Conference Paper

A Critical Review of the Literature and Practice of Competency Modelling

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Abstract

Competency models are commonly practiced today in many organizations as they lead to significant human resource development that provides organizations with a competitive edge. Because of their immense importance, measurement and modelling of competencies has become an important research field. However, despite the extensive research, there are large research gaps regarding the empirical knowledge and applicability of competency models. This article presents a critical review of competency modelling literature and practice from the major perspectives (including applied, academic, and professional) in an attempt to shed additional light on the advantages and practices of competency modelling, as well as outlining current challenges in such a vibrant domain. The intention, in this article, was to build a coherent argument with an objective of illustrating the effective use, as well as deficiencies in this domain based on aggregated experiences of many authors across many years and settings. The author explicitly acknowledges that the approach for this critical review has many limitations, since it is experience-based rather than empirically based. Yet, it is believed that this article may provide a framework that can lead to a solid investigation of competency modelling with more rigor than they have been afforded to date.

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1. Introduction:
The What, Why, and How of Competency Models

In today's global and fiercely competitive world, many organizations find that the key to gaining a competitive edge is the ability of their workforce to maximize effectiveness. An organization, however, may find that determining whether its workforce possess the abilities critical for its success is difficult, as the behaviours necessary for effective performance vary from one organization to another and within organizations

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from one role to another (Lucia and Lepsinger, 1999). As such, many organizations have begun using competency models to help ensuring that current and future employees possess the necessary knowledge, skills, abilities, and other characteristics (KSAOs) that will allow the organization to achieve its strategic goals (Kerr, 1995), and to be used as a tool for selection, training and development, appraisal, and succession planning (Spencer and Spencer, 1993; Lucia and Lepsinger, 1999).

Dubois (1993, p.9) defines a competency model as "those competencies that are required for satisfactory or exemplary job performance within the context of a person's job roles, responsibilities and relationships in an organization and its internal and external environments". Throughout the past 25 years, the competency literature has presented competencies in generic form, in scales designed to cover behaviour in a wide range of jobs, and to be adapted for many applications (see for instance Dubois, 1993; Spencer and Spencer, 1993; Mansfield, 1996; Cooper, 2000; Markus, Cooper-Thomas and Allpress, 2005; Jackson; 2009).

In 1993, however, Spencer and Spencer have raised several cautions against using one of the generic competency dictionaries. Amongst those cautions are; firstly, generic competency dictionary scales are applicable to all jobs, thus are never precise. Many competencies in generic dictionaries might be irrelevant to any given job. Even where a competency is critical to a job, several scale levels may be irrelevant.

Secondly, generic competency dictionary scales represent only the 21 most common competencies. Meanwhile, most jobs require unique capabilities or characteristics that are poorly captured or not captured at all in the generic dictionaries. Unique competencies range from about 2 percent to more than 20 percent of a job, depending on the position studied. The generic competency scales are best adapted for typical managerial and sales positions, least well for preschool teachers or creative scientists. Many jobs require unique combinations of competencies used simultaneously. For instance, organization development consultants use a high level of self-control combined with moderate levels of conceptual or analytical thinking and high levels of influence skills in leading conflict resolution sessions.

Thirdly, higher levels on the scale are not necessarily better. The scales are arranged to reflect the intensity or complexity of expression of each competency. In most cases, someone performing at higher level on a scale will also be capable of performing the lower levels, however, someone performing at the higher level on the scale, my run into as many problems as someone performing at lower level. Therefore, it is important to determine the optimal level (for each job) on each competency scale.

2. Competency Modelling Paradigms/Approaches

The social scientific study of competency began in the early 1970s. The first competency model was developed in the early 1970s by the eminent psychologist David McClelland and others at a fledgling consulting firm called McBer and Company (McClelland, 1973 and 1976). The U.S. Department of State was concerned about the selection of junior Foreign Service Information Officers (i.e. young diplomats who represent the United States in various countries). The traditional selection criteria, tests of academic aptitude and knowledge, did not predict effectiveness of a Foreign Service Officer, and were screening out too many minority candidates.

Hence, the accumulation of a cumulative body of empirically supported competency literature has only started 25 years ago. Throughout the past 25 years, many researchers have contributed to the extensive literature concerned with competency modelling and reporting by studying a variety of job fields, such as engineering, management, scientific researching, as well as technical jobs (see for instance Barrett and Depinet, 1991; Bowen, Ledford, and Nathan, 1991; Dubois, 1993; Spencer and Spencer, 1993; Barrett, 1994; Lawler, 1994; Frazee, 1996; Mansfield, 1996; Marrelli, 1998; Catano, Cronshaw, Wiesner, Hackett and Methot, 1997; Cooper, 2000; Gatewood and Feild, 2001; Shippmann et al., 2000; Markus, Cooper-Thomas and Allpress, 2005; Jackson; 2009; Tripathi and Ranjan, 2009).

The competency literature covering this period can be classified into five major research paradigms, namely; behavioural, business, functional, educational and situational models. The studies cited in the literature, however, illustrate the worldwide empirical support for behavioural approach effectiveness.
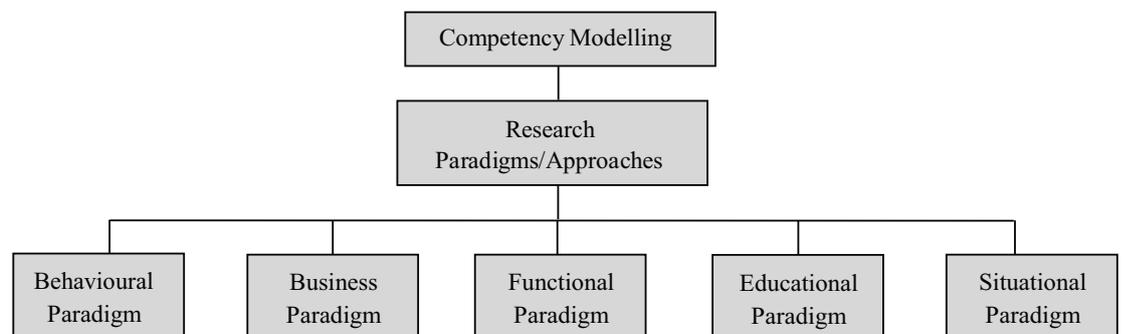

Figure 1: Framework for Competency Modelling Paradigms/Approaches.

2.1. The behavioural paradigm

The Behavioural paradigm (also known as the American or the Psychological Approach) was the first to be introduced to literature. Behavioural competency models are primarily based on outstanding performers, and were first triggered by McClelland (1973). Prominent researchers whose names are linked to the behavioural paradigm, such as McClelland, 1973; Spencer and Spencer, 1993; Iversen 2000; Markus, Cooper-Thomas, and Allpress, 2005; and Jackson, 2009 viewed competence as an independent variable comprising a range of underlying traits and skills, enabling management task performance and influencing management behaviour.

McClelland's work was to be enormously influential. Of particular interest was the idea that the factors or inputs associated with individual success could be identified, and then taught to others. McClelland and Boyatzis (1980) developed a methodology for identifying competencies, based on observing behaviours of recognized top performers within particular organizations. Later then, different researchers measured competence and performance differently using the "behavioural event interviews" method, "behavioural observation" method and "360-degree ratings" method (Iversen, 2000).

Over the last 30 years, a number of empirical studies have demonstrated the effectiveness and validity of the behavioural approach in competency modelling, which comprises: (i) The identification of criteria defining effective performance; (ii) the identification of a criterion sample group of superior performers and a comparison group of average employees; (iii) data collection through behavioural event interviews; (iv) the identification of competencies that distinguish superior from average performers; (v) the validation of the competency model; and (vi) the application of the model to a range of HRM functions (Spencer and Spencer, 1993).

Two empirical studies that followed this approach are worth mentioning. One of these studies was published in 2000 by Patterson, et al, and aimed at defining a comprehensive model of competencies that are required for the job role of general practitioner (GP). To achieve such an aim, three independent studies were conducted, these are: (1) behavioural events focus groups with GPs (N =35), (2) behavioural coding of GP–patient consultations (N = 33 consultations), and (3) behavioural event interviews with patients (N = 21). The data collected from the three studies provided strong evidence for a competency model comprising 11 competencies, with a summary of the associated behavioural descriptions. Example competencies included empathy and

sensitivity, communication skills, clinical knowledge and expertise, conceptual thinking, and coping with pressure. The competencies derived by this study imply that a greater account of personal attributes needs to be considered in recruitment and training, rather than focusing on academic and clinical competency alone.

The second study was published in 2005 by Dainty, et al. This study aimed at comparing the behavioural competencies of two functionally disparate sets of project managers operating within the construction industry. The first comprised those with overall responsibility for the on- site production function (i.e. production-focused project managers), while the second comprised client-focused project managers overseeing project activities on behalf of the procuring organizations. The behavioural competencies of both groups were evaluated using behavioural event interviews. A total of 40 superior performing project managers were behaviourally profiled. The behavioural event interviews were transcribed and then coded using the 'NVivo' qualitative data analysis package.

The findings reveal 11 competencies that are generic in nature and underpin effectiveness in the project management role, with one additional competency apparently determined by the particular job role context of the project manager. Comparisons are also drawn with the generic management competency models, which suggest the existence of a range of behaviours specific to the project management discipline. The identification of both generic and job-specific competencies for the project management role has potentially important impact on the way in which project managers are developed in the future.

2.2. The business paradigm

The Business paradigm (also known as the Organizational or the Competitive Advantage Approach) was introduced to the literature in the late 1980s when the concept of competencies was taken up by business strategists. This paradigm, which is based on the idea of "Core Competencies" has been much cited, and contributes to the current interest of many organizations in "competencies" (Shipmann et al., 2000). It is also important, however, to distinguish between two related but separate concepts: core competencies and workplace competencies.

Core competencies are organizational competencies (Cooper, 2000). Examples for core competencies include Canadian Ministry of Foreign Affairs adding "Leadership and Management" courses to its Ambassadors' training programs2. Core competencies can also be more generic with more quality oriented management style. On the other hand,

workplace competencies focus on individuals instead of the organization, and they vary by job position. Moreover, the unit of measure is people rather than business unit. Defining competencies at the individual level does not imply that group/organizational competencies are less relevant (DeSeCo, 2005).

2.3. The functional paradigm

The Functional paradigm (also known as the British Approach) perceives competence more as a list of tasks which one is expected to perform in a particular job role. It defines minimum levels of accepted performance on specific job/positions, and focuses on actual job outputs (Iversen, 2000; Jackson, 2009). This approach has dominated the competency work for the last couple of decades of the past century, and has been heavily criticized due to many problems above which is that work assignments/tasks are broken up into "fragments" that fail to reflect the actual work experience. Moreover, output competencies ignore process competencies. Accordingly, this approach would appear to have more limitations than behavioural approach.

2.4. The educational paradigm

The Educational paradigm (also known as the Occupational/Vocational Approach) is considered to be representing the modern competency movement, which originated from an educational discipline. While McClelland and Boyatzis (1980) described competencies, in a psychological approach, as a generic body of knowledge, motives, personality traits, self-images and social roles and skills, advocates of the educational paradigm defines competencies, on the basis of functional role analysis, as the statements of behaviour and attitude (excluding personality traits or beliefs) that are required for job role performance, and are typically assessed against commonly accepted standard/criterion (Markus, Cooper-Thomas, and Allpress, 2005; IBSTPI, 2009). Industry bodies especially those requiring technical skills, developed standards of occupational competence based on expected work outcomes.

2.5. The situational paradigm

The Situational Approach explores the factors that may influence the required competencies (Iversen, 2000). This approach was subject to a broad debate; on one side, some researchers claimed that situational factors vary dramatically that is impossible

to make a generic list of competencies that are relevant for most positions. On the other side, others believe that certain job types and levels share a general profile of competencies.

Le Deist and Winterton (2005) argued that one-dimensional frameworks/ approaches of competency are inadequate and are giving way to multi-dimensional frameworks. For example, functional competencies are increasingly being added to the behavioural competencies in the USA and UK, while France, Germany and Austria, entering the same arena, appear to be adopting a more holistic framework, considering knowledge, skills and behaviours as dimensions of competence.

Regardless of the paradigm/approach, a competency model should provide an operational definition for each competency and sub-competency, together with measurable or observable performance indicators or standards against which individuals are evaluated (Markus, Cooper- Thomas, and Allpress, 2005). Accordingly, the challenge is to develop a coherent framework of competence in a context where the particular strengths of all dominant approaches are considered.

3. The Competency Concept Revealed: Its Definition, Conceptualization and Relevance

Competency definitions are numerous and no clear consensus has been reached yet (Blömeke, Gustafsson, & Shavelson, 2015). The competency concept was first introduced by McClelland (1973) who argued that competency assessment should be developed as an alternative to academic-type intelligence testing, which was failing to account for successful performance, especially in high-level executive positions. After the publication of McClelland's article in the American Psychologist, numerous authors have shed their light on the competency concept.

This view was then strongly challenged by Barrett and Depinet (1991) on the grounds that intelligence tests were doing a good job and there was no evidence competency testing was any better. Nevertheless, empirical evidence showed that competencies did predict occupational success (McClelland, 1998). Furthermore, consulting companies, like McBer and Company, have completed dozens of studies showing that competency assessments predict success among high-level executives (Boyatzis, 1982), though many of these studies remain unpublished.

There is still, however, confusion and debate concerning the concept of 'competence' or 'competency' that it is impossible to identify a coherent theory or to arrive at a definition capable of accommodating and reconciling all the different ways that

the term is used (Heinsman, De Hoogh, Koopman, and Van Muijen, 2007; Le Deist and Winterton, 2005). In semantic terms, competence is seen as a work-related concept (the tasks at which a person must be competent), while competency is a person-related concept defining the behaviours underlying competent performance (Woodruffe, 1991). In spite of that, many authors consistently treat the two as synonymous (Brown, 1993) resulting in lots of different definitions.

Problems emerge, however, at the level of definition, depending on whether one was a psychologist, management theorist, HR manager, or politician; it took on different emphases (Ruth, 2006). In 2009, the International Board of Standards for Training and Performance Instruction (IBSTPI) defines a competency as "a knowledge, skill, or attitude that enables one to effectively perform the activities of a given occupation or function to the standards expected in employment". The National Center for Education Statistics (NCES) of the US Department of Education defines a competency as "the combination of skills, abilities, and knowledge needed to perform a specific task" (Youn, Stepich, and Cox, 2006, p. 307).

The definitions by IBSTPI and NCES, suggest that a competency includes both means and an end. Means comprise knowledge, skills, or abilities, and the end refers to an effective performance of the activities of a given occupation or function to the standards expected in employment. Obviously, the concept of competency loses its true meaning if the end is ignored (Youn, Stepich, and Cox, 2006).

The term competence can be defined on at least three levels. The first level involves an attribute of individuals [see for example the various definitions made by Boyatzis (1982, p. 23) as well as the one by Nordhaug and Grønhaug (1994, p. 91)]. In this view, competence is specified as the responsibilities and authorities of individuals together with their potentials. At the second level, the focus is the internal organization of resources, such as knowledge (systems), routines, procedures and production technologies. The definitions by Nordhaug (1993, p. 50), by Prahalad and Hamel (1990, p. 82), and the one by Roos and Von Krogh (1992, p. 424) are excellent examples of definitions at the second level.

At the third level, competence is viewed as an attribute of the organization, meaning that the unique combination of knowledge, skills, structures, technologies and processes enables a competitive advantage in relation to rivals. Lado and Wilson's (1994, p. 702) definition is representative for this level. This study focuses on the first level definitions, that is, on individual competences or attributes of individual diplomats. Exemplary definitions at this level (chronologically ordered) that share some common components are illustrated in Table 1.

TABLE 1: Chronological Order of Competency Definitions Evolution.

Author	Definitions
McClelland (1973)	Knowledge and skills, social role, self-image, traits, and motive. Knowledge and skills are 'threshold competencies' that are needed by all employees in order to be able to perform their jobs. Social role, self- image, traits, and motive are 'differentiate competencies' which superior performers have but average performers do not.
Boyatzis (1982, p. 20)	'An underlying characteristic of an individual which is causally related to superior performance in a job.'
Mirabile (1985, p. 31)	'Knowledge, skills, abilities and behaviours required for successful performance of job duties.'
Spencer and Spencer (1993, p. 11)	'An underlying characteristic of an individual that is causally related to criterion-referenced effective and/or superior performance in a job or situation.'
Dubois (1993, p.9)	Those characteristics- knowledge, skills, mindsets, thought patterns, and the like- that, when used singularly or in various combinations, result in successful performance.
Hartle (1995, p. 107)	'A characteristic of an individual that has been shown to drive superior job performance. It includes both visible competencies of knowledge and skills and underlying elements of competencies like traits and motives.'
Blancero, Boroski, and Dyer (1996, p. 387)	'Knowledge, skills, abilities, and other attributes required to perform desired future behaviour.'
Mansfield (1996, p. 718)	'Skills and traits that are needed by employees to be effective in a job.'
McLagan (1996, p. 61)	'Knowledge and skills that underlie effective performance.'
Marrelli (1998, p. 8)	'Measurable human capabilities that are required for effective work performance demands.'
Weinert (2001, p. 51).	'Those intellectual abilities, content-specific knowledge, cognitive skills, domain-specific strategies, routines and subroutines, motivational tendencies, volitional control systems, personal value orientations, and social behaviours [combined] into a complex system. '
Kurz and Bartram (2002, p. 230)	'Repertoires of capabilities, activities processes and responses available that enable a range of work demands to be met more effectively by some people than by others, and not as the behaviour or performance itself.'
Jackson and Schuler (2003, p. 161)	'A measurable pattern of skills, knowledge, abilities, behaviours, and other characteristics that an individual needs to perform work roles or occupational functions successfully.'
Shermon (2004, p. 11)	'An underlying characteristic of a person, which enables him to deliver superior performance in a given job, role or situation.'
Draganidis and Mentzas (2006, p. 53)	'A combination of tacit and explicit knowledge, behaviour and skills that gives someone the potential for effectiveness in task performance.'
Boyatzis (2008, p. 6)	'A capability or ability. It is a set of related but different sets of behaviours organized around an underlying construct, which we call the "intent". The behaviours are alternate manifestations of the intent, as appropriate in various situations or times.'

Author	Definitions
Koeppen, Hartig, Klieme and Leutner (2008, p. 61).	'Competencies are conceptualized as complex ability constructs that are context-specific, trainable, and closely related to real life'.
Tripathi and Ranjan (2009, p. 121)	'Competencies are not simply concrete actions that are easily imitated. Instead, competencies can be manifestations of some underlying intent driven by a person's basic personality, ability, knowledge and skills.'
Małachowski (in Xiong and Lee, 2011, p. 282)	'Demonstrated ability to apply knowledge and skills which can be used as a measure of someone's intellectual performance'.
Blömeke, Gustafsson, and Shavelson (2015)	A horizontal continuum since different aspects of competence is linked with one another, act in specific situations with one another and thus, lead to observable behaviour.

When comparing the above definitions, it becomes clear that there is no uniform idea with respect to the nature of competencies (Heinsman, 2008). Clearly there is a wide range of definitions of the term competency, even among a fairly homogenous expert population, underscoring the difficulty of pinpointing a standard definition of the term. Shippmann et al. (2000) claims that this lack of consensus should not be too surprising given the multiple domains in which the term 'competence' or 'competency' are prevalent.

While the above definitions first appear to lack congruence, there are three common components to these definitions. First, most of these definitions suggest that competencies are the characteristics that underlie effective or successful job performance; second, these underlying attributes must be observable or measurable; and third, these underlying attributes must distinguish between superior and other performers. Arguably then, the author concludes that competency is: "An underlying attributes that distinguish outstanding performers from others in a defined job context. Such attributes can be measured against certain standards and can be developed through training and development programs."

As such, competence is still a fuzzy concept. The same argument can be made in relation to the neglect of organizational culture and workplace context, since generic competences may not be transferable across different knowledge domains. Since competences are centred on the individual, they are viewed as independent of the social and task-specific context in which performance occurs, yet, skill level is a characteristic not only of a person but also of a context. People do not have competences independent of context.

4. Competency Modelling Practices

Throughout the years competency models have proved to be a critical tool in many organizational functions, such as workforce selection, succession planning, and performance appraisal (Draganidis and Mentzas, 2006). The main reasons of success of competency models include: 1) they can provide identification of the skills, knowledge, behaviours and capabilities needed to meet current and future personnel selection needs, in alignment with the differentiations in strategies and organizational priorities, 2) they can focus the individual and group development plans to eliminate the gap between the competencies required for a job and those available. Today, after years of introducing the first competency model, more than half of the Fortune 500 companies are using competency modelling.

4.1. Competency models versus job analysis

In the traditional approach, the job-analytic data provides the basis for a number of human resource functions (Frazee, 1996). Competency-based data has the potential for application to these same human resource functions including; recruitment and selection (Mitrani et al., 1992; Rowe, 1995), career planning (McCharen, 1996; Spencer and Spencer 1993; Lucia and Lepsinger, 1999), performance assessment (Sokol and Oresick, 1986; Spencer and Spencer 1993), training (Cobb and Gibbs, 1990; Phillips and Wallis, 1994), career development and succession planning (Dubois, 1993; Frazee, 1996; Wilson, 1995; Spencer and Spencer 1993).

Competency based approaches differ from traditional job analysis in several ways (Spencer and Spencer, 1993; Lawler, 1994). Job analysis focused on understanding tasks needed to perform each task; competency approaches, however, focused on personal characteristics needed for success in a job role. Job analysis also focused on effective performance, while competency approaches focused on outstanding performance. Finally, while job analysis often led to long lists of tasks and their associated skill requirements, competency approaches distilled the results of their studies into a relatively small set of underlying personal characteristics.

4.2. Competency profiling/modelling

A significant motivator for contemporary competency profiling is addressing the contentious issue of employability (Jackson, 2009). A competency model provides identification of the competencies which have been proven to be frequent predictors of successful job performance across different types of job roles, or are needed by employees to prepare for other jobs via promotion or transfer (Tripathi and Ranjan, 2009).

Competency modelling has attracted half a century of research and evaluation (Jackson, 2009). Competencies are the building blocks of competency models (Draganidis and Mentzas, 2006), and each competency in the model is defined using behavioural descriptors of proficiency levels. It is vitally important that profiling methodologies examine typical behaviours associated with identified competencies, thus facilitating effective quantitative analysis and also addressing ambiguity in the operational meaning of each competency (Jackson, 2009; Tripathi and Ranjan, 2009).

When asked to develop alternative methods of selection, McClelland and his colleagues decided that they needed to find out what characteristics differentiated outstanding performance in the position. They first identified contrasting samples of outstanding performers and average performers, by using nominations and ratings from bosses, peers, and clients. Next, the research team developed a method called the Behavioural Event Interview, in which interviewees were asked to provide detailed stories of how they approached several critical work situations, both successful and unsuccessful (McClelland, 1976).

To analyse the data from the interviews, the researchers developed a sophisticated method of content analysis, to identify themes differentiating the outstanding performers from the average performers. The themes were organized into a small set of "competencies," which the researchers hypothesized were the determinants of superior performance in the job.

From this initial study, the McBer team developed a methodology that dominated the practice of competency model building for the next 10-15 years. Key insights from the initial study are still highly useful in competency model building today; such as the focus on outstanding performers, the use of behavioural event interviews, thematic analysis of interview raw data, and distillation of the results into a small set of competencies described in behaviourally specific terms.

In 1999, Lucia and Lepsinger book The Art and Science of Competency Models was published introducing two general approaches for developing competency models. The first approach implies starting from scratch using data collected internally, from

interviews, focus groups, or on-the-job observations with job incumbents. The data are also analysed internally to identify the competencies seen as significant to effective performance. This approach is appropriate for developing a competency model for any job, function or role in the organization. It is time consuming but yields results that are organization-specific.

Another fast-track second approach for competency model building was highlighted, in which researchers start with an existing validated competency model. Such a model can be used as a starting point for developing a competency model for an organization. This off-the-shelf approach supplants extensive interviews of incumbents on the job. It may save time on data collection and analysis and on validating a model, but the functions and roles appropriate for it are limited, because it is generic and not developed with a specific job or position in mind. It may not address the technical skills and knowledge required for the job or position that is being considered. Generic Models are best suited for leadership and management roles that cut across several functions and for positions that require limited technical skills and knowledge.

Given the fact that most working organizations display a variety of different job types, Mansfield (2000) described three different job competency models. Firstly, the 'single job' competency model focuses on one job. Data are collected from focus groups held with job incumbents and/or their managers, and from interviews with job holders, and are categorized into a list of 10 to 20 traits or skills. This list is used to identify the specific behaviours that describe effective performers.

Recently however, in 2009, Tripathi and Ranjan claimed that while using single-job competency models will get you the best fit between competencies and job requirements, the time and resources needed to develop these highly-customized models for a wide-range of jobs can be quite excessive. Secondly, the 'one-size-fits-all' model defines a set of competencies for a broad range of jobs. Instead of gathering data, a group of individuals selects competencies from available competency models, which they believe are necessary to achieve the goals of the specific organizational unit. The strength of this approach lies in the applicability of the resulting model to a large number of employees within the organizational unit. In addition, the model's use is relatively quick and easy, compared with the single job model. The obvious disadvantage is that it does not describe the competencies that are needed in one specific job.

Thirdly, the 'multiple-job' model defines non-technical competencies that are assumed to be common to all jobs, as well as technical ones that are specific to individual jobs. Mansfield (2000) suggests that while most of these competencies

will be non-technical in nature, consideration should also be given to the technical competencies required to perform specific individual jobs.

Competency literature has reported different development practices for competency models, of which all the final outcome is essentially the same (i.e. identification of behaviours required to successfully perform a given role), the difference is, however, in the way of getting there. These approaches include:

The Job Competence Assessment Method which uses Behavioural Event Interviews (also known as Critical Incident Interviews) and observation of outstanding and average performers to determine the competencies (See Dubois, 1993; Spencer and Spencer, 1993; Lucia and Lepsinger, 1999 for extensive description of this approach).

The Generic Model Overlay Method, in which organizations purchase an off-the-shelf generic competency model for a specific role or function (Dubois, 1993; Lucia and Lepsinger, 1999). The Customized Generic Model Method, in which organizations use a tentative list of competencies identified internally to aid in their selection of a generic model and then validate it with the input of outstanding and average performers (Dubois, 1993; Lucia and Lepsinger, 1999). The Flexible Systems Method, which demands reflecting not only on what outstanding performers do now, but also behaviours that might be important in the future (Linkage Inc., 1997; Lucia and Lepsinger, 1999).

Therefore, the essence of the recent approaches to competence modelling is to analyse what competent job behaviour really is, and to describe it in behavioural terms (Nybø, 2004). This includes a systematic approach to the following questions: how to find the competencies needed in various value-creating processes in the organization? Which indicators should be used to measure these competencies? How to collect data about such competencies? Today, there is a rich and fast-growing literature on the subject (Mitrani et al., 1992; Dubois, 1993; Athey and Orth, 1999; Lucia and Lepsinger, 1999; Schippmann et al., 2000; Vazirani, 2010).

4.3. Competency as a predictor for performance: Individual versus organizational

Competency advocates promote the use of competency models for a variety of purposes, including selection, performance management, compensation, career management and succession planning (Spencer and Spencer, 1993; Gupta, 2005).

In the case of performance management, the use of competency assessments appears to be fairly widespread (McClelland, 1973; Spencer and Spencer, 1993; Gupta,

2005). Empirical evidence, however, about the effectiveness of competency models, assuming that it can be developed and, furthermore, that there is a link between its development and performance is still questionable (Ruth, 2006; Levenson, Van der Stede, and Cohen, 2006). Furthermore, even if competencies are related to job performance for individuals, it is unclear if the use of a competency system can improve organizational performance (Levenson, Van der Stede, and Cohen, 2006).

Levenson et al. (2006) also acknowledged the limited evidence confirming the use of competency systems for improving organizational performance, due to the influence of contextual variables, perceived as the leadership competencies for different work sites. Similarly, Grzeda (2005) claimed that competency modelling for accurately predicting enhanced performance is less suited to more complex for senior managerial roles, while more likely to satisfy the assumptions of identifiable outputs which underpin competency frameworks in the case of junior management positions.

Recently, Jackson (2009) indicated that one way to support the vital move of the purpose and benefit of competence modelling beyond the causal relationship between competency and performance is that competency profiling must also account for controlling factors such as employer motivations for recruiting graduates, organizational strategy, and sector type. Jackson also advocated the need for future researches to identify associated behaviours with each industry-required competency in a range of organizational environments. Empirical research should aim to identify behaviours for each competency to assure homogenous interpretation of the meaning of individual competencies and their application in the workplace.

Several authors also caution against using competency models for measuring or appraising certain areas of performance and providing developmental feedback based on these assessments. As such, the competency model developed to describe jobs or occupations and promotional opportunities should be shared with all managers and staff; employee participation in development of a competency model can assist with providing awareness of the model as well as create acceptance.

4.4. Best practices in competency modelling application

The concept of competency modelling has gone from a new technique to a common practice in the 35 years since David McClelland (1973) first proposed them as a critical differentiator of performance. In 1982, Boyatzis analysed the competence assessments of 2,000 US managers to determine which characteristics of managers are related to effective performance and how these different competencies interact and affect each

other. Boyatzis found that about half of the competencies in the generated model related to "effective performance of managers in particular management jobs in specific organisations" (p. 204). He believed that these generic competencies accounted for one third of the variance in management performance, another third by job and organizational specific management competencies, and the remaining third by situational factors.

Today, almost every organization with more than 300 people uses some form of competency-based human resource management, regardless of the claims made by Barrett and Depinet (1991) who indicated that McClelland and his associates have not been able to produce any professionally acceptable empirical evidence that their concept of competencies is related to occupational success.

In 2010, Vazirani presented the outputs of a field study that was accomplished by Hewitt Associates. They studied leadership development among 373 U.S. companies, 20 of which were labelled "Top 20 Companies for Leaders". The standout companies for leaders not only all have competencies in place, but successfully integrate the competencies into succession planning, pay formulas, and performance management. The table below presents the study outcomes.

TABLE 2: Integration of Competency Models by Companies for Leadership Development.

Competency-Relayed Characteristic	Top 20 Companies	Other Companies
Companies with Competencies	100%	73%
Companies that Integrate Competencies into Succession Planning	100%	78%
Companies that Measure Leader Performance Against Competencies	95%	69%
Companies that have Follow-Up Measures to Gauge Progress in Meeting Competencies	90%	65%
Companies that Use Competencies to Determine Long Term Incentive Pay	65%	23%
Companies that Use Competencies to Determine Annual Incentive Pay	60%	31%
Source: Vazirani (2010)		

In 2011, a group of researchers have investigated a set of 20 best practices in competency modelling and divided them into 3 areas: (a) analysing competency information, (b) organizing competency information, and (c) using competency information (Campion, et al, 2011). For each of the best practices, they provided explanation, recommendation, and then practical illustrations from the various organizations of the co-authors. The following table illustrates a summary of some of those 20 best practices.

TABLE 3: Best Practices of Competency Modelling over the Past Two Decades.

(A) Analysing Competency Information (Identifying Competencies)
1) Considering Organizational context by identifying competencies that align to corporate strategy and foster competitive advantage.
2) Linking competency models to organizational goals and objectives.
3) Using a combination of traditional job analysis and competency modelling methods to allow a highly robust approach to competency modelling.
4) Using 'future scenario' workshops to define alternative scenarios of the future-oriented job requirements, and then their competency implications are determined in a systematic manner.
(B) Organizing and Presenting Competency Information
5) Defining the anatomy of a competency in which competencies are described very thoroughly by including:(1) a label/title; (2) a definition of how the competency appears on the job in terms of behavioural indicators; and (c) a detailed description of the levels of proficiency on the competency
6) Using organizational language (this unique language may include acronyms, technology, job titles, business unit titles, products, and so forth).
7) Including both fundamental (cross-job) and technical (job-specific) competencies when developing competency models that span across jobs (i.e. multiple-jobs competency models).
(C) Using Competency Information
8) Using organizational development techniques (defined here as widespread involvement of organizational employees in the creation of the competency model) to ensure competency modelling acceptance and use.
9) Using competencies to develop human resources systems (e.g., hiring, appraisal, promotion, compensation) by many organizations worldwide (both governmental and non-governmental).
10) Using IT to enhance the usability of competency models (e.g. developing HR applications, which derive from the model, that is available electronically to organizational members.

5. Research Deficiencies in Competency Modelling Literature and Practice

Knowledge about professional competencies is currently a major research interest Because of their immense importance, measurement and modelling of competencies has become an important research field. However, despite the extensive research, there are large research gaps regarding the empirical knowledge and applicability of competency models.

As a final note on this critical review of the competency modelling literature and practice, it can be stated that since the introduction of the concept over thirty five years ago, competency modelling has been highly emphasized in the US literature. This is since McClelland research was originally based on preliminary results produced through surveying Foreign Service officers of the US State Department.

From the literature reviewed on competency in general and competency modelling in particular, the following research deficiencies were identified by the researcher. Firstly, with the majority of the prevailing studies on competency modelling based

on US culture, this makes a large portion of the literature on competency in general and competency modelling in particular mostly reflecting the US culture, thus less reliably applicable to other areas of the globe. As such, there is only very few studies focusing on competency modelling in non-western countries (such as the Middle East countries).

Secondly, the dominant proportion of competency studies existent in the literature is mainly concerned with exploring competency modelling approaches with little attention devoted to contextual factors affecting the selection of the proper approach, such as the kind of the organization, nature of the job/career domain or the culture in which job-holders are functioning.

This deficiency in considering contextual factors is reflected by the existence of a limited number of studies and theories addressing this issue. Moreover, and despite all this advancement in the realm of competency modelling research, five more criticisms have been made regarding the current status of the competency literature and practice.

Firstly, most competency studies have primarily focused on managerial/leadership competencies, with very little attention given to functional/job-specific competencies. Secondly, prior to 1991, there were few empirical studies investigating competency modelling. Thirdly, in contrast to applied research in competency modelling which is plentiful, basic research and theory on competency modelling remain in short supply. Fourthly, despite widespread application of competency models in measuring individual competencies, there are very few published studies of the empirical link between competencies and organizational performance. Moreover, although competency-based job performance is best studied "over time", there are not many empirical studies that are "longitudinal" in nature.

Finally, from the literature reviewed up to the date of this study, it shows clearly that although there has been world-wide research on competency modelling in many professions, there has been an evident lack of empirical studies on competency modelling exploring competencies that are relevant to particular jobs such as lawyers, diplomats, and vocational school teachers.

Competency models are now having their place in human resources practices. However, some competencies that can assist a person in being successful in their job or contributing to the competitiveness of an organization may be overlooked if the competency model solely is used to strategically select only staff that fit this model and do not rely on developmental resources to facilitate acquisition of competencies where a gap exists.

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