

Simplistic model for employee selection and evaluation in the UK construction industry

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Abstract

Several researchers perceive construction industry as a knowledge based, value creating sector of an economy. There is an emerging importance placed on the Human Resource Management in the construction industry, as one of labour intensive sectors of the economy. The issue of the critical role played by employees in fostering an effective construction business has often been overlooked over the years. Capacity of wealth creation of a company is based on the knowledge and capabilities of its people. Therefore the value addition is done to the organisations by installing such personnel knowledge into knowledge management systems that organisations create and use. This focus of the human resource as a strategic resource central will help organisations to achieve competitive advantage in business environment. It also represents an alternative way in which to understand employee selection and evaluation. Employee selection and evaluation practices can contribute significantly to the organisation gaining a competitive advantage. Hence it is very important to analyse and formulate a suitable set of competencies in a knowledge-centric industry such as construction. This research attempts to construct a simplistic model to help the industry practitioners to rank the suitability of a person for an assigned job based on their competencies. From a literature synthesis and informal discussions with experts, qualification and work experience are selected to form a simplistic model. This paper discusses scaling of selected competencies while highlighting the appropriate methodology for the undertaken research.

Keywords: Employee selection, Human intellectual capital, Qualification, Work experience, Research methodology

1. Background

The UK construction industry is one of the strongest in the world, with output ranked top amongst top global construction industries[1]. The industry contributes to roughly 8% of the national GDP and employs in excess of 1.8 million people[2]. Thus construction in the UK is considered as one of the pillars of the domestic economy, with its capability to deliver the most difficult and innovative projects, matches that of any other construction industry in the world [3]. Nonetheless there is a deep concern that the industry as a whole is underachieving. A

considerable amount of attention and effort has been directed in number of disciplines to address the industry's poor performance level. In light of this, it is increasingly being acknowledged that knowledge management can bring about the much needed innovation and improved performance in the UK construction industry [4, 5]. Furthermore several researchers perceive the construction industry as a knowledge based, value creating sectors of the economy [6, 7]. This affirms the transition of the construction industry from an asset-centric to a knowledge-centric business environment.

There is an emerging importance placed on the Human Resource Management in the construction industry, as one of labour intensive sectors of the economy, which is still considered to be an uncharted territory [8] within construction organisations. Nesan & Holt [9] argue that the issue of the critical role that employees play in fostering an effective construction business has often been overlooked over the years. According to Cooke-Davies [10], "it is people who deliver the projects and not processes and systems", which gains increased validity in the context of labour intensive construction industry. Hence it is prerequisite to define more appropriate and realistic employee selection and evaluation for the creation of knowledge-centric construction industry.

2. Importance of Intellectual Capital

Even though commentators tend to use different terminologies to explicate two types of organisational assets, commonly they can be divided into tangible and intangible assets. While tangible assets are referred as traditional or physical assets [11, 12], intangible assets are mostly referred as intellectual capital [13-17]. Despite the differences in the usage of terminology, many researchers believe in the importance of intellectual capital over the traditional tangible assets of an organisation.

According to Petty and Guthrie [17], the commonly held definition of intellectual capital is that offered by Organisation for Economic Co-operation and Development(OECD) which describes intellectual capital as the economic value of two categories of intangible assets of a company, organisational capital and human capital. Organisational capital refers to organisational infrastructure such as software systems, distribution networks, and supply chains. The term human capital corresponds to human resources, consists of education, competencies, values, attitudes and experience components [18]. Various other authors consider intellectual capital as the combination of human capital, structural capital and relationship capital. Interestingly, of these various categorisations of intellectual capital, human capital is regarded as the most valuable asset [19].

The advocates of the human capital approach emphasise that many of the assets that individuals bring to the organisation are intangible, premised in individual, tacit knowledge rather than the more explicit, explicated, formal, routine and standardised knowledge [18, 20, 21]. Capacity of wealth creation of a company is based on the knowledge and capabilities of its people [22]. Therefore the value addition is done to the organisations by installing such personnel knowledge into knowledge management systems that organisations create and use. This focus of the human

resource as a strategic resource central will help organisations to achieve competitive advantage in business environment. It also represents an alternative way in which to understand employee selection and evaluation.

The contemporary employee selection and evaluation is a complex decision-making process that has a means that places the right employees in the right jobs at the right time [23]. These are key human resource practices in any organisation which can contribute significantly to the organisation gaining a competitive advantage. Several researchers from the field of knowledge management consider that success of an organisation is formed by the interaction between individuals and several types of knowledge [24, 25]. Organisations frequently spend considerable resources making an effort to engage employees who are well suited to the positions that should be filled. Engaging employees may be subjected to the trial time, but in case of poor or disappointing employees, there are often substantial costs associated with the engaging, training, and firing before realising that an employee is inadequate. Therefore these painstaking decisions can be very significant at the beginning about whom to engage [26].

Individual competency is anything that an employee brings to a job or acquires along the way throughout a carrier that ultimately contributes to the success of entire organisation [27]. This includes relevant skills, knowledge, abilities, formal education and experience gained on the job. As a distinctive concept, a competency goes further to include any other demonstrable personal attribute that improves performance [27]. According to Cardy and Selverajan [28] competency model is considered as the set of competencies associated with a job or role in an organisation. Core of these competency models are built by determining the factors which are used as the basis for assessing the relative value of employee suitability. Criteria of competency models are influenced by strategic vision and mission goals which are again interrelated to organisational culture and leadership. Furthermore external environment and requirements derived from its dynamic nature also influence the selection criteria of a competency model.

Perhaps the dominant model to date is the development on generic competencies. The fundamental assumption behind generic competencies is that a set of characteristics necessary for success across organisational settings can be identified [28]. Hence it is very important to analyse and formulate a suitable set of generic competencies in a knowledge-centric industry such as construction. Perhaps, one way of looking at this is by understanding various 'human intellectual capital measures', which represents the areas where personnel knowledge can add value to an organisation to achieve competitive advantage in business environment. Hence, by analysing these 'human intellectual capital measures' a generic criteria for employee selection and evaluation can be formulated.

3. Human intellectual capital measures

The research and published literature on measuring and reporting intellectual capital has grown rapidly over the years. The current focus of intellectual capital research work is primarily concerned with the process of creating and managing intellectual capital and understanding of better measurement of intellectual capital. Measurement of intellectual capital is mainly

concerned with finding the best metrics to use for the purpose of measuring human intellectual capital. Skandia navigator/ value scheme developed by Edvinsson and Malone [20], the balanced scorecard by Kaplan and Norton [29], Sveiby's intangible assets monitor [30]; intellectual capital rating approach are few of them, currently being used under the intellectual capital measurement domain.

Leif Edvinsson, the chief architect behind Skandia's initiatives developed a dynamic and holistic intellectual capital reporting model, the *Navigator* with five areas of focus: financial, customer, process, renewal and development, and human capital. This new accounting taxonomy identifies the roots of a company's value by measuring hidden dynamic factors that underlie "the visible company of buildings and products" [20]. Here, human capital is considered as the combined knowledge, skill, innovativeness, and ability of the company's individual employees to meet the task at hand, which also includes the company's values, culture, and philosophy. The other important intellectual capital measurement system was proposed by Sveiby [30], which is based on three families of intangible assets: external structure (brands, customer and supplier relations), Internal structure (the organisation: management, legal structure, manual systems, attitudes, R&D and software) and individual competence (education and experience).

Another Intellectual capital measurement model is intellectual capital rating approach, which was developed by Intellectual Capital Sweden to enable firms to manage their intangible assets better and to give companies a practical tool to use when discussing, analysing and measuring intellectual capital [31]. It is originally based on ideas put forth by Sveiby [30] indicating a division in internal, external and market assets. The intellectual capital rating model contains three main areas of intellectual capital; organisational structural capital, human capital and relational structural capital. Once again the core of this intellectual capital model is the human capital. Based on these models various authors looked into different types intellectual capital measures to help organisations to strengthen and improve their competitive advantage by measuring and recuperating intellectual capital. Table 1 provides the list of measures used by various commentators to evaluate employee competence/human capital. This list only provides the concerned factors mentioned the researchers in their research article.

From this analysis is it evident that qualification and work experience are perceived as the most important factors in determining employee competence/human capital. Most of the authors on this area agree with the importance of these two factors and suggested other factors which would also help the organisation in improving its culture and competitive advantage. Few informal communications conducted with academics and industry practitioners suggest the same. Especially the employee selection and evaluation based on qualification and work experience is found to be very common in the practice. However, there is a concern over the class of qualification, decay of 'knowledge from qualification' over the years, relevance of the qualification, relevance of the work experience and relative importance of work experience to qualification. Having these in mind, this research proposes a simplistic model for competency based employee selection and evaluation in the UK construction industry.

Table 1: Sources of reference for various Human Intellectual Capital measures

	Armstrong and Baron [32]	Caddy [14]	Edvinsson and Malone [20]	Golec and Kahya [23]	Guthrie [33]	Kennedy and Dresser [27]	Petty and Guthrie [17]	Sveiby [30]	Turner and Cox [34]
Qualification	√		√	√	√		√	√	
Work experience		√	√		√		√	√	
Training and education	√	√	√	√				√	
Rewards and recognition		√							
Communication skills	√			√		√			
Innovative capabilities			√	√			√		√
Leadership qualities	√		√	√					√
Salaries and benefits		√						√	
Involvement in projects								√	
Value and attitude	√			√				√	
Loyalty			√						

4. Development of simplistic model for competency based employee selection and evaluation

Focus of this research is to propose a simplistic model to help the industry practitioners to rank the suitability of a person for an assigned job. As such, research intends to develop a simplistic model based only on easily observable major human intellectual capital measures, qualification and work experience. Furthermore, an additive model is found to be appropriate than a multiplicative model. Multiplicative model will result to zero ‘human intellectual capital’ without either qualification or work experience. To avoid this, an additive, simplistic model is proposed for this study. However, concerns such as class of qualification, decay of ‘knowledge from qualification’ over the years, relevance of the qualification, relevance of the work experience and relative importance of work experience to qualification are also incorporated into this model.

$$Y = r_1dQ + r_2cE$$

Where, Y = Human intellectual capital

r_1 = Relevance of the qualification

- d = Decay of ‘knowledge from qualification’ over the years
- Q = Qualification
- r_2 = Relevance of the work experience
- c = Relative importance/weighting of work experience to qualification
- E = Work experience

Here, Y is proposed to be measures in human intellectual capital units, only to assist the ranking of suitable personals. As shown in figure 1, human capital measures are dependent on several organisational characters and decision maker. Especially relevance of the qualification (r_1) and work experience (r_2) are very subjective and they are left for the management/decision maker for a suitable employee selection and evaluation. This research attempts to determine ‘decay of knowledge from qualification over the years’ (d) and ‘relative importance/weighting of work experience to qualification’ (c) to help the practitioners with easy and general decision making process. However, it is prerequisite to quantify qualification (Q) and work experience (E) to measure human intellectual capital. Other than the coefficients of work experience, it is easily quantifiable.

4.1 Qualification

Quantifying qualification is very important since qualification is considered as an independent variable in this model. The National Qualifications Framework (NQF) sets out the levels against which a qualification can be recognised in England, Wales and Northern Ireland. This is a widely accepted framework which illustrates the level and category of those qualifications, which have been accredited by the Qualifications and Curriculum Authority (QCA), which enable recognition of candidates' achievements and which facilitate career progression. Here, higher education qualifications are categorised into 5 levels in terms of their minimum amount of required credit at the point at which the qualification is awarded (QCA, 2007). The amount of credit attributed is based upon an estimation of the learning time, which it would take the average learner to achieve the specified learning outcomes. The tariff used to determine the relationship between learning time and credit is averaged at 10 hours (QCA, 2004). Hence, ‘credit requirements for each qualification’ can be considered as directly proportional to the ‘amount of required knowledge acquisition’ which enables scaling of qualifications against credit requirements. Following Table defines the credit requirements for major higher education qualifications of NQF. Details of other qualifications and incorporation of class of qualification are still to be explored in the first phase of the study to quantify qualifications and to scale them against credit definitions.

Table 2: Framework for higher education (FHEQ) qualifications and their credit definitions

Qualifications	FHEQ qualification levels	Credit definitions	Accumulative credit definitions
Doctorate	D	540	900
Masters Degree	M	180	540
Bachelors Degree	H	360	360
Diploma of Higher Education	I	240	240
Certificates of Higher Education	C	120	120

5. Research Methodology

This research is aimed to develop a simplistic model to measure human intellectual capital for employee selection and evaluation. This is largely a model development/theory building attempt by quantitative research methods using primary data gathered from employers' opinion. As discussed above, firstly it is important to quantify qualification (Q) and work experience (E) before estimating decay of knowledge from qualification over the years' (d) and 'relative importance/weighting of work experience to qualification' (c). As such this research is divided into three phases of data collection and analysis to develop this competency based model for employee selection and evaluation.

As shown in Table 3, the exploratory, first phase of the research focuses on quantifying qualification (Q) and work experience (E). Above mentioned guidelines will be assessed with expert opinion gathered from unstructured interviews to form an accepted scale of measurement. This qualitative, rich data is expected to provide guidance to understand the influence of different methods of scaling. The main, second phase of the research will concentrate on estimating d and c which are more quantitative. The details and scaling of qualification (Q) and work experience (E) will also be confirmed in this phase. For this a survey method would be more appropriate to collect quantitative data which would be analysed with regression analysis. In the third phase of the study, case study employer will be asked to rank a list of employees and the ranks will be compared to the ranks achieved from the list created from the usage of the constructed model. Significance of this ranking will be evaluated against 'degrees of freedom' to determine the level of significance, which would help the hypothesis testing in this phase. Since it is a model testing/theory testing phase, case study approach is more appropriate to improve the validity of this model in the UK construction industry.

Table 3: Research Methodology

Phase	Research type	Research method	Research techniques
1	Exploratory research	Expert opinion	Interviews and content analysis
2	Model development	Survey	Questionnaire survey and regression analysis
3	Model testing	Case study	Questionnaire and hypothesis testing

6. Conclusion and further research

Employee selection and evaluation practices can contribute significantly to the organisation gaining a competitive advantage. This research attempts to construct a simplistic model to help the industry practitioners to rank the suitability of a person for an assigned job based on their competencies. Person's qualification and work experience are selected as competencies by literature synthesis and informal interviews to construct this model. With the usage of an additive model and scaling of qualification based on accumulative credits, a simplistic competency based employee selection and evaluation model is formed. However, concerns such as class of qualification, decay of 'knowledge from qualification' over the years, relevance of the qualification, relevance of the work experience and relative importance of work experience to qualification are also incorporated into this model. Appropriate research methods and techniques are selected to build and test this model and to improve its validity for the use of the UK construction industry.

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