CPD AND WORK-BASED LEARNING FOR CONSTRUCTION MANAGERS: IS IT ACCESSIBLE?

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Various reports have advocated the implementation of Continuing Professional Development (CPD) and work-based learning (WBL) for construction managers as a means of improving the standards of management in the construction industry. Frequently recommendations advocate the use of information and communications technology (ICT) for the delivery of such systems. However, little attention is often given to the question of whether or not construction managers either have access to the requisite ICT required for access to on-line CPD and WBL systems or the encouragement to do so. This research investigates the nature of ICT access available to construction managers and the level of encouragement those managers receive to undertake CPD and WBL. Statistical analysis of a postal survey of the top 150 construction companies in the UK revealed that both access to ICT and encouragement to undertake CPD and WBL was widely variable and not routinely embedded in construction company policy and strategy. This has widespread implications for those designing and running on-line CPD and WBL courses for the UK's construction managers as they may have limited access and encouragement to undertake CPD and WBL.

Keywords: continuing professional development, work-based learning, construction managers, construction companies.

INTRODUCTION

Since the Second World War there have been no less than ten major government reports on the construction industry, its working practices and how they and ultimately industry efficiency might be improved (Simons 1944, Phillips 1950, Emerson 1962, Banwell 1964, Phelps Brown 1968, Wood 1975, Latham 1994, Egan 1998, Fairclough 2002 and Egan 2002). During this period the industry has often been denigrated by successive governments, other industries and even the general public at large for its poor performance and low productivity (e.g. Hillebrandt 1984 and 2000, Ive *et al.* 2000, Blake, Croot and Hastings 2004, Barrett and Lee 2008). At the same time it is also recognised that the lack of education, training and development amongst the workforce, including managers, is a significant contributor to the industry's poor performance and productivity (Latham 1994). However, it is not until the 1998 Egan Report that the contribution that education, training and development of those employed in the construction industry is identified explicitly in these reports, although the relationship between the levels of education, training and development of staff in organisations and the organisations levels of performance and profitability has long been recognised (Bruce, 1984).

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A key link that affects both an organisation's adoption and acceptance of education, training and development and that organisation's performance and profitability is the level of ICT within the organisation, a link that is often overlooked (Fox, 2007). The adoption of the internet for the delivery and support of internet-based learning for both CPD and work-based learning is becoming widely adopted and embedded in other industries where the benefits are now recognised and accepted (Brosnan and Burgess, 2003). In contrast, Pearce (2003) highlights the lack of investment by the construction industry in both its human capital and ICT and consequently the potential for long-lasting damaging consequences not only for the construction industry itself, but for the UK economy as a whole.

Against this background this paper presents selected findings from a larger investigation into management education, training and development of construction managers and their access to ICT in the workplace to support education, training and development through CPD and WBL. This paper also seeks to contribute to the wider debate around these issues.

RESEARCH QUESTIONS

Four research questions were identified as being pertinent to either promoting or impeding possible improvements to standards of education, training and development of construction managers that in turn will impact upon improving efficiency and profitability and the construction industry:

a) Reasons for undertaking staff development

b) Preferences for staff development activities

c) Reasons for not undertaking staff development

d) Accessibility and use of ICT by construction managers

RESEARCH METHOD

To establish the extent that CPD for construction managers is embedded in the workplace a postal survey of the UK's top 150 companies (by financial turnover) was undertaken as these were believed to be the most likely to have established staff education, training and development arrangements. To select the companies for survey a list was compiled from published industry league tables in 'Building', 'Contracts Journal' and the 'Top Companies' website. This resulted in a consolidated list of 187 construction companies survey. From this list the trading addresses of these companies was obtained through internet searches for the companies' websites and contact details. Of these 187 identified companies 38 were found to have either merged with other companies, been taken over or ceased trading, leaving 149 companies for survey.

A high response rate was not expected as Easterby-Smith, Thorpe and Lowe (1991) suggest that a response rate for postal questionnaires in industry of 25-30% can be expected, whilst Bryman (1989) suggests 21-25% and Bryman and Bell (2003) suggest 18%, with Fellows and Liu (1997) suggesting an expected response rate of 25-35% for the construction industry.

Three rounds of surveys were undertaken to obtain a positive response rate of 31.69% in line with the above suggestions. However, out of the 149 identified companies a further seven were found to have either been taken over, merged or ceased trading with questionnaires being returned marked 'gone away' during this period, leaving a

nett total of 142 companies in the survey. From the 142 remaining companies 45 positive responses (31.69%) and 6 negative responses (4.22%) were received.

Analysis of data comprised either ranking of responses using relative importance indices or the Chi-square test for cross-tabulations of questionnaire responses undertaken using SPSS software.

Reasons for undertaking staff development

Eight questions (see Table 1), each of which was answered using a four-part Likert scale was used to determine the reasons for construction companies undertaking staff development activities for their construction managers. Responses were analysed and ranked using Relative Importance Indices (RI).

Preferences for undertaking staff development activities

Four questions (see Table 2), each of which was answered using a four-part Likert scale was used to the preferences of construction companies for undertaking staff development activities for their construction managers. Responses were analysed and ranked using Relative Importance Indices (RI).

Reasons for not undertaking staff development

Doyle (2003: 222) identifies a number of reasons given by companies for not undertaking staff education, training and development activities. These together with others given by Loosemore, Dainty and Lingard (2003: 258) form the basis of eleven questions to establish what the potential blockages to education, training and development of construction managers might be (see Table 3). Responses were analysed and ranked using Relative Importance Indices.

Accessibility and use of ICT by construction managers

Three questions, in two groups, focussed on the accessibility and use of ICT facilities, particularly the internet, by construction managers. The questions used were a) 'to what extent are your staff permitted to use the internet during working hours'; b) 'to what extent does your staff use the internet for work purposes?' and c) 'to what extent do you or would you encourage staff to use the internet for staff development purposes?'. Again, four-part Likert scales were used for each question with the responses being cross-tabulated in SPSS using the Chi-square ($\chi2$) test to test the null-hypothesis theory that there is no association between the responses to the questions.

RESEARCH FINDINGS

Staff development

The Relative Importance Indices for each set of responses shows a fairly narrow grouping (see Table 1) however, the highest relative importance revealed is the use of education, training and development by construction companies to overcome current skills/knowledge deficiencies amongst staff [RI = 76.11] and to maintain current effectiveness of skills and knowledge [RI =72.16].

Those situations dealing with meeting future needs and demands of the company fared less well, suggesting that the companies' focus tends to be on short-term/immediate needs, rather than on more strategic issues 'meeting anticipated future skills/knowledge deficits' and 'enabling staff to become effective in new roles' both having Relative Importance Indices of [RI = 71.11] and 'preparing staff for future roles' [RI = 70.45]. Dealing with 'past problems of skills/knowledge deficits'

received a Relative Importance Index of only [RI = 62.78], well below that of other situations, reflecting a tendency of construction companies to disregard what has past and not learn lessons from it.

Table 1: Reasons for undertaking staff development

Rank	Reason for undertaking staff development	Relative Importance Index (RI)
1	To overcome current skills/knowledge deficit	76.11
2	To maintain effectiveness of staff skills/knowledge in current roles	72.16
3	To enhance staff skills/knowledge in existing roles	71.59
4=	To meet anticipated future skills/knowledge deficits	71.11
4=	To enable staff to become effective in new roles (newly promoted)	71.11
6	To prepare staff for future career advancement (future promotion)	70.45
7	To widen staff skills/knowledge in existing roles	69.77
8	In response to past problems of skills/knowledge deficits	62.78

Preferences for undertaking staff development

This question sought to ascertain companies' preferences for linking staff training and development activities to meeting various needs. Using the Relative Importance Indices (see Table 2) it was found that companies attached most importance to staff development activities that met the organisation's needs [RI = 66.11], closely followed by staff development activities that would lead to professional qualifications [RI = 65.56]. Those staff development activities which would meets the employees' needs only were rated less favourably [RI = 53.49], whilst those activities which would accumulate credits towards academic qualifications were rated least [RI = 53.49].

Table 2: Linking of staff development activities to objectives

Rank	Preferences for linking staff development activities to:	Relative Importance Index (RI)
1	Meeting the organisation's needs only	66.11
2	Accumulating credits towards professional qualifications	65.56
3	Meeting the employee's needs only	53.49
4	Accumulating credits towards academic qualifications	52.33

Reasons for not undertaking staff development

The Relative Importance Indices have a high level of importance in each instance being grouped in the range of 84.66 to 99.43 (see Table 2), indicating there is generally a very strong consensus of opinion amongst the respondents. The highest ranked statement (1), rejected most strongly [RI = 99.43], is that 'our staff don't need developing', thus recognising the need that, above all other reasons, staff do need developing.

Table 3: Reasons for not undertaking staff development

Rank	Reason for not undertaking staff development	Relative Importance Index (RI)
1	If we develop staff they will probably leave and go to another employer who would pay them more.	84.66
2	Staff are too busy to undertake staff development	85.23
3	Staff development is too time consuming	86.93
4	Those needing to learn lack the skills to learn	87.50
5	We don't have the training resources available	89.77
6	Staff development is too expensive	91.48
7	Training is rejected by management, learners or the culture of the organisation	91.48
8	Staff development takes too long	93.18
9	There is a lack of potential in those needing to learn	94.32
10	It will stop and/or clash with other training	96.59
11	Our staff don't need developing	99.43

From the Relative Importance Indices ranked 2 to 6 there is clearly little reason for companies not to undertake staff development as the responses show that all staff are capable of learning, the development process does not take too long, it is not too expensive nor rejected in principle. The lowest Relative Importance Index [RI = 84.66] shows that companies are most concerned that if they develop staff they will then leave for another employer. A similar concern was also raised by Morby (2008). The second lowest Relative Importance Index [RI = 85.23] for 'staff are too busy to undertake staff development' provides a clear reflection of the strong task culture in the construction industry, with a dominant concern for production, rather than for people.

Accessibility and usage of ICT facilities

Two aspects are considered here: Question (a) 'to what extent are your staff permitted to use the internet during working hours' and Question (b) 'to what extent does your staff use the internet for work purposes?'.

The responses to the first question revealed that 47.67% of companies restrict the use of the internet during working hours for their staff, whilst a further seventeen companies (37.78%) claim to impose few restrictions on internet access. No company claimed that staff were denied access to the internet, whilst the remaining seven companies (15.56%) claimed that staff had unrestricted internet access.

A recent pan-industry study by Scott-Jackson *et al.* (2007) found that on average 73% of managers had full access to the internet at work compared to 52% in the construction industry, whilst 25% had restricted access compared to 48% in the construction industry.

The second question (b) revealed that twenty-four companies (53.33%) claim that staff made frequent use of the internet for work purposes, with a further sixteen companies (35.36%) claiming that staff made moderate use of the internet for work

purposes. Only one company (2.22%) claimed that their staff made little or no use of the internet, compared to four companies (8.89%) that claimed their staff made extensive use of the internet for work purposes.

A cross-tabulation of responses to the above two questions was carried out to determine the relationship between the permitted access to the internet for work purposes and the actual use made of the internet for work purposes. The null-hypothesis H0 tested here was that there is no association between the extent to which staff are permitted to use the internet and the extent to which it is actually used during working hours.

Using a four-by-four contingency revealed that no usable Chi-square Test results could be obtained as the table contained six cells with zero values. Using a consolidated two-by-two cell contingency table (see Table 4) yielded usable test results as all the cells met the criteria for a successful Chi-square test.

Table 4: Access and use of the internet

		To what extent is your staff permitted to use the internet during working hours?	
		None/Restricted	Few/No Restrictions
To what extent do your staff use the internet for work purposes	Frequent/ Extensive Use	10 (22.22%)	18 (40%)
	No, Little or Moderate Use	11 (24.44%)	6 (13.33%)

The Chi-square Tests results [$\chi 2 = 3.572$, $\rho = 0.059$], [$\Lambda = 3.610$, $\rho = 0.057$] and Fisher's Exact test [$\rho = 0.073$] show a statistical significance for the association that is just outside the accepted limit of $\rho < 0.05$. The Symmetric Measures confirm that the association between the variables is weak [φ and $V = 0.282$, $\rho = 0.059$] and [$Cc = 0.271$, $\rho = 0.059$]. Again it is confirmed that the weak association is just outside the accepted level of statistical significance of $\rho < 0.05$, therefore the null-hypothesis H0 can be accepted, but there is a small risk of a Type II error occurring.

Encouragement to Use the Internet for Staff Development

The previous questions and cross-tabulations considered the access and use of the internet work purposes. Here the companies' encouragement of staff to use the internet for staff development purposes was considered. The question (a) 'to what extent do you or would you encourage your staff to use the internet for staff development purposes' was cross-tabulated with question (c) 'to what extent does your staff use the internet for work purposes?'.

The null-hypothesis H0 to be tested is that there is no association between the extent staff are encouraged to use the internet for staff development purposes and the extent staff use the internet for work purposes. Question (c) establishes that twenty-four companies (53.33%) claimed to place few restrictions on staff using the internet for staff-development purposes. Only seven companies (15.56%) claimed to allow staff unrestricted access. Restricted access only is permitted by twelve companies (26.67%), whilst just two companies (4.44%) claim that they do not allow staff to use the internet for staff development purposes.

The four-by-four cell contingency table did not permit usable results to be obtained for the Chi-square Test. Using a consolidated two-by-two cell contingency table yields data that meets the criteria for a successful Chi-square Test.

Table 5: Access and use of the internet

		To what extent do you or would you encourage staff to use the internet for staff development purposes?	
		None/Restricted	Few/No Restrictions
To what extent do your staff use the internet for work purposes	Frequent/ Extensive Use	6 (13.33%)	22 (48.89%)
	No. Little or Moderate Use	8 (17.78%)	9 (20.00%)

The Chi-square Tests results [$\chi2 = 3.242$, $\rho = 0.072$], [$\Lambda = 3.194$, $\rho = 0.0074$] and Fisher's Exact test [$\rho = 0.101$] indicate that the association between the variables does not have a strong statistical significance as $\rho > 0.05$. This is confirmed by the Symmetrical Measures results [φ and $V = 0.268$, $\rho = 0.072$] and [$Cc = 0.259$, $\rho = 0.072$] which show a weak association the same statistical significance as the Chi-square Tests. Here the null-hypothesis H0 can be accepted with only a low risk of a Type II error occurring.

CONCLUSIONS

Staff development

This research has shown that staff development for improving education, training and development of construction managers is mainly driven by the need to mitigate current deficiencies in skills and knowledge that affect organisational performance. Such staff development that is provided is predominantly focussed on organisational needs rather than individual development needs. Even though there was a very strong recognition of the need for construction management staff development most companies were reluctant to undertake such development in the belief that if they develop their managers those managers would be more valuable to competitors and thus more likely to be tempted away, i.e. 'poached'. This attitude was exacerbated by the beliefs that construction managers are too busy to be released for work-based staff development and that work-based staff-development was too time consuming.

Implications of Using the Internet for Work

Here it can be surmised that most firms allow their staff to use the internet for work purposes (subject to usage policies that restrict the use of corporate ICT facilities for certain types of activities) as there is no discernable association between the degree of restriction placed on employees and the level of use made of the internet. Whilst some firms do allow unrestricted access to the internet, the majority do place restrictions on staff. The amount of use that is made of the internet will vary according to the nature of the employment. This has positive implications for management education, training and development as all managers should be able to have reasonable access to internet based learning resources, be that technical information, formal academic course material and other education and development material, including professional institutions and CPD activity logging. The assumption here is that firms accept education, training and development as being a

work or work-related activity, which, based on the responses to earlier questions would appear to be the case.

Implications of Encouragement to Use the Internet for Staff Development

Here it can be surmised that staff are generally permitted and encouraged by the firms to use the internet, within their company's terms and conditions of ICT usage, for staff development purposes. Thus, managers are able to access internet-based material, be it technical or educational in support of CPD and WBL, although it must be acknowledged that both access to the internet and encouragement to undertake web-based CPD and WBL does not necessarily mean that construction managers will necessarily do so. However, there are a significant number of firms that do not appear to exhibit any commitment to staff development either through the level of internet access permitted or through the level of encouragement given to make use of the internet. Without this commitment, it is difficult how these firms can begin to make the improvements that various reports state the industry needs to make.

It should be noted however, that although this survey was conducted during a period of 'boom' in the industry, rather than the recent onset of 'bust' many of these attitudes are not affected by industry cycles. It can therefore be concluded that unless there is a significant change in attitude towards education, training and development of construction managers in industry little contribution is likely to be made to improving the industry's performance and profitability as management standards in the industry are unlikely to significantly improve in the foreseeable future.

REFERENCES

Banwell, H (1964) *Report of the Committee on the Placing and Managing of Contracts for Building and Civil Engineering Work*. London: HMSO.

Barrett, P and Lee, A (2007) Introduction/Need for Change. In: Barrett P (ed.), *Revaluing Construction*. Oxford: Blackwell.

Blake, N, Croot, J and Hastings, J (2004) *Measuring the Competitiveness of the UK Construction Industry: Volume 2*. London: DTI.

Brosnan, K, and Burgess, R (2003) Web based continuing professional development - a learning architecture approach. *Journal of Workplace Learning*, **15**(1): 24-33.

Brown, H Phelps (1968) *Committee of Enquiry into Certain Matters Concerning Labour in Building and Civil Engineering*. London: HMSO.

Bruce, I (1984) 'Access and Recruitment to Management'. In Goodland, S. (ed.). *Education for the Professions: Quis custodie…?*. Guildford: SRHE and NFER-Nelson.

Bryman, A (1989) *Research Methods and Organisational Studies*. 2005 reprint edn., Abingdon: Routledge.

Bryman, A and Bell, E (2003) *Business Research Methods*. Oxford: Oxford University Press.

Doyle, C E (2003) *Work and Organisational Psychology - An Introduction with Attitude*. Hove: Psychology Press.

Easterby-Smith, M, Thorpe, R, and Lowe, A (1991) *Management Research - An Introduction*. London: Sage Publications.

Egan, J (1998) *Rethinking Construction: The Report of the Construction Task Force*. London: DTI.

Egan, J (2002) *Accelerating Change*. London: Rethinking Construction.

Emerson, H (1962) *Studies of Problems before the Construction Industries*. London: HMSO.

Fairclough, J (2002) *Rethinking Construction Innovation and Research: A Review of Government Research and Development Policies*. DTLGR: London: HMSO.

Fellows, R and Liu, A (1997) Research Methods for Construction. Oxford: Blackwell Science.

Fox, P W (2007) The Culture of the Construction Industry: Emergence, Recognition and Nature?. In: Dainty, A R J, Green, S, and Bagihole, B M (eds.) *People and Culture in Construction: A Reader*. London: Taylor and Francis.

Hillebrandt, P M (1984) *Analysis of the British Construction Industry*. Basingstoke: Macmillan.

Hillebrandt, P M (2000) *Economic Theory and the Construction Industry*. 3rd ed. London: Palgrave.

Ive, G, Gruneberg, S, Meikle, J and Crosthwaite D (2004) *Measuring the Competitiveness of the UK Construction Industry - Volume 1*. London: DTI.

Latham, M (1994) *Constructing the Team*. London: HMSO.

Loosemore, M, Dainty, A R J and Lingard, H (2003) *Human Resources Management in Construction Projects: Strategic and Operational Approaches*. London: Spon Press.

Morby, A (2008) For too long we've relied on firms like Laing to develop top managers. *Construction Manager*, 9th January 2008

Pearce, D (2003) *The Social and Economic Value of Construction: The Construction Industry's Contribution to Sustainable Development*. London: nCRISP.

Phillips (1950) *Phillips Report on Building - Working Party Report to the Ministry of Works*. London: HMSO

Scott-Jackson, W, Edney, T and Rushent, C (2007) *Realising Value from On-line Learning in Management Development*. London: CMI.

Simon, E (1944) *The Placing and Managing of Building Contracts*. London: HMSO

Top Companies (2003) *The Top 150 Building Contractors*. Plimsoll Publishing Ltd. (online). Available at: http://www.majorcompanies.co.uk/companies.asp?code=cs15 (Accessed 14/07/2006).

Top Companies (2003) *The Top 150 Civil Engineering Contractors*. Plimsoll Publishing Ltd. (online). Available at: http://www.majorcompanies.co.uk/companies.asp?code=cs25 (Accessed 14/07/2006).

Top Companies (2003) *The Top 150 House Builders*. Plimsoll Publishing Ltd. (online). Available at: http://www.majorcompanies.co.uk/companies.asp?code=cs50 (Accessed 14/07/2006).

Wood, S (1975) *The Public Client and the Construction Industries*. London: NEDO.