thus also based upon innovation, learning and the creation of knowledge but of a very different sort to those which underpin strategies of weak competition.

These differing 'weak' and 'strong' competitive strategies and their grounding in different types of knowledge and learning are reflected in the

extensive literature on spatial variations in conditions of supply and markets for various inputs to production processes, and in the equally extensive literature on process and product innovations, respectively. Both types of innovation are based upon knowledge generated at the corporate level, though typically knowledge of new processes and products soon diffuses through a particular branch of production (albeit with its trajectory of diffusion legally regulated by patent – assuming of course that such regulations are enforceable). This tendency towards the erosion of a temporarily conferred competitive advantage by the diffusion of knowledge as information and of technological innovation underlies the continuous ‘hunt for technological (and other) rents’ (as Mandel, 1975, graphically and memorably expressed it). This diffusion of knowledge in turn provides the impetus for capital’s continuous search to revolutionize the how, what and where of production. One has only to look at the economic history of the ‘successful’ regions of the 19th century in which industrial capitalism was first born and then consolidated to recognize the *key* role of product and process innovation from the very beginnings of the process.³

There are also strong grounds for critically evaluating the claims that this renewed emphasis on knowledge is associated with the empowering of workers in satisfyingly enriched – as a result of reducing, if not eliminating, the alienation of workers from their work – and multiskilled jobs (see Blyton and Turnbull, 1992). It is worth recalling in this context that the rationale of Taylorism was to break the power of the multiskilled craft worker to challenge the imperatives of capital and disrupt the smooth flow of the production process. Taylorist scientific management therefore sought to disembodify knowledge and know-how and to break up the production process into a myriad of separate and deskilled tasks whose pace was controlled by the speed of the line rather than the inclination of the individual worker. The emergence of separate R&D departments and a linear model of learning and innovation within the firm that separated manual from mental labour and privileged the latter over the former, and privileged codifiable formal scientific knowledge over the practical and often tacit knowledge of the skilled manual worker, was equally an integral part of this process. Taylorism was invented precisely as a way of wresting control of

the labour process from skilled craft workers and insofar as the economy remains a capitalist one, there remain pressing reasons why capital should want to retain such control in many types of contemporary production; indeed, there are now frequent references to the growing Taylorization of office work and a range of ‘white-collar’ occupations (for example, see Beynon, 1995) at the same time as others enthuse about the reinvention of the multiskilled manufacturing worker.

It is difficult to imagine, therefore, that capital would willingly wish to return control of the production process to workers that it potentially could not control. The search for alternatives to mass production reflects capital’s need to break the capacity of the mass worker collectively and spontaneously to challenge its quest for profits – although unintentionally, this may in turn create potential new opportunities and points of leverage for organized labour since the contradictory character of the class relations between capital and labour can be refashioned but not abolished in an economy that remains capitalist. While the probabilities of strikes and other forms of disruption to the production process are certainly much lower now than in the decades of ‘full employment’ in the 1950s and 1960s in the territories of the major advanced capitalist states (for reasons which are discussed below), it is clear that any form of disruption to production organized on lean, just-in-time principles can quickly spread along the entire supply chain, bringing production to a precipitate halt (Hudson, 1997a). Given the disciplining context of more or less permanent high unemployment, this recent and ongoing reworking of work can more plausibly be seen as representing a new way of ensuring managerial control and intensifying the labour process, of reproducing in enhanced form the asymmetries of power between capital and labour. Managerial strategies and regimes of labour regulation remain focused on seeking to ensure the continuity of production and the compliance of workers.

Rather than empowerment in new forms of satisfying work built around notions of reskilling and team working, the new forms of work are based upon multitasking and new ways of intensifying the labour process. Workers are enmeshed within disempowering regimes of subordination, characterized by control, exploitation, and

surveillance, accepting arrangements through which they discipline themselves and their fellow workers, while bound together through the rhetoric of team working (see Garrahan and Stewart, 1992). As a result, these may actually be worse jobs than those on offer on the old mass production lines, increasing stress (see Okamura and Kawahito, 1990) and changing the mode of regulation of the labour process. No longer is it 'us' versus 'them'; 'them' are now part of 'us'. Considerable ambiguities and uncertainties follow from this change of identities, not least in relation to forms of organization and representation of workers' interests.

A further point needs to be made concerning the number of such jobs and the criteria on which people are selected to fill them. For even when the claims that these are better quality jobs are shown to be true, there is still a savage sting in the tail for labour. The capacity of firms to create these new regimes of work depends upon their ability to exercise great selectivity in whom they choose to employ and the terms and conditions on which they employ them, often in no-union or one-union factories, especially in countries or regions in which neo-liberal regulatory regimes have become dominant. Employees are selected more on the basis of their attitudes, psychological profile, age and physical condition, and personal and family circumstances than on their technical skills. For example, in many service sector occupations, personal appearance and social skills have become key recruitment and retention criteria (McDowell, 1997). Many manufacturing companies typically seek to recruit physically fit young males, with family and other financial commitments, who will be loyal to the company and accept new ways of working on the factory floor. Only a tiny fraction of those who apply and of those who feasibly could fill these jobs are employed, typically after an extensive selection process. Firms can only exercise this degree of selectivity against a background of high unemployment and for this reason are also very careful in their choice of locations in which to introduce these new forms of work and employment (Hudson, 1997b).⁴

There is also some scepticism as to the validity of the notion of new forms of network relations between companies as involving equal partners. It is certainly the case that there has been a considerable increase in out-sourcing and subcontracting by

many major companies. In this sense one can reasonably refer to a shift from vertical integration within companies to quasi-vertical disintegration, involving a redefinition of the boundary of the firm and a redefinition of the criteria on which to make the 'make or buy' decision. But to argue that these new relations are between equal partners is to ignore the sharp asymmetries in power between companies, and the extent to which such networks involve not cooperation based on trust but often not too subtle coercion if companies wish to keep their customers or suppliers. There is no doubt that the systems of relations between automobile or computer companies and their suppliers or between major retailing chains and their suppliers definitely are not relations between equals (Hudson, 1994a; 1997a). Indeed, there is no a priori reason why one should expect relationships between firms in a capitalist economy to be between equals; in fact, one should expect quite the reverse. In assessing the claims as to networks of equal partners, it is also important to remember that one of the features of the last couple of decades has been wave after wave of mergers and acquisitions as the centralization of capital has reached renewed heights after a couple of decades in which merger and acquisition activity was very subdued; and it is these massive transnational corporations, the 'movers and shakers' who dominate the global economy, that are frequently at the centre of decisive network relationships.

The concept of the learning region and the proposition that regional economic success reflects specifically regional assets and institutions for the production and dissemination of knowledge is also hardly a new one. Even the most cursory glance at the historical geography of capitalist development indicates that this has long been the case. In the United Kingdom in the latter part of the 19th century, for example, 'coal combines' lay at the heart of carboniferous capitalism in the industrial boom regions (Harvey, 1917). These combines comprised interlocking intraregional networks of highly innovative firms, extending across sectors, integrated by physical input-output linkages and various forms of formal economic and financial linkages (such as interlocking directorates and mutual share ownership). More importantly, they were underpinned by non-economic relationships between key individuals and families and by networks of supportive institutions that evolved

around, in and through the formal economic relationships between companies. These spanned the boundaries of local civil society and the state, as a dense network of interlocking institutions, attuned to the needs of the dominant regional firms and sectors, emerged there. For many such regions the problems subsequently became those of 'institutional lock-in', an inability to make the change from one development trajectory to another precisely because the institutional bases of the region reflected the past dominance of now declining firms and sectors (Grabher, 1993; Hudson, 1994b). This is a salutary reminder that institutional thickness per se is no guarantee of successful regional economic adaptation and innovation as it can constrain rather than facilitate processes of collective learning and change.

Furthermore, the fetishization of knowledge and learning, and their institutional bases, may lead to a neglect of *other* institutional factors that underlie regional competitiveness. There could be no clearer illustration of the point that in order to understand the historical (including the contemporary in this) geography of capitalist production, it is necessary to grasp the ways in which such successful regional economies in the 19th century were grounded in social relationships that extended far beyond the workplace into home, community and the institutions of local civil society, and, in due course, the state (Beynon and Austrin, 1994; Carney and Hudson, 1978). Moreover, central to the embedding of industrial capitalism in these regions was the construction of discourses and ideologies that represented this as the 'natural' course of regional and socio-economic development. These representations constituted an attempt to present one view of a particular trajectory of capitalist development as 'natural' and 'unavoidable', to instil this as a hegemonic and uncontested view, subliminally learned and accepted by the populations of these regions.

This attempt to establish such a view as hegemonic was important because it was clear in the 19th century that economically successful regions, which were certainly learning regions containing learning firms, were also deeply socially divided ones. They were characterized by enormous disparities in incomes and wealth, juxtaposing extremes of conspicuous consumption with widespread abject and absolute poverty. The

contemporary claims that the learning region offers a new and socially inclusive model of development are ones that need to be scrutinized carefully since they tend conveniently to ignore the point that the social relations of capitalism are at least as deeply marked by social inequality now as they were then. There are critical issues related to *who* controls the processes of knowledge production and learning. 'Learning firms' within a region may be successful economically and the institutional structures of a 'learning region' may both be produced by and facilitate the reproduction of 'learning firms'. This, however, does not necessarily equate to an egalitarian model of regional socio-economic development. Such firms remain unavoidably built around antagonistic class relations and may well also presume inequalities in other social relationships such as those of age, ethnicity, and gender as an integral part of their strategies for competitiveness and success in the market place (cf. Massey, 1995: ch. 8).

Conclusions and reflections on the limits to learning: learning by whom, for what purpose?

There is no doubt that firms have a great variety of possible approaches to production. Equally, there is a variety of forms of capitalist development model, nationally and regionally, and this indicates that there is a fair amount of room for manoeuvre in seeking to define regional development strategies (for example, see Albert, 1993; Lash and Urry, 1987). While acknowledging the 'room for manoeuvre' (to borrow the phraseology of Seers et al., 1978) that exists as a result, the key point to emphasize is the continued existence of the social structural constraints which set limits to what is possible within a capitalist economy. These cannot simply be conveniently forgotten or assumed away. One implication of this is that capitalist development of necessity remains driven by competition and the search for profit. Another implication is that such development must therefore remain uneven – both between classes, between and within other social groups, and within and between regions, a fortiori if it is recognized that regions themselves are constituted as socially heterogeneous

and as spatially discontinuous, whatever the claims about social homogeneity and spatial contiguity (Hudson, 1990). Certainly in some circumstances, development models may be based on less rather than more divisive guide rails – but capitalism requires the existence of reciprocally defining classes of capital and wage labour, although of course there may well be attempts to represent the situation in ways which deny this.

'Learning' and the production of knowledge are undoubtedly necessary elements in the processes of competitive commodity production and in some respects can themselves become commodified. The diffusion of information about new organizational, product and process innovations is a central element in the competitive dynamic of capitalism. The greatest competitive advantage is, however, conferred by precisely that knowledge that remains tacit and uncodifiable, not amenable to generalized transmission to others. It is thus the most valuable form of knowledge in conferring competitive advantage, precisely because it cannot have a price put upon it. Successful firms and regions thus guard it jealously. If, however, firms 'learn' via producing and protecting such knowledge, if 'regions' seek to learn in the same way, in the final analysis this is to enhance their competitiveness in a range of markets. As a consequence uneven development within and between regions and their constituent social groups is unavoidable. Knowledge and learning may be necessary for economic success but they are by no means sufficient to ensure it; nor, even more so, are they sufficient to ensure equality, cohesion and social justice.

For some firms, becoming 'successful learners' is the route to competitive success, and these firms have to locate their operations somewhere. Conversely, other firms must lose as part of this struggle, and they have to devalorize capital, close plants and dismiss workers somewhere. There is no necessary territorial correspondence between these two faces of creative destruction – indeed, there are strong grounds for expecting the production of new commodities often to take place in new production spaces. For some regions, becoming 'learners' likewise offers a route to competitiveness, albeit one characterized by internal social division, if not strife. This may involve developing institutional structures to enable existing firms and sectors to evolve successfully, or new ones to become established in a

region, or some combination of the two. It is important to acknowledge that for those regions that do successfully embark on the 'high road' to regional economic success, this very success raises new problems in terms of a requirement continuously to learn and anticipate, if not create, market trends. Moreover, if some regions 'learn' and 'win', many more will fail to do so and 'lose'.

The command and control functions of an increasingly spaced out global economy will doubtless continue to locate within the few global cities, economic 'winners' but marked by deep social divisions (Sassen, 1991). These global cities are characterized by intensely dense institutional structures for producing and disseminating information globally but at their heart lie interpersonal contact networks decisively bound together by the ties of critical tacit knowledge (Amin and Thrift, 1994). They are also deeply divided places, with sociospatial differentiation deeply etched into their urban landscapes as a necessary feature of the ways in which their economies are constituted (see Allen et al., 1998). Moreover, beyond the boundaries of the global cities, a post-mass production, post-Fordist world of specialized regional economies, all on their own successful learning trajectories, and all winning, is not a feasible option within the social relations of capitalism. Equally, a post-mass production, post-Fordist world of product-specialized high-volume production regional complexes, all producing just in time and in one place in their own unique niche in the global market-place, is not a feasible option. There may be some cases in which some regions 'win' by following one or other of these strategies – but there will be many more that 'lose', either failing in the attempt or doomed to failure by the success of others.

There is no doubt that an explicit recognition of the role of the production and dissemination of knowledge in a capitalist economy can help further understanding of uneven development. Cognitive assets can certainly be crucial in defining competitive advantage. Equally, the case for a regional political economy that remembers the lessons of a Marxian political economy and recognizes capitalism is structurally and necessarily, inherently and unavoidably, characterized by uneven processes of growth and decline remains as valid as it ever did. Acknowledging that capitalism is shaped within

particular structural boundaries which pivot around class relationships is not to imply that social life can be, is to be, or should be, reduced to such relationships, nor to deny that gender, location, ethnicity, and much more besides are constituted as separate cleavage planes of social division and at the same time as foci of individual and collective identities. It is, however, to suggest that class relations cannot be ignored – not least in the production and diffusion of knowledge itself.

There is equally no doubt that innovation and learning can be important concepts in understanding why some firms and regions are economically successful and others are not. Equally, it is evident that the 'learning' paradigm may both legitimate the success of some firms and regions, the failure of others, and seem to hold out the enticing prospect of a more prosperous future to still many others. Nevertheless, it would be as well to recognize the limits that 'learning' entails, both as an explanatory concept and as a guide to territorial development policies. Not least, learning the political economy of learning implies a need to unlearn – or at least ignore – other concepts of political economy, with different developmental implications. 'Learning' is by no means a guarantee of economic success. Still less is it a universal panacea to the problems of sociospatial inequality and in some respects is used as a cloak behind which some of the harsher realities of capitalism can be hidden. Addressing the problems of uneven development and inequality undoubtedly poses very hard policy and political choices for those who seek to devise progressive development trajectories in such a world, torn between attachments to place, class, gender, ethnic groups and no doubt a lot more besides.

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Notes

- ¹ There may be a danger of 'tacit knowledge' thereby being invoked as an unknowable residual explanatory variable, in a way analogous to neo-classical growth theorists' treatment of technical change. This is not to deny the existence or significance in some circumstances of tacit knowledge. It is to suggest that there are methodological problems in revealing its existence and effects.
- ² It is important to note, however, that the processes of *producing* new knowledge, knowledge that comes into existence for the first time, are not dealt with directly in learning approaches, as a corollary of their grounding in associationist, stimulus–response conceptions of learning and their concern with outcome rather than process (see Odgaard and Hudson, 1998). This represents a major problem with the learning approach *in its own terms*.
- ³ En passant, it is worth noting that this creates problems for characterizing the 19th century as a regime of extensive accumulation: cf. Brenner and Glick (1991).
- ⁴ This also raises broader questions as to the maintenance of social order and the perceived legitimacy of capitalist relations of production and the state policies that sustain them, especially when such locationally-concentrated pools of surplus labour have become a permanent and structural feature of labour markets.

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