

Competency Definitions, Development and Assessment: A Brief Review

Shaw-Chiang Wong

Faculty of Art and Design, Raffles University, Johor Bahru, Malaysia, Lecturer, Faculty of Art and Design, Raffles University, Menara Kotaraya, level 9, Unit No: 09-01, Jalan Trus, 80000 Johor Bahru, Johor, MALAYSIA.

Email: wongshawchiang@raffles-university.edu.my

To Link this Article: <http://dx.doi.org/10.6007/IJARPED/v9-i3/8223>

DOI:10.6007/IJARPED/v9-i3/8223

Published Online: 24 September 2020

Abstract

Competencies have been used as valid predictors of superior on-the-job performance in business organizations over the last 40 years. An abundant of empirical evidence has suggested that competencies play important roles in human resource management (HRM) practices for different types of organizations. However, the important roles of competency have not been fully integrated into the business world, creating a gap between theory and practice. There seems to also appear a number of misperceptions with regards to the use of the term 'competency' in the literature. This paper intends to trace the origins of competency and document various definitions and concepts of competency proposed by different scholars. In addition, the paper also aims to shed light on the processes, guidelines, and techniques for developing competencies pragmatically for a particular job or profession as well as the importance of competency-based assessment in organizations for today's HRM practices.

Keywords: Competency, Competency Definitions, Competencies Development, Competency-based Assessment, Human Resource Management

Introduction: Origins of Competency

The term 'competency' has close relationship with a Latin word 'competentia' that means "is authorized to judge" or "has the right to speak" (Caupin et al., 2006, p. 9). This term has received a great deal of attention and interest among the psychologists in the first half of the 20th century, and this was reflected in the abundance of empirical studies in psychology field at that time (Shippmann et al., 2000). However, it was until 1970s when David C. McClelland, a Psychology Professor at Harvard University and founder of McBear and Company and later called the Hay Group (Vazirani, 2010), published a study titled 'Testing for Competence Rather Than for Intelligence' that led to the wide application and investigation of the term in various human resource management (HRM) practices and studies (Guerrero & De los Ríos, 2012; Rodriguez et al., 2002; van der Klink & Boon, 2002; Vathanophas & Thaingam, 2007). In the study, McClelland (1973) found that students might do well in their lives and careers just like the top students although they did poor in universities. He subsequently argued that traditional intelligence or aptitude tests and school grades are less accurate in

predicting either the job performance in the workplace or other important life outcomes. Instead, the underlying personal traits and enduring qualitative behaviours, or he called as 'competencies', could be used more effectively for the measurement and validation of the job performance of individuals and their successes in lives. In specific, McClelland (1973) proposed that it is desirable to measure not only the traditional cognitive skills and knowledge (e.g., reading, writing, and calculating skills), but also the personality variables "that are more generally useful in clusters of life outcomes" (p. 9) while determining the performance levels of individuals in the workplace. These variables include leadership, interpersonal skills, communication skills, ego development, patience, goal-setting ability, and so forth.

McClelland's (1973) idea on competencies has brought a substantive impact on HRM practices because it opened a fresh new perspective and initiated a movement for the investigation of more valid and reliable tools to predict the job performance of individuals in the workplace. Leading business organizations started using competencies for recruiting, selecting, developing, and managing the superior performers. In 1982, Boyatzis extended McClelland's (1973) idea and developed 'Job Competence Assessment (JCA) Technique' to identify the attributes that distinguish top performers from average performers in managerial context in the United States (Vathanophas & Thai-ngam, 2007; Omran & Suleiman, 2017). Since then, the idea of competency began to spread worldwide (Boyatzis, 1982; Simpson, 2002).

However, the important roles of competency have not been fully integrated into the business world, creating a gap between theory and practice (De Vos et al., 2015). There seems to also appear a number of misperceptions about the use of the term 'competency' in the literature (van der Klink & Boon, 2003). The subsequent sections of this paper aim to explore the various definitions and concepts of competency proposed by different scholars as well as to discuss the processes, guidelines, and techniques that can be used for developing competencies for a particular job or profession through literature review. The importance of competency-based assessment in organizations for today's HRM practices is also included.

The Misperceptions: Competency and Competence?

There have been many studies on competency development and assessment that focus on different fields and professions in various countries (e.g., Chung & Wu, 2011; Kang et al., 2015; Omran & Suleiman, 2017). However, the term 'competency' is a 'fuzzy' concept that can generate many confusions (Van der Klink & Boon, 2003; Le Deist & Winterton, 2005). This is especially the case when the term 'competence' (instead of 'competency') was used in some of the studies, but lack of clear explanation or elaboration about the rationale behind. Consequently, it gives a general sense that these two terms can be used interchangeably and that there is no distinction between them (Moore et al., 2002; Vazirani, 2010).

A review of literature suggested that 'competency' and 'competence' are two distinct 'approaches' to studies on HRM field. The first one is person-oriented behavioural approach. This approach commonly uses the term 'competencies' to refer to the behaviours or personal attributes supporting an area of work and is particularly influential in the United States. The second one is task-oriented functional approach. This approach, on the other hand, uses the term 'competence' more frequently for describing an area of work tasks or job outputs and is dominant in the United Kingdom (Moore et al., 2002; Vazirani, 2010; Woodruffe, 1991). Boak (1991) argued that both 'competency' and 'competence' complement each other. Burgoyne (1988) described 'being competent' as achieving the job demands or roles while 'having competencies' as demonstrating the essential behaviours for effective work performance.

Table 1

The comparison between 'competency' and 'competence'

Competence	Competency
Focus on the results	Focus on a person's behaviours
Describe the features of the area of work tasks or job outputs	Describe the attributes of the person
Constitute of the various skills and knowledge needed for performing the job	Constitute of the underlying attributes of a person for superior work performance
Not transferable as each skill and knowledge is more specific to perform the job	Transferable from one person to another
Assessed by performance on the job	Assessed in terms of behaviours and attitude
Task-oriented	People-oriented

SOURCE: YUVARAJ, R. (2011). COMPETENCY MAPPING – A DRIVE FOR INDIAN INDUSTRIES. International Journal of Scientific & Engineering Research, 2(8), 1-7.

As shown in Table 1, there are a few lines of distinction between 'competency' and 'competence'. However, people tend to use these terms interchangeably to fit their own research context and convenience (Vazirani, 2010). Zemke (1982) suggested that there was no single precise agreement about what is a competency and what is not, and that the term 'competency', 'competence', and other related ones "are Humpty Dumpty words meaning only what the definer wants them to mean. The problem comes not from malice, stupidity or marketing avarice, but instead from some basic procedural and philosophical differences among those racing to define and develop the concept and to set the model for the way the rest of us will use competencies in our day-to-day training efforts" (p. 28).

Definitions of Competency

Many scholars have offered their own understanding and definitions of 'competency' or 'competencies' based on the specific context in which the term is used. Table 2 gives a summary on a few definitions and concepts of competency proposed by different scholars in the literature over the past decades.

Table 2

A glimpse of the competency definitions by various authors

Authors	Year	Meaning and Definition
McClelland	1973	Competencies as the key components of performance related to "clusters of life outcomes" (p. 15). They can be interpreted as broad as any kind of psychological or behavioural characteristics related to success in a person's life.

Boyatzis	1982, 2008	Competencies are underlying characteristics that are causally related with the job performance of individuals. They can be trained during adulthood.
Spencer & Spencer	1993	Competencies are “motives, traits, self-concepts, attitudes or values, content knowledge, or cognitive or behavioural skills – any individual characteristic that can be measured or counted reliably and that can be shown to differentiate significantly between superior and average performers, or between effective and ineffective performers” (p. 4).
Page & Wilson	1994	Competencies can be defined as the skills, abilities, and personal characteristics needed by an ‘successful’ or ‘superior’ manager. However, this definition emphasizes on both the explicit (e.g., knowledge and skills) and implicit (e.g., personal attributes) detectable and testable competencies.
Parry	1996	Competencies are a set of interrelated knowledge, skills and attitudes that represents a key component of a person’s job role and responsibility, that associates with performance in a job, that can be measured against well-established standards, and that can be reinforced through training and development.
Chung & Lo	2007	Competencies are skills, knowledge, and capabilities that individuals should have possessed when completing assigned tasks or achieving the goals.
Draganidis & Mentzas	2006	Competencies are those direct and indirect skills and behaviours that allow individuals to perform given tasks or assigned roles effectively.
Athey & Orth	1999	Competencies refer to “...a set of observable performance dimensions, including individual knowledge, skills, attitudes, and behaviors, as well as collective team, process, and organizational capabilities, that are linked to high performance, and provide the organization with sustainable competitive advantage” (p. 216).

Obviously, based on Table 2, there is little consensus towards a universal definition of the term ‘competency’ (Hoffman, 1999; Strebler et al., 1997), and it is still subject to debate (Shippmann et al., 2000). Many stated that the meaning and definition of this term is in a state of constant flux because it differs according to the context in which it is used (e.g.,

Campion et al., 2011; Horng & Lu, 2006; Millar et al., 2008; Kay & Rssette, 2000; Tas et al., 1996). Nevertheless, competencies can be 'generally' described as a set of observable and measurable 'attributes' or 'success factors' required for individuals for effective work performance. As depicted in Figure 1, these attributes or factors may include: (1.) knowledge, (2.) skills, (3.) self-concept and values, (4.) personal traits, and (5.) motives (Campion et al., 2011; Spencer & Spencer, 1993). They can be generalized across a wide range of work-related settings (Boyatzis, 1982; Moore et al., 2002) and endure for some time (Guion, 1991; McClelland, 1973).

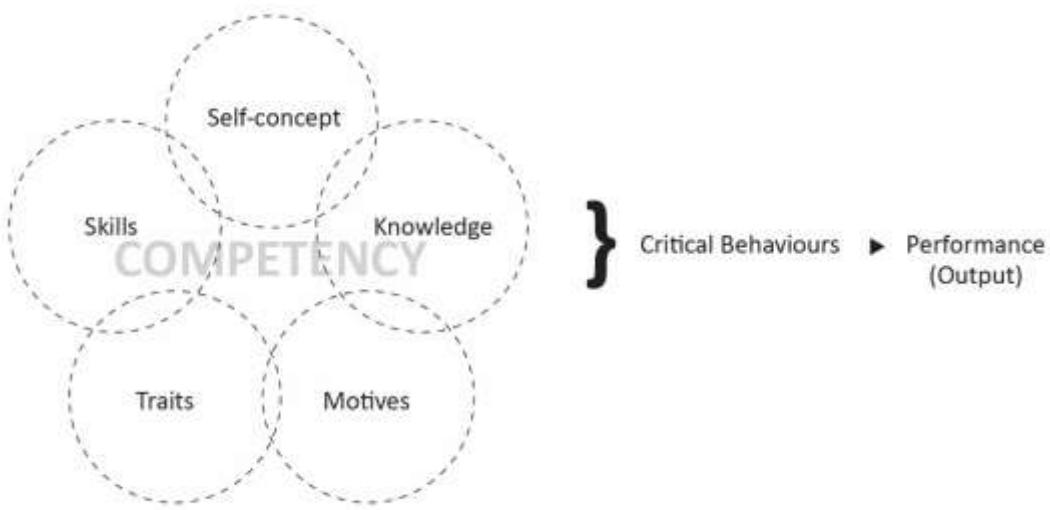


Figure 1. The general concept of competency. Adapted from: Chouhan, V. S., & Srivastava, S. (2014). Understanding competencies and competency modelling -- A literature survey. *IOSR Journal of Business and Management*, 16(1), 14-22.

On the other hand, some scholars classified competency based on specific dimensions or components according to their own theory and purpose of the study. Table 3 shows some of the classification patterns.

Table 3

Competency dimensions or components proposed by different scholars

Authors	Year	Dimensions or Components
Katz & Kahn	1966	Technical and functional competencies; managerial competencies; human competencies; and conceptual competencies
Carroll & McCrackin	1997	Core competencies; leadership / managerial competencies; and functional competencies
Boyatzis	2008	Cognitive competencies; emotional intelligence competencies; and social intelligence competencies
Prahalad & Hamel	1990	Organization-based competencies; individual-based competencies; technical competencies; and behavioural competencies
Ellström	1997	Perceptual motor skills; cognitive factors; affective factors; personality traits; and social skills
Kuijpers	2003	Functional competencies; learning competencies; and career competencies
Cheetam & Chivers	1996, 1998	Cognitive competencies; functional competencies; personal competencies; ethical / values competencies; and meta-competencies
Le Deist & Winterton	2005	Meta-competence; social competence; functional competence; and personal competence

One can develop or identify specific skills, abilities, behaviours, and knowledge needed for effective performance in a specific profession, work area or job position based on each of these competency classifications.

Competency Development: Processes, Guidelines, and Techniques

Competency development is an integral part of competency management (Campion et al., 2011; De Vos et al., 2015). Heinsman et al. (2006) defined competency management as an effective means that is commonly applied in organizations for selecting, classifying, and assessing individuals, managing their careers, developing them, and appraising their performance. Ellström and Kock (2008) stated that to develop competencies for specific work area or job position in an organization may bring many advantages for HRM practices in recruitment, promotion (e.g., career planning), and talents mobility (internal and / or external); education or training of talents, for instance by means of internal or external programs; and planned changes of tasks or work organization through different types of measures (e.g., job development, job rotation, team organization) with the objective of furthering informal learning in work.

Through using a ground-theory approach, De Vos et al. (2015) built an integrative model to show the different steps of competency development in organizations. As shown in Figure 2, the model illustrate how competency development is associated with organizational and social-economic context and other HRM practices. In the model, competency development is an integral part of competency management which consists of several steps. Personal development plan (PDP) is considered as a key element in the model because it establishes the groundwork of the overall competency development process. To develop the competencies, it is necessary to go through the process of training, on-the-job learning, and career management. The employability of the individuals will increase as a result. It is important to note that as the organizational and socio-economic context continue to change, there is a continuous need to conduct competency assessment to identify or determine the new competencies. In other words, “the process of competency development is a never-ending story” (De Vos et al., 2015, p. 10).

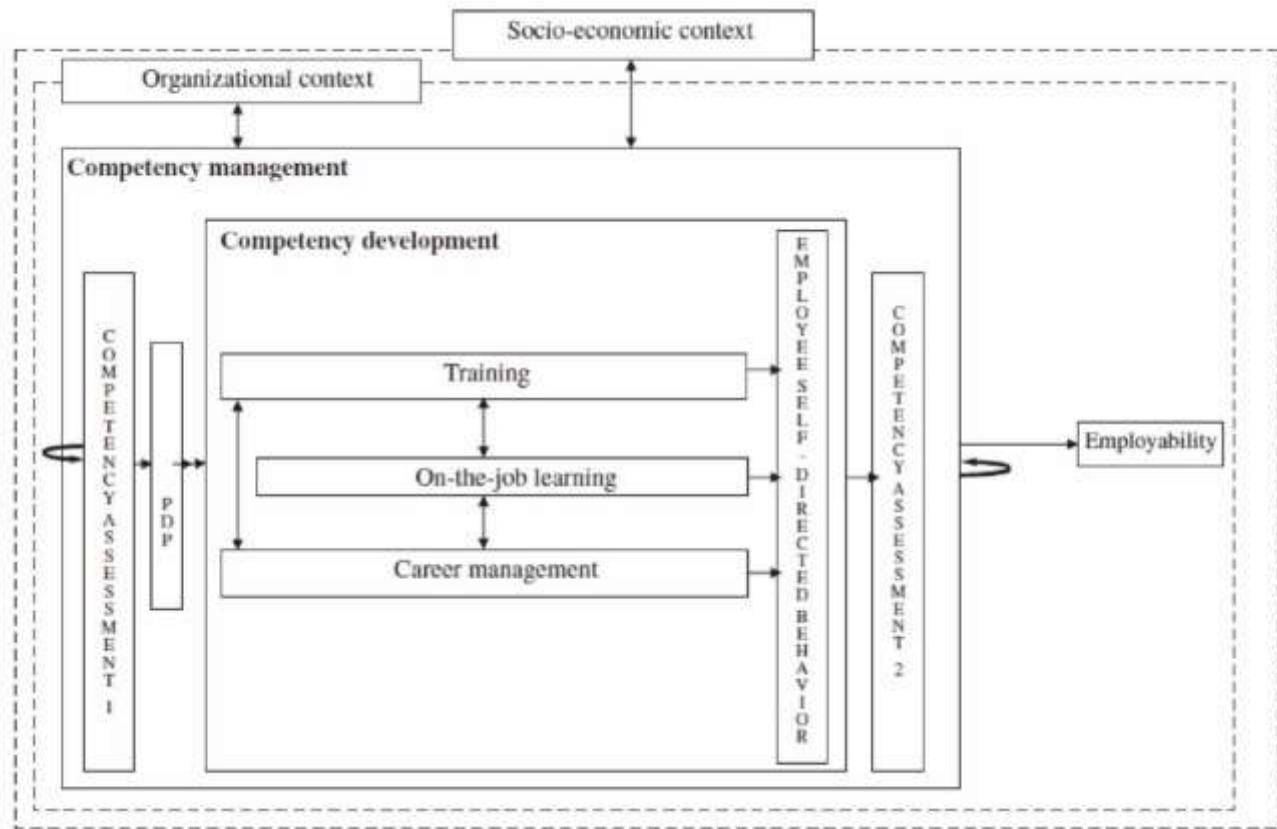


Figure 2. Integrative model of competency development developed by Vos et al. (2015).
Source: De Vos, A., De Hauw, S., & Willemse, I. (2011). *Competency development in organizations: Building an integrative model through a qualitative study*. Vlerick Leuven Gent Management School.

Parry (1996) proposed 12 pragmatic guidelines that can guide the process of competency development for superior job performance (Figure 3).

Campion et al. (2011) also suggested several ‘good practices’ to adhere to while developing job competencies. These practices include analyzing the work environment thoroughly; linking competencies to business organization’s mission and vision, goals, and

values; investigating the job requirements in the future; and obtaining the feedback from different stakeholders. In addition, they highlighted that rigorous job analysis techniques must be employed to identify the most relevant competencies. Job analysis refers to a set of systematic steps designed to develop competencies that differentiate top performers from average performers (Anastasi & Urbina, 1997). Proactive job analysis is always associated with superior organizational performance (Siddique, 2004). The recommended job analysis techniques include:

...the use of multiple data collection methods such as observations, SME [subject matter expert] interviews, and structured brainstorming methods in focus groups to identify potential competency information; the use of clear construct definitions in the competencies and linkages to theory and literature; the use of survey methodology to empirically identify the critical competencies and to differentiate the job grades where specific competencies emerge as most important; the use of sampling techniques; the use of appropriate statistical analyses; the assessment of reliability and other psychometric quality checks; the validation of models against important organizational criteria...; and the validation of models across sources of information or job groups (Campion et al., 2011, pp. 234 - 235).



Figure 3. The guidelines to help the development of competencies for a job or profession. Adapted from: Parry, S. B. (1996). The quest for competencies. *Training*, 33(7), 48–54.

Similarly, Chung and Wu (2011) noted that in general there are six techniques for competencies identification and development, including the interviews, Delphi technique or expert panels, surveys, competency model database, job function or task analysis, and direct observation. The following section briefly introduces some of the classic and well-known techniques for competency development from the literature review.

The Critical Incident Technique

The 'critical incident technique' was pioneered by Flanagan (1954) in 1940s. According to Flanagan (1954), "The critical incident technique consists of a set of procedures for collecting direct observations of human behavior in such a way as to facilitate their potential usefulness in solving practical problems and developing broad psychological principles" (p. 327). In specific, the technique consists of five steps:

1. Determine the goals of the work area.
2. Develop plans and guidelines for the collection of factual incidents about the work area.
3. Collect the data.
4. Analyze the data.
5. Interpret and report the requirements of the work area.

The uniqueness of this technique is to acquire a documentation of specific behaviours through direct observation that can contribute significantly to the work area instead of merely collecting views, ideas, and estimations. Critical incident technique was found to be applied in measures of typical performance (criteria), measures of proficiency (standard samples), training, selection and classification, job design and purification, operating procedures, equipment design, motivation and leadership (attitudes), counseling and psychotherapy (Flanagan, 1954).

The Behavioural Interview Technique (BEI)

The BEI was a technique developed by McClelland (1998), which focuses on identifying the "characteristics of people who did a job well" (p. 5). Instead of believing on what people 'say' or 'think' about their skills or knowledge, this technique aims to find out what they actually 'do' at workplace (McClelland, 1998). Generally, BEI requires the interviewees or the jobholders to describe specific 'incidents' that can lead to effective or ineffective performance in a specific job position or role in an organization (Vathanophas & Thai-ngam, 2007). The outcome of the interviews is a comprehensive narration and documentation of 'critical incidents', including the behaviours, thoughts, and feelings of the interviewees or the jobholders (McClelland, 1998). These 'incidents', or so-called interview transcripts or narrative data, will be coded systematically to form different competencies. The coded competencies can then be grouped to form new competency themes for various HRM purposes (Spencer & Spencer, 1993).

Uddin et al. (2012) suggested that 'STAR' technique can be used to prepare the potential questions to guide the interview process. The interviewees may provide more specific answers based on their past experiences based on the following questions: what was the *situation* in which the interviewees were involved?; what were the *tasks* they required to complete?; what *action(s)* did they take?; and what were the *results*?

The Delphi Technique

Delphi technique has been used in many studies of various fields (e.g., Arbabisarjou et al., 2016; Dolan & Lauer, 2001; Janke et al., 2016) to develop required competencies for a specific profession or job. In these studies, Delphi technique is used “to elicit, distill, and determine the opinions of a panel of experts from a given field, seek consensus among the experts, and make predictions or decisions using the expert opinions of the panelists involved in the study” (Nworie, 2011, pp. 1-2). Typically, a Delphi process consists of seven steps:

1. Devise and distribute first-round questionnaire to recruited experts.
2. Obtain first-round responses from the experts.
3. Devise and distribute second-round questionnaire to experts based on analysis of first-round responses.
4. Obtain second-round responses from the experts.
5. Devise and distribute third-round questionnaire to experts based on analysis of second-round responses.
6. Conclude if no new ideas are generated.
7. Resolve based on the results from third-round questionnaire (Dunham, 1998, pp. 1-2).

Noticeably, a series of questionnaires are used in a Delphi process. First-round questionnaire usually requires the expert panels to answer some broad and open-ended questions to obtain initial inputs from them and build the foundation for second-round. Each following round will then be developed based on previous round's results (Delbecq et al., 1975; Hasson et al., 2000; Keeney et al., 2001). The Delphi process can be concluded if key ideas are established (Hsu & Sandford, 2007; Okoli & Pawlowski, 2004). There is no restriction on the number of rounds should be conducted (Wang, 2006), but Delbecq et al. (1975) recommended that three rounds are typically enough to reach a consensus among the experts.

The Job Competence Assessment Technique (JCA)

The JCA was a five-step competency development technique developed by Boyatzis (1982). This technique was used by Boyatzis (1982) in analyzing the data of 2,000 samples who worked in 41 management jobs from 12 organizations. Table 4 summarize the steps of JCA used by Boyatzis (1982) in his study and the related activities.

Table 4

The five-step JCA employed in Boyatzis' (1982) study

No	Step	Actions	Outcomes
1	Identify criterion measure	<ul style="list-style-type: none"> • Select a suitable measure of work performance • Collect data on managers 	Job performance data on Managers
2	Analyze job element	<ul style="list-style-type: none"> • Create list of attributes perceived to contribute to effective work performance • Obtain item rating by managers 	<ul style="list-style-type: none"> • A weighted list of attributes perceived by managers that relate to effective work performance • A list of the categories in which these

		<ul style="list-style-type: none"> • Compute weighted list of attributes • Analyze categories of attributes 	attributes can be grouped
3	Conduct BEIs	<ul style="list-style-type: none"> • Conduct BEIs • Code interviews for attributes or develop the code and then code the interviews • Associate the coding with data obtained from work performance 	<ul style="list-style-type: none"> • A list of attributes hypothesized to differentiate from effective to less effective work performance • A list of validated attributes or competencies
4	Select tests and measures	<ul style="list-style-type: none"> • Assess competencies identified in prior two steps as relevant to work performance using suitable tests and measures • Perform tests and measures and core them • Relate scores to job performance data 	A list of validated attributes, or competencies, as assessed by these tests and measures
5	Develop and validate the competency model	<ul style="list-style-type: none"> • Integrate results from prior three steps • Determine and document causal relationships among the competencies and job performance from statistical and theoretical perspectives 	A final validated competency model

Adapted from Boyatzis, R. E. (1982). *The competent manager: A mode for effective performance*. New York: Wiley.

The Classic Competency Study Approach

In an attempt to conclude studies on competency modeling in the past 20 years, Spencer and Spencer (1993) evaluated findings from 286 studies of organizations from different industries (e.g., military, health care, education, etc.) and recommended three alternative techniques that can be used in future studies on competency development: (1.) the classic study design using criterion samples; (2.) a short study design using expert panels; and (3.) studies of single incumbent and future jobs where there are not enough jobholders to offer samples of superior and average performance (Spencer & Spencer, 1993, p. 93). As shown in Figure 4, they developed six steps to conduct a classic competency study.

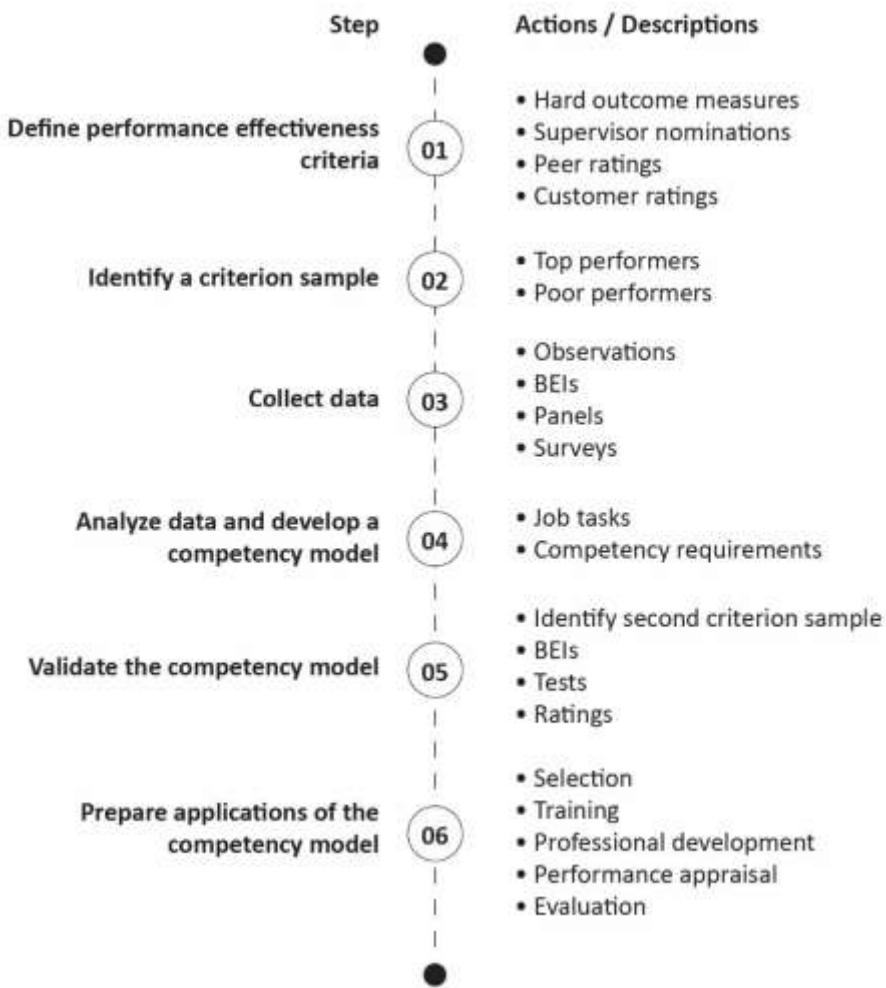


Figure 4 Classic competency study design. Adapted from Spencer, L. M., & Spencer, S. M. (1993). *Competence at work: Models for superior performance*. New York: Wiley.

This body of literature, in short, implies that there are many techniques for competency development. The purpose of the study, budget and time play decisive role in determining which technique to be used (Chung & Wu, 2011).

The Importance of Competency-based Assessment in HRM

Competency-based assessment has gained increasing attention in business organizations and professions for it helps to determine if individuals have successfully performed or demonstrated the required skills, knowledge, behaviours, and abilities in the workplace. As Gonczi et al. (1993) defined, competency-based assessment refers to:

...assessment of a person's competence [competency] against prescribed standards of performance. Thus, if a profession has established a set of, say, entry level competency standards, then these detail the standards of performance required of all new entrants to that profession. Competency-based assessment is the process of determining whether a candidate meets the prescribed standards of performance, i.e. whether they demonstrate professional competence [competency]... (p. 23)

Yahya (2005) also described competency-based assessment as a process of collecting evidence and making judgment to determine individuals' competency levels while performing assigned work tasks based on prescribed standards or criterion. As compared to other performance appraisal methods, competency-based assessment is perceived to have higher levels of fairness because it focuses on the individuals' behaviours and actual job outputs instead of other social and cultural factors (Van der Merwe & Potgieter, 2002).

Competency-based assessment can contribute substantially to HRM practices in any business organizations. It plays an important role in recruiting, selecting, and developing talented individuals (Van der Merwe, 2002). During the assessment process, the assessors make judgments about whether individuals fulfill the pre-determined competency standards based on their actual performance on assigned job roles (Gonczi, 1994). However, it is challenging to carry out successful competency-based assessment (Suhairom et al., 2014). First, as Gonczi et al. (1993) highlighted, competency can hardly be observed directly. Second, the job scope and activities of certain business organizations or professions are highly complex and diversified. These have created difficulty in making sound judgments. Therefore, it is necessary to use a few assessment methods to measure the competency levels of individuals accurately and effectively in performing specific tasks and roles (Baartman et al., 2006). Besides, the quality and quantity of the evidence of performance must be adequately collected for making sound judgments (Gonczi, 1994).

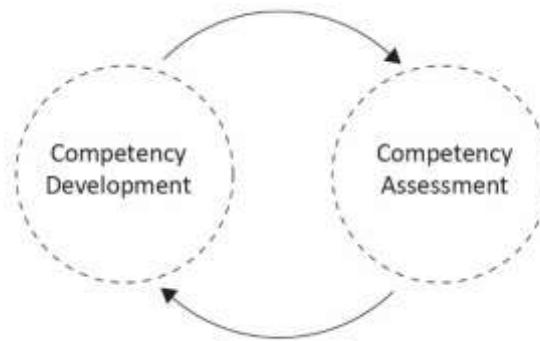


Figure 5. From competency development to competency assessment: a continuous loop. Adapted from: De Vos, A., De Hauw, S., & Willemse, I. (2015). *Competency development in organizations: Building an integrative model through a qualitative study*. Vlerick Leuven Gent Management School.

As noted previously, the process of competency assessment and competency development is an on-going process (Figure 5). The developed competency information must be organized and presented in an appropriate and clear manner to serve for competency assessment purposes. Usually, a competency consists of three parts: (1.) a description of the competency title; (2.) a description of the observable behaviours that can be used to indicate the proficiency in the competency; and (3.) a detailed description of the levels of proficiency on the competency (Campion et al., 2011; Parry, 1996). Dreyfus and Dreyfus (1986) proposed five competency levels: (1.) novice; (2) advanced beginner; (3.) competent; (4.) proficient; and (5.) expert. From the novice that is focused on rules and limited or inflexible in their behaviours to the individual who is willing to break the rules to provide creative and innovative solutions to business problems (Ennis, 2008). Table 5 shows an example of the competency assessment rubric for junior graphic designer.

Table 5:

An example of competency assessment rubric

Competency title	Competency : Technical Design Skills	Novice (Level 1)	Advanced Beginner (Level 2)	Competent (Level 3)	Proficient (Level 4)	Expert (Level 5)
Description	Skills required by graphic designers in day to day practice to complete various types of design tasks. There are three performance indicators for technical design skills.					
Optimize elements and principles of design for effective visual communication.						
Utilize appropriate graphic tools and techniques to manipulate visuals for desired outcomes.						
Apply consistent art direction across a wide range of graphic media.						

Conclusion and Recommendations

The present paper offers an overview on the various definitions and concepts of competency through a comprehensive review of the literature. For the understanding of competency has direct impact on competency development and assessment (Chouhan & Srivastava, 2014; Ellström & Kock, 2008), it is hoped that this paper has provided sufficient and useful insights for practitioners and researchers while investigating the relevant issues. Organizations are built around 'people', and human capital is one of the most important assets to any business organization (Vathanophas & Thai-ngam, 2007). Previous studies (e.g., Boyatzis, 1982; Spencer & Spencer, 1993) suggested that competencies have causal relationship with occupational performance. On the other hand, HRM is a process to bring people and organizations closer together so that each other can achieve their own goals successfully (Yuvraj, 2011).

In relation to the above, it is highly recommended that competency development and assessment should be used as viable tools to manage and develop the human resources to establish and maintain organizational competitiveness and performance in today's work environment. Due to the ever-changing work environment and contexts, it should be a never-ending process to develop and assess the required competencies for specific job, work area or position in an organization to manage the performance of individuals (Boyatzis, 1982; De Vos et al., 2015). By using the developed competencies as guidelines or standards, organizations may invest more strategically in training and development to enhance individuals' capabilities. Individuals may also be more aware of their own strengths and weaknesses and therefore better manage their current career pathway or examine new career opportunities.

References

Arbabisarjou, A., Siadat, S. A., Hoveida, R., Shahin, A., & Zamani, B. E. (2016). Managerial competencies for chairpersons: A Delphi study. *International Journal of Humanities and Cultural Studies*, 3(1), 1634–1645.

Anastasi, A., & Urbina, S. (1997). *Psychological testing* (7th ed.). Upper Saddle River, NJ: Prentice Hall.

Athey, T., & Orth, M. (1999). Emerging Competency Methods for the future. *Human Resource Management*, 38(3), 215–226.

Baartman, L., Bastiaens, T., Kirschner, P. A., & Van der Vleuten, C. (2006). The wheel of competency assessment: Presenting quality criteria for competency assessment programs. *Studies in Educational Evaluation*, 32, 153–170.

Boak, G., & Coolican, D. (2001). Competencies for retail leadership: Accurate, acceptable, affordable. *Leadership & Organization Development Journal*, 22(5), 212–220.

Boyatzis, R. E. (1982). *The competent manager: A mode for effective performance*. New York: Wiley.

Boyatzis, R. E. (2008). Competencies in the 21st century. *Journal of Management Development*, 27(1), 5–12.

Burgoyne, J. (1989) Creating the managerial portfolio: Building on competency approaches management development. *Management Education and Development*, 20(1), 56 – 61.

Campion, M. A., Fink, A. A., Ruggeberg, B. J., Carr, L., Phillips, G. M., & Odman, R. B. (2011). Doing competencies well: Best practices in competency modeling. *Personnel Psychology*, 64(1), 225–262.

Carroll, A., & McCrackin, J. (1997): The competent use of competency-based strategies for selection and development. *Performance Improvement Quarterly*, 11, 45–63.

Caupin. (2006). *ICB – IPMA Competence Baseline*. International Project Management Association.

Cheetham, G., & Chivers, G. (1996). Towards a holistic model of professional competence. *Journal of European Industrial Training*, 20(5), 20–30.

Cheetham, G., & Chivers, G. (1998). The reflective (and competent) practitioner: a model of professional competence which seeks to harmonise the reflective practitioner and competence-based approaches. *Journal of European Industrial Training*, 22(7), 267–276.

Chouhan, V. S., & Srivastava, S. (2014). Understanding competencies and competency modelling -- A literature survey. *IOSR Journal of Business and Management*, 16(1), 14-22.

Chung, R. G., & Lo, C. L. (2007). The development of teamwork competence questionnaire: Using students of business administration department as an example. *International Journal of Technology and Engineering Education*, 55-57.

Chung, R., & Wu, C. (2011). The identification of personnel director ' s competency profile through the use of the job competence assessment method. *African Journal of Business Management*, 5(2), 405–415.

Delbecq, A. L., Van de Ven, A. H., & Gustafson, D. H. (1975). *Group techniques for program planning: A guide to nominal groups and Delphi process*. Glenview, IL: Scott, Foresman, and Co.

De Vos, A., De Hauw, S., & Willemse, I. (2011). *Competency development in organizations: Building an integrative model through a qualitative study*. Vlerick Leuven Gent Management School.

Dolan, T. A., & Lauer, D. S. (2001). Delphi study to identify core competencies in geriatric dentistry. *Special Care in Dentistry*, 21(5), 191–197.

Draganidis, F., & Mentzas, G. (2006). Competency based management: A review of systems and approaches. *Information management & computer security*.

Dreyfus, H., & Dreyfus, S. (1986). *Mind over machine: The power of human intuition and expertise in the era of the computer*. New York: Blackwell Publishers.

Dunham, R. B. (1998). *The DELPHI technique*. <http://158.132.155.107/posh97/private/research/method-delphi/Dunham1996.pdf>

Ellstrom, P-E. (1997). The many meanings of occupational competence and qualification. *Journal of European Industrial Training*, 21(6/7), 266–274.

Eilstrom, P. E., & Kock, H. (2008). Competence development in the workplace: concepts, strategies, and effects. *Asia Pacific Education Review*, 9(1), 5-20.

Ennis, M. R. (2008). *Competency models: A review of the literature and the role of the employment and training administration (ETA)*. Office of Policy Development and Research, Employment and Training Administration, US Department of Labor.

Flanagan, J. C. (1954). The critical incident technique. *Psychological Bulletin*, 51(4), 27-358.

Gonczi, A., Hager, P., & Athanasou, J. (1993). *The development of competency-based assessment strategies for the professions*. Canberra: AGPS.

Gonczi, A. G. (1994). Competency based assessment in the professions in australia. *Assessment in Education: Principles, Policy & Practice*, 1(1), 27–44. Spencer, L. M., & Spencer, S. M. (1993). *Competence at work: Models for superior performance*. New York: Wiley.

Guerrero, D., & De los Ríos, I. (2012). Professional Competences: a Classification of International Models. *Procedia - Social and Behavioral Sciences*, 46, 1290–1296.

Guion, R. M. (1991). Personnel assessment, selection, and placement.

Hamel, G., & Prahalad, C. K. (1990). The core competence of the corporation. *Harvard business Review*, 68(3), 79-91.

Hasson, F., Keeney, S., & McKenna, H. (2000). Research guidelines for the Delphi survey technique. *Journal of Advanced Nursing*, 32(4), 1008–1015.

Heinsman, H., de Hoogh, A. H. B., Koopman, P. L., & van Muijen, J. J. (2006). Competency management: balancing between commitment and control. *Management Revue*, 17(3), 292–306.

Hoffmann, T. (1999). The meanings of competency. *Journal of European Industrial Training*, 23(6), 275–286.

Horng, Jeou-shyan, & Lu, H. (2006). Needs Assessment of Professional Competencies of F & B / Hospitality Management Students at College and University Level. *Journal of Teaching in Travel & Tourism*, 6(3)(September 2012), 1–26.

Hsu, C., & Sandford, B. (2007). The delphi technique: Making sense of consensus. *Practical Assessment, Research & Evaluation*, 12(10), 1–8.

Janke, K. K., Kelley, K. A., Sweet, B. V., & Kuba, S. E. (2016). A modified Delphi process to define competencies for assessment leads supporting a doctor of pharmacy program. *American Journal of Pharmaceutical Education*, 80(10).

Kang, H. J., Chung, K. W., & Nam, K. Y. (2015). A competence model for design managers: A case study of middle managers in Korea. *International Journal of Design*, 9(2), 109–127.

Katz, D., & Kahn, R. (1966). *The social psychology of organizations*. New York: John Wiley & Sons.

Kay, C., & Russette, J. (2000). Hospitality-management competencies. *Hotel and Restaurant Administration Quarterly*, 52–63.

Keeney, S., Hasson, F., & Mckenna, H. P. (2001). A critical review of the Delphi technique as a research methodology for nursing.pdf. *International Journal of Nursing Studies*, 38, 195–200.

Kuijpers, M. (2003). *Career development. Research regarding 'competencies'*. University of Twente, Enschede.

Le Deist, F. D., & Winterton, J. (2005). What is competence? *Human Resource Development International*, 8(1), 27–46.

McClelland, D. C. (1973). Testing for competence rather than for "intelligence". *The American Psychologist*, 28(1), 1–14.

McClelland, D. C. (1998). Identifying competencies with behavioral-event interviews. *Psychological Science*, 9(5), 331–339.

Millar, M., Mao, Z., & Moreo, P. (2010). Hospitality & tourism educators vs. The industry: A competency assessment. *Journal of Hospitality and Tourism Education*, 22(2), 38–50.

Moore, D. R., Cheng, M., & Dainty, A. R. J. (2002). Competence, competency and competencies: performance assessment in organisations. *Work Study*, 51(6), 314–319.

Nworie, B. J. (2011). Using the Delphi Technique in educational technology research. *TechTrends*, 55(5), 24–30.

Omran, A., & Suleiman, A. S. H. (2017). Identifying the Competence Components of the Construction Project Managers in the Palestinian Construction Industry. *The Engineering Project Organization Journal*, 7(2).

Okoli, C., & Pawlowski, S. D. (2004). The Delphi method as a research tool: An example, design considerations and applications. *Information and Management*, 42(1), 15–29.

Page, C., & Wilson. (1994). *Management competencies in New Zealand. On the inside looking in Wellington*. Ministry of Commerce – 5.

Parry, S. B. (1996). The quest for competencies. *Training*, 33(7), 48–54.

Potgieter, T. E., & Van der Merwe, R. P. (2002). Assessment in the workplace: A competency-based approach. *SA Journal of Industrial Psychology*, 28(1), 60–66.

Rodriguez, D., Patel, R., Bright, A., Gregory, D., & Gowing, M. K. (2002). Developing competency models to promote integrated human resource practices. *Human Resource Management*, 41(3), 309–324.

Shippmann, J. S., Ash, R. A., Batjtsta, M., Carr, L., Eyde, L. D., Hesketh, B., ... & Sanchez, J. I. (2000). The practice of competency modeling. *Personnel Psychology*, 53(3), 703–740.

Siddique, C. M. (2004). Job analysis: A strategic human resource management practice. *International Journal of Human Resource Management*, 15(1), 219–244.

Simpson, B. (2002). The Knowledge Needs of Innovating Organisations. *Singapore Management Review*, 24(3), 51–60.

Spencer, L. M., & Spencer, S. M. (1993). *Competence at work: Models for superior performance*. New York: John Wiley & Sons, Inc.

Strebler, M., Robinson, D., & Heron, P. (1997). *Getting the best out of your competencies*. Grantham Book Services, Isaac Newton Way, Alma Park Industrial Estate, Grantham NG31 9SD, England, United Kingdom.

Suhairom, N., Musta'amal, A. H., Amin, N. F. M., & Johari, N. K. A. (2014). The development of competency model and instrument for competency measurement: The research methods. *Procedia - Social and Behavioral Sciences*, 152, 1300–1308.

Tas, R. F., LaBrecque, S. V., & Clayton, H. R. (1996). Property-management competencies for management trainees. *Cornell Hotel and Restaurant Administration Quarterly*, 37(4), 90–96.

Uddin, M. I., Tanchi, K. R., & Alam, M. N. (2012). Competency Mapping: A Tool for HR Excellence. *European Journal of Business and Management*, 4(5).

van der Klink, M., & Boon, J. (2002). The investigation of competencies within professional domains. *Human Resource Development International*, 5(4), 411-424.

Van der Merwe, R. P. (2002). Psychometric testing and Human Resource Management. *SA Journal of Industrial Psychology*, 28(2), 77–86.

Vathanophas, V., & Thai-ngam, J. (2007). Competency Requirements for Effective Job Performance in The Thai Public Sector. *Contemporary Management Research*, 3(1), 45–70.

Vazirani, N. (2010). Competencies and Competency Model - A Brief Overview of its Development and Application. *SIES Journal of Management*, 7(1), 121–131.

Wang, S.-Y. (2006). *Identification of the significant competencies in graphic design*. University of Missouri-Columbia.

Woodruffe, C. (1991). Competent by any other name. *Personnel Management*, 30 – 33.

Yahya, E. (2005). *PendidikanTeknik dan Vokasional di Malaysia*. IBS BukuSdn. Bhd. Selangor, Malaysia.

Yuvaraj, R. (2011). Competency mapping – A drive for Indian industries. *International Journal of Scientific & Engineering Research*, 2(8), 1-7.

Zemke, R. (1982). Job competencies: can they help you design better training?. *Training*.