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Citation: Chan, Paul and Moehler, Robert (2008) Construction skills development in the UK : transitioning between the formal and informal. In: CIB W55/W65 joint conference, 15-17 November 2008, Dubai, UAE.

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CONSTRUCTION SKILLS DEVELOPMENT IN THE UK: TRANSITIONING BETWEEN THE FORMAL AND INFORMAL

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Research reported here is part of a wider study that seeks to examine the practices involved in encouraging and enabling employers to engage with the skills development agenda. A series of exploratory interviews and ethnographic observations reveal potential disconnections between skills policies at the governmental level and what actually happens in employer practices regarding skills development. On the one hand, the formal education and training system focuses on such targets as the attainment of narrowly-defined occupational standards, levels of competence, and quantitative performance measures like completion rates. On the other hand, the socialised concept of skills development takes place informally at the workplace through on-the-job training and mentoring relationships between senior and junior employees. Both the formal and informal systems appear to co-exist alongside each other, although tensions are mounting in terms of confidence that employers and the wider industry place on the efficacy of the formal system.

Keywords: **informality, skills development practices, skills policy, training and education.**

INTRODUCTION

The UK construction industry faces an enduring problem of skills shortages. ConstructionSkills, one of the Sector Skills Council for Construction that has a remit of addressing skills needs for the UK construction industry, recently forecasted an annual average requirement of around 88,000 new entrants a year to meet expected workloads from 2008 – 2012 (ConstructionSkills, 2008). At the same time, first year entrants into vocational training courses in 2006 – 2007 stands at around 40,000 (Department of Business Enterprise and Regulatory Reform, BERR, 2007). Thus, this suggests that supply of skilled labour into the industry is inadequate to meet current and future demand. Furthermore, the industry has a reputation of a lacklustre approach towards investment in skills training and development. Using the National Vocational Qualifications framework (Grugulis, 2003b) as a barometer for instance, only a third of the British construction workforce is trained to a rudimentary Level 2 or higher, which is unsurprising given the median annual training days per full-time equivalent employee of merely 1 day (BERR, 2007).

The extant literature on skills has often been critical about employers' apparent unwillingness to engage in the skills development agenda. To redress this, the high-profile Leitch (2006) review has recently called for a shift towards demand-led skills provision insisting on greater involvement of employers in raising skills levels. Notwithstanding the laudable nature of such policies, little is currently known as to how employers can usefully achieve this (Chan

and Moehler, 2007). As this paper unfolds, it is argued that the underlying problem is not about how employers can be engaged in skills development, but why they are currently not engaging in the first place. We contend that the institutions responsible for steering skills development through skills policies and provision should bear part of the blame. These institutions representing the formal system of skills development remain somewhat disconnected from what is essentially needed by industry (employers and employees). Consequently, employers that try to cope with the skills shortages resort to such informal practices as on-the-job training and mentoring. It is suggested that because of the lack of clarity of, and confidence on, the formal system of skills development, employers are reluctant to engage in the formal discourse of the institutions tasked to deliver on skills. To help support this observation, we first review theoretical perspectives of skills and examine the role of employers and institutions in skills development. Thereafter, we discuss the context of ongoing research that investigates skills development practices in the North East of England and present some preliminary findings from its exploratory phase. We conclude by calling for more research into a deeper understanding of dynamic relationship between formal and informal systems of skills development in resolving the UK construction skills shortages.

THEORETICAL PERSPECTIVES OF SKILLS

The economic benefits of skills are well-acknowledged. Becker (1964, 1993) who popularised the concept of human capital in recent times maintained that there is overwhelming evidence that connects human capital investment through training and education with rising personal income. However, as Grugulis (2003a) points out, “the longstanding consensus that skills are ‘good things’ [...] and the evidence that they can advantage every participant in the employment relationship have not been matched by a widespread adoption of high skills routes to competitiveness. Despite the existence of exemplary practice, extensive exhortations and official interventions, most jobs in Britain demand few skills. (p. 7)”. Even workers with degree qualifications are not guaranteed that their higher-level skills would be put to good use at the workplace with the growth of what Blenkinsopp and Scurry (2007) term as GRINGOs (graduates in non-graduate occupations).

If skills are a ‘good thing’, why is the rhetoric detached from the reality of training and education investment? Construction researchers have offered a number of explanations for this phenomenon. The central argument tends to revolve around the nature of the industry. The construction industry is often used as a barometer of economic performance, and therefore exposed to the vulnerabilities of economic cycles of boom and bust. Given such uncertainties, firms are less likely to engage in skills training and development, which requires a longer-term view (see MacKenzie *et al.*, 2000). Furthermore, the industry epitomises the pinnacle of flexible organisation and its deeply entrenched reliance on self-employment (Harvey, 2001) and contingent labour (Forde and MacKenzie, 2007) reduces the industry’s propensity to train. Together with the difficulty in attracting new entrants into the industry resulting from its poor public image, the industry inevitably reports a low average training investment of around one-person-day per year (BERR, 2007).

Then there is the added complication of the (ever expanding) definition of skills. Drawing on Cockburn’s (1983) writings, Grugulis (2003a, 2004) proffered three perspectives of skill: “there is the skill that resides in the man himself, accumulated over time, each new experience adding something to a total ability. There is the skill demanded by the job, which may or may not match the skill in the worker. And there is the political definition of skill: that which a group of workers or a trade union can successfully defend against the challenge

of employers and of other groups of workers (Cockburn, 1983: 113; cf. Grugulis, 2003a: 4)”. Accordingly, the first relates to the conventional economic perspective of human capital, and the latter two would be governed by more sociological lens (Grugulis, 2004). These varied perspectives of skills suggest that skills can mean different things to different people, as Clarke (1992) observed, “[...] whilst training creates skills, these skills have different values for the worker who owns, sells, employs and attempts to conserve them than for the builder (*employer*) who buys and consumes them (p. 6)”.

Following on from this, there is the question as to who should be responsible for paying skills development. Becker's (1964) seminal paper led to a huge body of work contributing to this debate; consequently resulting in the distinction between firm-specific skills and skills that are completely general (Bloom *et al.*, 2004). It follows logically therefore that the investment of firm-specific skills should lie within the remit of firms and that the state through its education system should provide for the general skills since an increase in worker productivity should in theory benefit the economy as a whole. However, commentators have argued that this dichotomy is far too simplistic, hence the answer as to who should pay for what skills less straightforward.

Distinctions between firm-specific and general skills can also be less helpful in reality. Groen (2006) observed that as a market expands and becomes more competitive, there is a corresponding shift of employer emphasis towards generic skills; thereby reinforcing the idea that employers are inclined to abdicate from the responsibility of investing in skills development (Dainty *et al.*, 2005). Thus, the shifting employer preference towards general skills lends further support to the de-skilling (Braverman, 1974) of firm-specific skills. Grugulis *et al.* (2004), for instance, argued that the growing desire of employers to focus on generic skills offers on the one hand a false sense of upskilling among the workers and on the other virtually no benefit of wage premium. Becker's (1964) belief that investment in human capital would reap benefits of greater productive capacity and wage growth would stand to be tested. In fact, recent evidence in the UK construction industry showed little correlation between skills levels and wage rates (Clarke and Herrmann, 2004). Moreover, the economic perspective of human capital emphasises human resources as an economic factor of production and potentially plays down the human benefits that can be accrued through development, reiterating the distinction between hard and soft human resources management (Druker *et al.*, 1996).

Grugulis (2004) later added that the concentration on generic skills meant moving “the focus of attention away from the workplace and those who manage it, onto schools, colleges and universities, all of which have failed, it is alleged, to have imbued their students with the appropriate skills (p. 12)”, thus ‘outsourcing’ the responsibility of failing to achieve high-commitment, high performance knowledge economy away from the realm of management. Indeed, Beckingsdale and Dulaimi (1997) observed that skills training and development is rarely seen as a core business activity among construction companies. Researchers like Bell *et al.* (2002) also support this observation as they note that companies tend to approach such initiatives as Investors in People as a badge-collecting public relations exercise.

Role of employers and institutions in skills development: two sides of the same coin

Much of the literature on skills has painted a very bleak picture regarding the involvement of employers in skills development. Contemporarily, however, sympathetic commentators have suggested that construction companies have to juggle between the short-term need for

profitability and the long-term employee interests of skills development. Raidén and Dainty (2006) used the phrase ‘chaotic organisation’ to describe how construction companies deal constantly with both the chaotic business environment and the orderly, strategic planning of skills. Raidén and Dainty (2006) argued that employers desire to engage in the practice of skills development, but do so within a competitive business environment. Employers often require the support of public institutions in upskilling the workforce.

Such support necessitates a strong vocational education and training (VET) system. For Clarke and Winch (2004), this means educational philosophy that embeds strong theoretical underpinning in schools, colleges and universities, work experience provided by employers and opportunities for simulation of work processes. This is only possible through a deeper social partnership between the education system and industry, and it is precisely this partnership that Leitch (2006) felt his proposal for employment and skills boards could facilitate in moving the UK economy to a higher skills level.

However, institutions need to be strong, and its strength goes beyond adjusting organisational structures. In the UK, however, Broadberry and O’Mahony (2004) argued that institutional structures have weakened since the Second World War which resulted in the erosion of much-needed intermediate skills. The UK government has realised the importance of intermediate skills in closing the productivity gap with its main competitors (Leitch, 2006), although dominant policy is still geared towards encouraging a greater proportion of school leavers into higher education. Broadberry and O’Mahony (2004) suggested taking a leaf out of German institutions, which remained strongly supportive of maintaining a healthy balance of intermediate and higher-level skills, a view shared by many others. Clarke and Herrmann (2004) showed how differences in institutional structures between the UK and Germany accounted for a more productive German construction industry.

Nonetheless, relatively few studies have been undertaken to examine how institutions can effectively support and encourage employers to engage in skills development. The efficacy of public institutions in formulating appropriate skills policies and enforcing skills provision is arguably crucial in terms of inspiring confidence among employers (and employees) of the formal system of skills development. A corollary of the inadequacy of public institutions is a greater reliance on informal approaches to skills development at the workplace, which might be insufficient to plug the problem of skills shortages. To find support for this, a study is currently being undertaken in the North East of England to examine interactions between public institutions and employers in delivering skills development for the regional construction industry. The study seeks answers to a number of research questions, including: who develops skills for whom, how are these skills being developed, what skills matter, and on what basis are decisions made regarding skills development. The next section will briefly outline work done to date and discuss early findings emerging from this exploratory phase.

METHODOLOGY

Within the confines of the paper, the methodology for the exploratory phase of the research is outlined (please see Chan and Moehler, 2007 for a detailed explanation of the research methodology adopted for the overarching study). To date, a series of 22 in-depth (semi-structured) interviews have been carried out with managerial staff from a range of stakeholder groups, including governmental institutions (e.g. local authority) and agencies (e.g. JobCentre Plus, Learning and Skills Council, Regional Development Agency), quangos (e.g. Regional Skills Partnership), training providers and colleges, employers, trade unions

and professional associations. Furthermore, 11 focus group interviews were undertaken with operational staff within employer organisations, auditing networks and professional networks. Additionally, participant observations were done in two case study organisations - a private training organisation and a civil engineering and plant hire company - to get a rich insight into how skills development takes place in practice. The participant observations meant that the researcher attended 24 meetings and observed 8 trainees going through the skills development process over a period of 40 days. The interviews and ethnographic research enabled the research team to make sense of how the various organisations interacted with one another in relation to skills development in UK construction.

PRELIMINARY FINDINGS AND DISCUSSION

The most striking finding relates to the plethora of organisations that claim to have some involvement with skills in construction. Early on in the study, a desktop search was undertaken of organisations in the North East of England that have made a reference (however tenuous) to having a connection with skills in construction. This yielded a 7-page list of organisations, and the number seems to be growing organically. Notwithstanding the myriad of organisations (a selection of which is depicted in Figure 1), a number of key organisations can be identified. For instance, the Learning and Skills Council (LSC), together with Jobcentre Plus (part of the Government's Department of Work and Pensions) are crucial in terms of implementing the government's skills policies and administering funding regimes. At the same time, a number of organisations including *inter alia* the Construction Industry Council (CIC), Confederation of British Industry (CBI), the Federation of Small Businesses (FSB) and the Federation of Master Builders (FMB) provide a voice for industry that can powerfully steer the formulation of government skills policies. Educationalists are also represented either through individual educational institutions (e.g. Universities) or through such networks of institutions as the Centre of Vocational Excellence (CoVE) for construction. And the list goes on. Amidst all these organisations, Business Link is an independent agency that offers support to broker the relationship between employers (demand) and education and training providers (supply), and more crucially funding regimes.

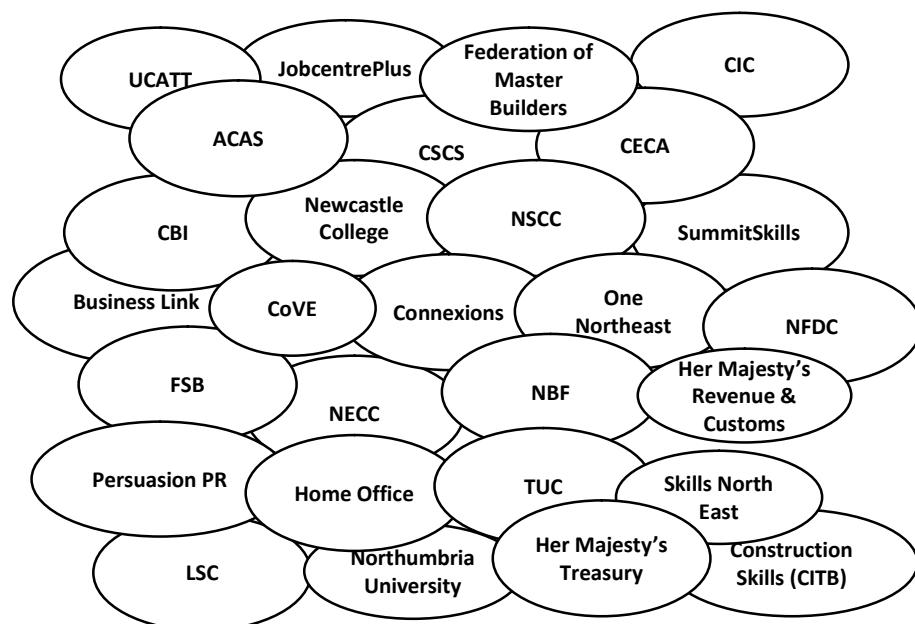


Figure 1: Myriad of organisations involved with skills in construction in the North East of England

The exploratory phase of this research has taken a year to complete. Within this time, it was observed that organisations involved in skills constantly evolve and grow. Even the government department that is charged with formulating skills policy (then Department for Education and Skills, DfES) have split to become the Department of Innovation, Universities and Skills (DIUS), and Department for Children, Families and Schools (DCFS). To exacerbate the situation, the diversity of the sector meant that six Sector Skills Councils are charged with coordination of skills development for the construction industry. These include Construction Skills, Summit Skills (for building services engineering), Asset Skills (for housing, property and facilities management), Energy and Utilities Skills, Proskills (for materials, products and manufacturing) and LANTRA (for environmental and land-based sector). Together with the Engineering Construction Industry Training Board (ECITB), these sector skills councils form part of the Built Environment Skills Alliance. Needless to say, there is immense confusion as to who drives skills development from a policy-making perspective. It is therefore unsurprising that employers interviewed during the exploratory phase have expressed dissatisfaction with the lack of clear answers given by Business Link.

The ever-increasing number of organisations involved in skills development also gives rise to growing bureaucratisation of the formal education and training system. So, for instance, whereas the DfES would formerly be charged with formulating and implementing skills policies, this is now undertaken by DIUS and DCFS. Such bureaucratisation leads to frustration by anyone who wishes to engage with the skills development agenda on two counts. First, in making decisions about how best to invest in skills development, one would have to navigate through additional layers of information. Second, increasing bureaucratisation adds to administrative burden on employers who wish to gain access to funding regimes. This can be highly inefficient because resources that could be allocated to development of skills are now channelled towards such activities as form-filling and second-guessing shifts in government policies. This has been recognised in the governance literature as depoliticisation of the role of government, where governments do less in terms of actual provision whilst retaining power to control the system (Burnham, 2001).

In controlling the system, the efficiency agenda appeared to be the prevailing concern for the government agencies interviewed. Skills development practices are desirable insofar as they are cost-effective to do so. On the one hand, government skills policies espouse the need to upskill the workforce beyond Level 2 (Leitch, 2006), whilst this is not matched with funding availability on the other. Elsewhere, we have argued that funding regimes can influence skills development behaviour; as such, there is the danger that skills development takes place in areas not connected with what really needs to be done (Moehler *et al.*, 2008). So, despite discontent with the qualifications framework and criticisms of the rudimentary standard of Level 2 training (Grugulis, 2003b), because full funding is available for Level 2 training, education and training providers are likely to flourish in such provision. Employers who are able to access such funding will be seen to be engaging in skills development, whilst others will simply look elsewhere to meet their skills shortages.

We have come across a number of examples of how some employers particularly small to medium sized firms (SMEs) have actually sought solutions from outside the formal education and training system. Some of these examples have been acknowledged in the literature including recruitment of retired time-served crafts labour to act as mentors for younger unskilled/semi-skilled employees and on-the-job training and improvisation (IFF, 2003). Another employer who became increasingly frustrated in navigating the complexity of the British system actually paid for his workforce to undertake traditional crafts training in

France. Indeed, from our observations, it was noted that there is a contrast between the demands of the formal and informal system of skills development. Formally, policy-makers and public institutions are concerned with such issues as high completion rates, the eradication of unemployment and the perpetuation of key skills and Level 2 agenda. Consequently, there is an obsession with quantitative measurement of performance, and greater emphasis placed on outputs rather than outcomes. On the contrary, employers are more interested in sustaining harmonious working at the workplace and juggling skills development needs of their workforce with the pressures of maintaining order books and delivering projects on time (Raidén and Dainty, 2006). For employers, the qualifications framework and the quantitative outputs of completion rates and Level 2 competence make relatively little sense when compared to qualitative outcomes of getting the job done.

The literature has often derided employers for ‘fit for purpose’ approach to skills definition and development. Grugulis (2007), for instance contrasted between accepted wisdom of what constitutes skills and what employers desire: “Technical and professional expertise may be the produce of politics and consensus, but it is generally agreed by professional bodies, educationalists or experienced and expert workers [...] Soft skills, in marked contrast to this, are defined by the employer who also specifies how they should be demonstrated and the means by which they may be assessed (p. 89).” Yet, the employers we interviewed were in fact concerned with the technical and professional skills, which they cannot seem to get satisfaction from the education and training system. Instead, the employers we interviewed are increasingly pushed into seeking ways outside the formal system to develop the skills of their workforce to achieve technical proficiency, which they consider to be what’s best for their clients. Therefore, disconnected agendas between the formal and informal requirements of skills development can be observed in our research to date, and these are illustrated in Figure 2.

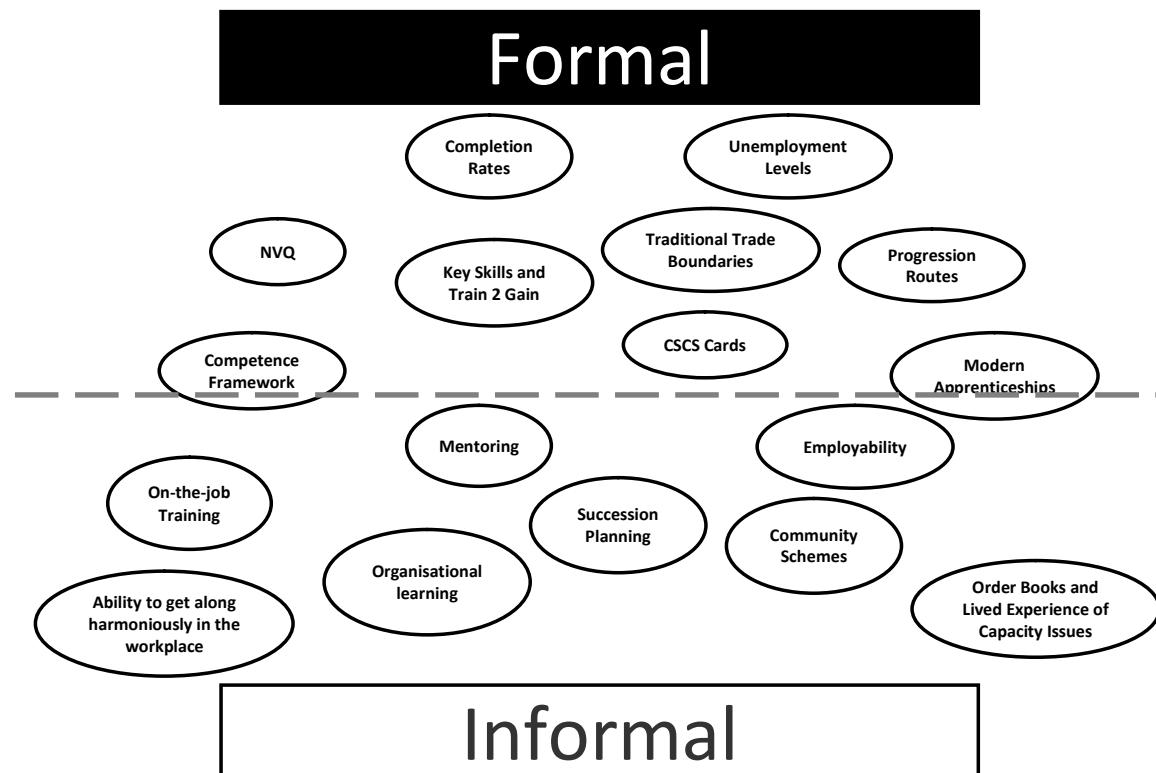


Figure 2: Disconnected agendas between formal and informal requirements of skills development

Such disconnections arise because of different emphases and priorities that are *institutionalised* within each system. On the one hand, the formal system is driven by funding allocation by central government, which in turn leads to the close monitoring of such quantitative measures as number of qualifications achieved and completion/retention rates. The success of the formal system tends to be determined by fulfilment of these targets, which often drive behaviour of those that benefit from government funding (e.g. government agencies, educational institutions, third-party brokerage services). Employer engagement often occurs with employer representation (e.g. the CBI, FSB etc.) rather than employers themselves. Employers, especially the SMEs who lack resource capacity to train, often find it difficult to access government funding for skills development, and are anyway more concerned with how the (quality of) skills can help ensure the continuity of production. As a result of the inadequacy of the VET system, these employers will look elsewhere to meet the skills gaps and shortages. These could include informal skills development at the workplace, or even accessing skills from abroad through migrant worker employment.

CONCLUSIONS

The concept of skills will always remain a contentious area of policy-making since its definition and impacts continue to be contested. Of course, the government through its institutions and policies can help provide greater clarity and support to industry in any endeavour to upskill the workforce. However, the UK is increasingly characterised by a growing number of (fragmented, even fractured) government institutions and agencies in promoting the skills development agenda. Notwithstanding the laudable attempts of the Leitch (2006) review, the old adage of the mind being strong but the flesh being weak rings true. It has been observed that the plethora of organisations involved in skills development adds to increasing bureaucratisation, which in turn leads to greater administrative burden on the part of employers and growing frustration and confusion of what the formal education and training system can offer. The result is a detachment between the agendas of the formal system determined by quantitative performance measures of completion rates and achievement in competence and the informal, socialised system at the workplace where employers simply want their workforce to get the job done to the client's requirements. The disconnection of agendas is reflected in employers' confusion of the qualifications framework and what this represents. As a result, some employers find themselves having to 'go it alone' and seek for solutions elsewhere. The idea that employers do not engage with skills development is potentially a red herring. Unless the formal system recognises what truly needs to be developed, skills development will continue to be met informally at the workplace. The challenge for the future then is to seek answers to the question as to how the formal system can cater for informal skills development practices at the workplace, rather than to simply demand for employer engagement.

REFERENCES

- Becker, G. (1964; 1993) *Human capital: a theoretical and empirical analysis, with special reference to education*. 3rd Ed. Chicago: University of Chicago Press.
- Beckingsdale, T. and Dulaimi, M. F. (1997) *The Investors in People standard in UK construction organisations*. CIOB construction papers, 9 – 13.

Bell, E., Taylor, S. and Thorpe, R. (2002) A step in the right direction? Investors in People and the learning organisation. *British journal of management*, **13**, 161 – 171.

Blenkinsopp, J. and Scurry, T. (2007) “Hey GRINGO!” the HR challenge of graduates in non-graduate occupations. *Personnel review*, **36**(4), 623 – 637.

Bloom, N., Conway, N., Mole, K., Mösllein, K., Neely, A. and Frost, C. (2004) *Solving the Skills Gap: Summary Report from a CIHE/AIM Management Research Forum*. London: AIM.

Braverman, H. (1974) *Labour and Monopoly Capitalism*, MRP.

Broadberry, S. and O’Mahony, M. (2004) Britain’s productivity gap with the United States and Europe: a historical perspective, *National Institute Economic Review*, **189**, 72 – 85.

Burnham, P. (2001) New Labour and the politics of depoliticisation. *British journal of politics and international relations*, **3**(2), 127 – 149.

Chan, P. and Moehler, R. (2007) Developing a ‘road-map’ to facilitate employers’ role in engaging with the skills development agenda. In: Boyd, D. (Ed.) *Proceedings of the twenty-third ARCOM conference*, 3 – 5 September 2007, Belfast, UK, Association of Researchers in Construction Management, 409 – 419.

Clarke, L. (1992) *The building labour process: problems of skills, training and employment in the British construction industry in the 1980s*. Occasional Paper No. 50, CIOB, Englemere.

Clarke, L. and Herrmann, G. (2004) Cost vs. production: disparities in social housing construction in Britain and Germany. *Construction management and economics*, **22**, 521 – 532.

Clarke, L. and Winch, C. (2004) Apprenticeship and applied theoretical knowledge. *Educational Philosophy and Theory*, **36**(5), 509–21.

Cockburn, C. (1983) *Brothers: male dominance and technological change*. London: Pluto Press.

Construction Skills (2008) *Blueprint for UK construction skills 2008 to 2012*. Kings Lynn: Construction Skills.

Dainty, A. R. J., Ison, S. G. and Root, D. S. (2005) Averting the construction skills crisis: a regional approach. *Local Economy*, **20**(1), 79–89.

Department of Business Enterprise and Regulatory Reform (2007) *Construction statistics 2007*. London: BERR.

Druker, J., White, G., Hegewisch, A. and Mayne, L. (1996) Between hard and soft HRM: human resource management in the construction industry. *Construction management and economics*, **14**, 405 – 416.

Forde, C. and MacKenzie, R. (2007) Getting the mix right? The use of labour contract alternatives in UK construction. *Personnel review*, **36**(4), 549 – 563.

- Groen, J. A. (2006) Occupation-specific human capital and local labour markets. *Oxford economic papers*, **58**(4), 722 – 741.
- Grugulis, I. (2003a) Putting skills to work: learning and employment at the start of the century. *Human resource management journal*, **13**(2), 3 – 12.
- Grugulis, I. (2003b) The contribution of National Vocational Qualifications to the growth of skills in the UK. *British Journal of Industrial Relations*, **41**(3), 457–75.
- Grugulis, I., Vincent, S. and Hebson, G. (2003) The rise of the ‘network organisation’ and the decline of discretion. *Human Resource Management Journal*, **13**(2), 45–59.
- Grugulis, I., Warhurst, C. and Keep, E. (2004) What’s happening to ‘skill’? In: Warhurst, C., Keep, E. and Grugulis, I. (Eds.) *The skills that matter*. Hampshire: Palgrave Macmillan. pp. 1 – 19.
- Grugulis, I. (2007) *Skills, training and human resource development*. Hampshire: Palgrave Macmillan.
- Harvey, M. (2001) *Undermining construction: the corrosive effects of false self-employment*. London: The Institute of Employment Rights.
- IFF Research (2003) *The effect of employment status on investment in training*. CITB and Department for Education and Skills (DfES).
- Leitch, A. (2006) *Prosperity for all in the global economy: work class skills*. Final report. December. Norwich: HMSO.
- Mackenzie, S., Kilpatrick, A. R. and Akintoye, A. (2000) UK construction skills shortage response strategies and an analysis of industry perceptions. *Construction management and economics*, **18**, 853 – 862.
- Moehler, R., Chan, P. and Greenwood, D. (2008) The interorganisational influences on construction skills development in the UK. In: Dainty, A. R. J. (Ed.) *The twenty-fourth ARCOM conference*, 1 – 3 September 2008, Cardiff, UK, Association of Researchers in Construction Management, in press.
- Raidén, A. B. and Dainty, A. R. J. (2006) Human resource development in construction organisations: an example of a “chaordic” learning organisation? *The learning organisation*, **13**(1), 63 – 79.