

## DEVELOPING AND STANDARDIZING A SCALE TO MEASURE COMPETENCY DEVELOPMENT PRACTICES

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### **P**URPOSE

THE present research paper seeks to develop and validate a construct for mapping Competency Development Practices.

**Design/Methodology/Approach:** Literature was reviewed extensively and six major practices were synthesized. These practices were Training and Development, Competency Analysis, Mentoring, Capability Development, Competency based Assets, and Continuous Capability Development. A questionnaire of 46 items was standardized on a sample of 1068 managers working at different levels in various organizations.

**Findings:** The 46 item questionnaire was validated using Confirmatory Factor Analysis. Composite reliability of the practices were Training and Development (0.886); Competency Analysis (0.859); Mentoring (0.832); Competency Based Assets (0.920); Capability Development (0.893), and Continuous Capability Development (0.921). Also, convergent and discriminant validity were established.

**Research Limitation/Implication:** The present questionnaire is meant to be used for Indian organizations as it is standardized on Indian working population. It can be adapted in different countries.

**Practical Implications:** The questionnaire can be used to measure Competency Development Practices in the organizations and to ascertain the maturity level of these practices in line with Capability Maturity Model (CMM) framework.

**Originality/Value:** This study provides a scale to measure Competency Development Practices in organizations which is not available in current relevant literature.

**Key Words:** Competency Development, Training and Development, Competency Analysis, Mentoring, Capability Development, Competency Based Assets, and Continuous Capability Development.

### Introduction

Dramatically changing business environment is constantly pushing organizations into the transition phase. These transitioning have updated the perception of career and are partly responsible for the development of new career management models (Arthur, Inkson, & Pringle, 1999). Lifetime employability

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has become an essence for employees to create their own career success. It means, employees need to concentrate on acquiring new skills, maintaining a continuous fulfilment with the potentials, and also creating new opportunities through excellent use of their competencies.

Competency is the fundamental attribute required for carrying out a given role, activity or task successfully (Sahu, 2009). The term 'Competence' sparked into the literature way back in 1970s and from then onwards, it has assumed distinct magnitude. The traditional methods of knowledge tests, school grades and credentials were not perceived to be sufficient enough to predict the performance of a person on a job. Alternatively, "Competencies" was the term that was made known as the key to success. An approach to identify these competencies was formulated in which a comparison of people was made on the basis of their success in their jobs. This approach was laid on the assumptions that, some people execute the jobs more effectively than others. These exceptional performers have different approaches and behaviours to get their jobs done. Thus, the best to identify the competencies which would drive superior performance is to study these exceptional performers (McClelland, 1973). Subsequently, McClelland (1976) characterized this innate and distinctive element of superior performance as 'Competency' and introduced this approach to a consulting firm which came to be known worldwide as Hay McBer.

Boyatzis (1982) contemplated an integrated model of managerial competence which not only reveals the interrelationship of the distinct characteristics of managers which facilitate them to be effective in different managerial jobs but also, their relationship with both management and internal organisational environment. Mangham (1986) asserts that competence is related to a number of personal models in which benchmarking is of prime importance such as outcome models, education, and training models. Burgoyne (1988) identified and explained the distinction between 'being competent' and having 'competencies'. The former means *meeting the job demands* while the latter means *possessing the necessary attributes to perform competently*. Dulewicz (1989) argued that, by assessing the performance one can reach at the optimum level of competencies required to perform a task. On the contrary, it was found that out of the total Competency basket, the firm specific competencies makeup to only 30 percent while, the remaining 70 percent are common to a broad spectrum of organizations.

Human resource, these days, are primarily focussing on Competency Development. Efficient employees seek opportunities to learn new things and expand their skill set and organisations are providing these employees with proper resources which would in turn enhance the value of the organisation.

Competencies possessed by employees in an organisation can be utilized in two ways. They can be used for on-boarding orientation and other employee communications or they can be integrated into hiring practices, performance appraisal, succession planning, etc. Competencies not only address the technical skills of a job but, also the behavioural aspect of the job. Thus, a properly defined combination of competencies aid organisations to effectively measure and evaluate employee performance.

Competence Development is competence and proficiency development of an individual all through his working career. In general, Competency Development is to update, expand, deepen, and completely redirect an individual's competence.

Hyland (1994) elucidated competence development as "the broad expansion of knowledge, cognition and understanding in an employee with respect to a specific domain. Competence Development has four characteristics. Firstly, it is about individual perception and thus, the emphasis is on the individual learner; secondly, it is a continuous process throughout life, thus, is firmly associated with lifelong learning; thirdly, all activities that an individual undertakes may contribute to competence development and finally, Competence Development is not associated with specific types of learning activities. Thus, Competence Development necessarily comprises of basic elements of both formal and informal learning" (p. 331).

The purpose of Competency Development is to comprehensively develop the work community and organisation as a whole. The strategic operations planning of an organisation takes into account Competency Development as one of the key areas to be focussed. Managers from the top management have acknowledged that Competency Development is significantly important for changes in job description and duties, renewal of information and work methods, and information based society. The prime objective of Competency Development is to embellish the success of employees.

Deficient planning and detachment of Competency Development from goals and strategies of the organisation are the major challenges of Competency Development at workplace. Also, many a times organisations do not give due weightage to the investment in Competency Development for achieving competitiveness. Another challenge of Competency Development is involved with decision making and perception on the relationship between employees working capacity, occupational well-being, and coping at work with profitability of the organisation. As far as employees are concerned, the challenge is mainly of resources, which includes lack of time and inadequate information and planning.

While other common challenges in Competency Development involve wide range of training and development service providers and provision as well as their diversity in terms of quality, a lack of instruction targeted at adults and a partial mismatch between demand and supply. This paper aim to provide the researchers with a proper scale of Competency Development which can be used across industries.

## **Literature Review**

The dynamic business environment is pressurizing organizations to challenge the old organizational designs which were based on job structures by competency based approaches (Dwivedula & Madan, 2010). The strength of growth in today's environment can only be attained through performance. Only employees who have the right blend of competencies can perform their tasks better. Competencies are a "set of skills and abilities, both technical as well as behavioural, which are essential for desired level of performance". Right mix of competencies is prerequisite for superior performance" (Sahu, 2009, p. 118).

The main purpose of competency management is to identify the knowledge, skills, and process abilities that employers and employees must have to attain their respective goals. It is rightly said that, there exists a strong positive relationship between organizational efforts and workforce empowerment to gain competitive advantage. Organizations are making efforts towards their workforce. Employees, nowadays, are not considered as a part of organization rather they are treated as competitive assets of the organization who aligns their competencies and abilities with their performance and ultimately to the vision, mission, and core values (Dwivedula & Madan, 2010).

Many organizations have recognized the significance of Competency Development to the sustainability and vitality of their organization (Pascale, 2013). It was highlighted in his study that, one third of the organizations are making efforts to develop competencies. Organizations which are developing or planning to develop must also incorporate Competency Development in their development process to achieve desired goals. Tampoe (1994) also recommended that, organizations which have a strong focus on continuous development of their employees must focus their efforts in building competencies among their employees as this would give them a chance to have an edge over their competitors. Many authors have acknowledged the significance of Competency Development in increasing the performance and competitiveness of the organization. Thus, making the concept of Competency Development critical strategic management tool in the present business environment (Bergenhengouwen, Horn, & Mooijman, 1997; Nyhan, 1998). The underlined role of Competency Development is to enhance the success of both the organization as well as the employees. Therefore, organizations must pave ways to establish Competency Development as a core part in their HR practices (Delamare & Winterton, 2005; Lawler,

1994). This is the reason why in today's western organizations the use of competencies has become extensive and imperative. (Heinsman, Hoogh, Koopman, & Muijen, 2006; Nybo, 2004; Athey & Orth, 1999). Organizations, nowadays, have augmented their focus on skills and behavioural attitudes of employees. They are developing ways to strengthen their pool of talent by laying emphasis on employee's skills and core competencies (Dwivedula & Madan, 2010). Core competencies, as defined by Hamel & Prahalad (1990) are, "*the collective learning in the organization, especially how to co-ordinate diverse production skills and integrate multiple streams of technologies*" (p. 80).

Barrett & Depinet (1991) reassessed the concept of *competence*, professed by McClelland. They construed competence as '*the predictive power of the conventional intelligence tests*'. They also accentuated that, competence approach is an inverted approach. It starts with identifying outstanding performers to assess the unique competencies which differentiate them from average performers. Boak (1991) conducted a research which revealed that, according to UK occupational standards this concept is termed as '*Competence*' while, in US it is termed as '*Competency*'. Thus, largely making the terms synonymous across the world. Woodruffe (1991) solicited a comprehensive and precise explanation to the concept of competence as "*the facets of the work which an individual can perform with competency, with reference to the individual's behaviour grounded by competent performance*" (p. 31). Lado, Boyd, & Wright (1992) conceptualized a competency-based model to gain competitive advantage from the resources based perspective. This model specifically links the four factors of firm's '*distinctive competencies*', these are transformation-based, output based, resource-based competencies, and managerial competencies & strategic focus.

Dulewicz & Herbert (1992) conducted a job Competency survey which validated that the skills which a manager needs to perform his job are generic across occupations to permit generalization even though there are differences in the managerial functions. Mansfield (1993) suggested that key roles are identified by occupational standards which can be fragmented into units of competence. These units can further be divided into elements of competence. Each element has performance criteria which are defined on the basis assessment. The occupational standards are strongly entrenched in the practicality of the job to be undertaken, which are validated by employers predominantly. Although, very few employers participate in formal vocational qualification system, either because the needs of specific employer are not relevant or for a simple reason that the assessment procedures are bureaucratic (Spencer & Spencer, 1993) A study of 650 jobs was undertaken to propose a generic job model which exhibited and validated the use of McClelland's/McBer's job competence assessment methodology. Competencies in their outlook include each and every individual attribute, the magnitude of which can be calculated reliably and can easily differentiate between the superior and average performers or effective and ineffective performers. These may include self-concepts, attitudes, values, traits, motives, content knowledge, or cognitive or behavioural skills, etc. They also highlighted the fact that, it is far more difficult to differentiate competencies rather than knowledge and skills with a valid Competency Development methodology. Competency model which encompasses scales elucidate different degrees of a given competency. This will assist in defining, measuring, and rewarding these competencies. These *behavioural anchors* are rank-ordered descriptions of the behavioural manifestations of the attributes described in the Competency model. Typical dimensions of Competency scales include the degree of impact of the action, the intensity of action, the amount of effort expended, and complexity.

Tucker & Cofsky (1994) had put forth a competency based pay system which was universally recognized as an upcoming technology. It is referred to as one of the most powerful and adequate compensation strategies. It accentuates the organisation's goals and at the same time empowers and drives individuals to enhance performance and manage change. To implement this approach one needs to have a detailed understanding of the organisation's goals, strategies, competencies, pay grades, assessment, and salary administration programs. This approach grouped competencies into five areas. These are skill, knowledge, self-concept, motive, and traits. And further these competencies were divided into *Essential* and

*Distinguishing* competencies. The former means the basic requirement of the competencies without which an individual would not be able to perform the work, while the latter means, the competencies which makes an individual a superior performer than others. To build and implement a competency model, one needs to first determine the core competencies, then identify a sample of superior performers, after which data are collected, validated, and evaluated based on the competencies.

Barnett (1994) contemplated the relationship between knowledge, higher education, and society. The preeminent ideology of curriculum was analysed to determine its constituents as capability and competence. It also differentiated among the two ideologies of competence, that is, operational and academic and came up with a new definition of human being. This idea of human being is relatively unconstrained by sectional interests, contains a sense of knowing, not derived from mere instrumentality, and looks to promote human beings in situations and conditions unimaginable because the human beings concerned will be doing the imagining.

Lado & Wilson (1994) probed the “potential of human resource system to promote and prohibit the advancement and application of organizational competencies. These competencies include: managerial competencies, input-based competencies, transformational competencies and output-based competencies which are considered to produce competitive advantage to the organization. The competency-based perspective is complemented by behavioural perspective which enhances the understanding of strategic human resource management.” (p. 599)

Mansfield (1996) argued that there is a need to develop a competency model which comprise of basic minimum competencies, it should be flexible enough to customize competencies as per individual job requirements, it should also specify the performance benchmark for each competency, and, finally it should be a cost effective approach. Antonacopoulou & Fitzgerald (1996) argued that, it is a nomenclature of most organizations to adopt same wordings to explain a set of managerial characteristics, but this does not mean that these characteristics form part universal management competencies. It is not possible to identify a set of universal management competencies.

Rothwell & Lindholm (1999) focused their study on identifying competencies, formulating suitable models, and assessment in United States. They established a relationship between individual capabilities and core competence of the organisation. Competency models gained importance and were widely used to align individual capabilities with the core competence of the organization.

To gain insight into the concept of competence, Delamare & Winterton (2005) explored “the definitions and application of competence, in the context of Training and Development initiatives in the USA, UK, France, and Germany, to clarify the concept by consolidating knowledge, skills, and competencies within a holistic competence typology” (p. 27). The typology of competence includes: *Cognitive Competence*, *Functional Competence*, *Meta Competence*, and *Social Competence*. One-dimensional framework of competence is no longer adequate, thus, a multi-dimensional approach is considered. In US, a part from behavioural competencies, functional and cognitive competencies are also being considered. While, in UK, an addition of cognitive and behavioural competencies are made to functional competence model. France, Germany, and Austria opted for a more holistic approach. On comparing the approaches, they argued that the holistic approach is the most suitable one as it can identify different combinations of competencies that are significant for a specific occupation and to promote labour mobility.

Draganidis & Mentzas (2006) examined the Competency management attributes of 22 Competency management systems and 18 learning management systems. Competency management is gaining importance in both public as well as private organizations. It helps in attracting and retaining talented employees, identifies right person for the right job, performs succession planning, training need analysis etc. They identified four macro-phases of Competency lifecycle in a Competency management system:

*Competency mapping; diagnosis; development, and monitoring.* Sanghi (2009) also propounded a competency model to outline every single job incumbent on these competencies. This model expounded a blend of knowledge, skills, and attributes which are necessary for superior performance and combined them into the conventional human resource functions of recruitment, selection, training and development, succession planning, and performance management. This model was formulated to focus on two main aspect, these were- *what skills, knowledge, and characteristics are required to do the job and what behaviour has the most direct impact on performance and success in the job.* Competency models focus on the position while competency mapping focuses on assessing the individual on each competency of his position. Shahhosseini & Sebt (2011) proposed a “decision making model which can provide assistance in selection of different types of competent personnel. For designing this model, human resources were classified into four main types of personnel: *project manager, engineer, technician, and labourer.* After classifying the groups, a competency criteria model was developed for each type. Decision making was performed in two stages: *a fuzzy Analytic Hierarchy Process (AHP)* for evaluating the competency criteria, and *an Adaptive Neuro-Fuzzy Inference System (ANFIS)* for establishing competency IF-THEN rules of the fuzzy inference system. The model integrated a fuzzy logic qualitative approach with neural network adaptive capabilities to evaluate and rank construction personnel based on their competency. The model had high capability in making quality personnel selection” (p. 163).

Shikari (2011) proposed a competency framework which maps various competencies of companies against the internal or outsourced assessment centres. Assessment centres have become one of the most admissible for companies to make better decision on recruitment, selection, training and development of employees at different levels of their work life with the help of procedures which would align the roles and the business objectives. Assessment contributing to professional development was more in-depth than for those contributing to selection. The framework also demonstrated the validity and utility of assessment and with the advancing technology, assessment processes can also be enhanced.

Campbell & Luchs (1997) threw light on the concept of competence, competency, and core competency, so as to clearly describe the terms. Competence, according to them, is the functional area in which an individual performs the work. While on the other hand, they described competency as behavioural area. Core competence is regarded as the most critical resource which if exploited effectively and efficiently would gain a competitive advantage to the organisation McClelland (1998). Essentially, competencies are behavioural in nature, which means they can be learned through Training and Development in contrast to personality and intelligence. Skills and predisposition beyond cognitive abilities like self-regulation, self-awareness, social skills, etc. make up what is called competency.

Athey & Orth (1999) revealed that Competency based human resource management became comprehensive in United States. It not only touched the human resource development but, also the other dimensions of human resource management like selection, retention, remunerations, etc. in the behavioural approach, competency not only includes the skills and knowledge apace with behavioural or psycho-social characteristics but also, behaviours, work habits, attitudes, abilities, and personal characteristics.

Competency Development is “an important characteristics of the wider concept of competency management. Competency management is defined as “*a significant human resource tool that is usually used within organizations to oversee human resource practices such as selection, assessment, career management, employee development, and performance appraisal.*” (Heinsman, et al., 2006, p. 293). Also, it is to be noted that according to Forrier, Sels, & Stynen (2009), Competency Development is “a significant characteristic of competency management which envelops all activities carried out by the organization and the employee to maintain or enhance the employee’s functional, learning and career competencies”.

“The concept of competencies and strong managerial interest in Competency Development was not fully translated into the academic world, leading to a gap between theory and practice (Athey & Orth, 1999; Barrett & Depinet, 1991). In particular, a lack of insight into the organizational process of Competency Development can be detected at the theoretical level. In addition, previous research only focused on one aspect of Competency Development, indicating the absence of an integrated approach that discusses the interrelations between different HR-practices involved in Competency Development (Lai & Kapstad, 2009; Nybo, 2004). To fill these gaps, a qualitative case study was conducted in 22 Belgian organizations wherein not only the different aspect of Competency Development within an organization is assessed, but also assessments are made on interconnections between these aspects, putting Competency Development in a broader perspective” (Vos, Hauw, & Willemse, 2011).

Another study was undertaken to gain knowledge on the impact of Competency-based learning in liberal education on student learning in the US (Schneider, 2013). Competency-based learning programs support the students to frame dimensions and magnitude for continuous and life-long learning. It also provides ample opportunities to the faculty to map Competency expectations across their educational programs. The key to achieve success is the students own hard work dedicated towards reaching specific goals.

Trivellas & Drimoussis (2013) also differentiated the competencies through a behavioural competency profile and revealed that the superior performing managers are attributable to high levels of emotional, behavioural, and managerial competencies and they enjoy better project’s accomplishment. They highlighted the competencies which distinguishes superior performers from their counterparts, which are “teamwork, efficiency, values appreciation, and openness (behavioural competencies), customer service and system control (managerial), and social awareness (emotional) as well as the task leadership style” (p. 693). Moreover, CVM played as a diagnostic tool in providing assistance to project managers to identify and cultivate the skills and competencies that are required to foster individual effectiveness and project’s success.

Succar, Sher, & Williams (2013) focussed on identifying and building information modelling competencies, which are building blocks of organisational capabilities. To improve performance, one needs to learn, apply, and measure these competencies. An integrated approach to identify, classify, and aggregate these competencies facilitated a comprehensive and flexible Competency-based system for assessment, learning, and performance-improvement in industry as well as in academics.

According to Curtis, Hefley, & Miller (1995, 2001, & 2009), the initiative to build capability starts with the identification of the training needs of each employee and addressing these needs in all departments of the organization (Training and Development). Employees possessing requisite knowledge and skills to perform tasks or a given role can be trained for future role and assignments. The purpose is to make sure employees have the right skills to perform their tasks. After the organization has reached at this level the major priority is to understand the workforce competencies required by the organization as a whole to achieve its goals and strategic business objectives. For this, knowledge, skills, and abilities are properly identified which establishes the overall workforce competencies of the organization (Competency Analysis). After this competency based information, processes and artefacts of workforce competencies are preserved as assets which can be further used for future references in case of transferring knowledge and capabilities to others (Competency-Based Assets). Development programs are conducted in the organization across all units and departments to build capabilities among employees as per the benchmark competencies to carry out their given tasks appropriately. Further, mentoring programs are also simultaneously conducted to assist in building capabilities of those employees who are less experienced and need guidance in support with the competency based assets. Finally, organization empowers its employees to continuously develop and improve their capabilities by setting their own objectives and working to attain them (Continuous Capability Improvement).

### Constructs of Competency Development Practices

There is not much literature available on Competency Development Practices. Many researchers have linked Competency management to different constructs. After an extensive review of literature, it was evident that following are the different practices relating to Competency Development.

**Table No. 1: Different Practices to Develop Competencies by Researchers and Practitioners**

S. No.	Dimensions	Authors
1.	Performance Management	Rothwell & Wellins (2004); Sanghi (2009)
2.	Career Planning/Development	Rothwell & Wellins (2004)
3.	Succession Planning	Rothwell & Wellins (2004); Draganidis & Mentzas (2006); Sanghi (2009)
4.	Compensation System	Tucker & Cofsky (1994); Aquila & Rice (2017)
5.	Credentialing	Rothwell & Wellins (2004)
6.	Coaching and Feedback	Rothwell & Wellins (2004)
7.	Learning Management	Draganidis & Mentzas (2006)
8.	Selection	Athey & Orth (1999); Rothwell & Wellins (2004); Sanghi (2009); Shikari (2011); Shahhosseini & Sebt (2011)
9.	Promotion	Rothwell & Wellins (2004)
10.	Recruitment Management	Sanghi (2009); Shikari (2011)
11.	Training and Development	McClelland (1998); Delamare & Winterton (2005); Sanghi (2009); Shikari (2011); Curtis et al. (1995, 2001, 2009); Arokyamary & Ramasesh (2013)
12.	Competency Analysis	Curtis et al. (1995, 2001, 2009); Arokyamary & Ramasesh (2013)
13.	Mentoring	Curtis et al. (1995, 2001, 2009); Arokyamary & Ramasesh (2013)
14.	Capability Development	Curtis et al. (1995, 2001, 2009); Succar et al. (2013)
15.	Competency Based Assets	Curtis et al. (1995, 2001, 2009); Trivellas & Drimoussis (2013)
16.	Continuous Capability Development	Curtis et al. (1995, 2001, 2009)

Also, it should be noted that among these dimensions, there are a few practices which are established as talent management practice. These are Performance Management (Mirji & Mane, 2012; Tuncq & Schmidt, 2013; Aned, Zainal, & Alya, 2013; Oladapo, 2014; Cooke, Saini, & Wang, 2014; Tymon, Stumpf, & Doh, 2010; Lewis & Heckman, 2006); Career Development (Mirji & Mane, 2012; Mishra & Jha, 2012; Oladapo, 2014; Cooke et al., 2014; Lewis & Heckman, 2006; Farndale, Pai, Sparrow, & Scullion, 2014); Succession Planning (Tuncq & Schmidt, 2013; Oladapo, 2014; Cooke et al., 2014; McDonnell, Lamare, Gunnigle, & Lavelle, 2010); Compensation Management (Mirji & Mane, 2012; Mishra & Jha, 2012; Kumar & Arora, 2012; Oladapo, 2014; Cooke et al., 2014; Tymon et al., 2010; Lewis & Heckman, 2006); Learning (Mirji & Mane, 2012; Mishra & Jha, 2012; Tuncq & Schmidt, 2013; Klein, 2014; Oladapo, 2014; Cooke et al., 2014; Lewis & Heckman, 2006; Farndale

et al., 2014); and Recruitment and Selection. Thus, to avoid the overlapping of efforts by the organisations in building competencies among employees and managing talent, the focus would be on Competency Development Practices given by Curtis et al. (1995, 2001, and 2009) in the People Capability Maturity model. These are: Training and Development; Competency Analysis; Capability Development; Mentoring; Competency Based Assets; and Continuous Capability Development. Although many researchers have also pointed out that, Training and Development is also a talent management practice (Mirji & Mane, 2012; Mishra & Jha, 2012; Tuncq & Schmidt, 2013; Klein, 2014; Oladapo, 2014; Cooke et al., 2014; Lewis & Heckman, 2006; Farnedale et al., 2014) but there are evidences that instead of Training and Development, organisations are these days focussing on Learning and Development as a talent management practice. As talent is innate and cannot be created in an employee through training and practices (Meyers, Woerkom, & Dries, 2013). To nurture talent, organisations need to provide learning avenues, while Competency can be developed in employees through training and practice.

Many researchers have studied these practices individually but not much research has been conducted to understand the relationship of these practices put together to develop competencies among employees (Van der Heijde & Van der Heijden, 2006; Garavan, Morley, Gunnigle, & Collins, 2001; Sandberg, 2000). Therefore, it is imperative to develop a scale to measure the Competency Development practices in an organization at different levels of management. In the light of this scenario, the present research is an attempt to formulate a standardized construct of Competency Development in Indian context.

## **Objectives**

- To define the construct of Competency Development Practices on the basis of literature review.
- To validate and revalidate the constructs of the Competency Development Practices.

## **Research Methodology**

The present study was conducted in two phases:

**Phase I:** Extensive literature review was done to define the construct of Competency Development.

**Phase II:** The questionnaire was developed, validated, and re-validated.

**Sampling:** In Phase II, a sample of 683 managers was taken from different organizations to validate the questionnaire. Criterion referenced norms were developed for the questionnaire. Again, a sample of 1068 was taken to revalidate the questionnaire. Both the samples were drawn from managers working at different levels in public and private sector organizations ranging between the ages of 20-55 years using systematic sampling.

## **Results and Discussions**

**Phase - I:** After an extensive review of literature in phase-I, six practices were synthesized leading to Competency Development. These were: Training & Development, Competency Analysis, Mentoring, Capability Development, Competency Based Assets, and Continuous Capability Development (as shown in table no. 2).

**Phase - II:** A questionnaire comprising of 150 items was constructed out of which 18 items were pertaining to Training and Development, 22 items were of Competency Analysis, 24 items were related to Mentoring, 21 items were pertaining to Capability Development, 32 items were related to Competency Based Assets, and 33 items appropriating Continuous Capability Development. This questionnaire was administered on 683 managers from different levels of various organizations. The data were then

**Table No. 2: Defining the Constructs of Competency Development Practices Scale**

<b>Construct</b>	<b>Definition</b>
Training & Development	Training and Development here implies identification of training needed in critical skills, conducting periodical development discussions, advising, ensuring, and measuring the Training and Development activities.
Competency Analysis	Competency Analysis here means identifying, analyzing, and documentation of organization's workforce competency and benchmarking the best competencies for other employees and constantly measuring and updating the competency information.
Competency Based Assets	Competency Based Assets here means competency based information and artifacts which are integrated and updated into competency based process and related technologies.
Capability Development	Capability Development here implies developing and documenting the competencies among employees based on the Competency Based Assets
Mentoring Practices	Mentoring practices here implies that there is proper communication between mentors and mentees or workgroups with respect to mentoring programs and practices and appropriate measurements are used to determine the effectiveness of mentoring activities.
Continuous Capability Development	Continuous Capability Development here means empowering the employees to continuously improve their capabilities by identifying improvement objectives between Competencies based processes and process performance baselines.

analyzed using Confirmatory Factor Analysis, since each dimension here is a separate construct. Out of 18 items of Training and Development only 7 items were retained, out of 22 items of Competency Analysis only 6 items were retained, out of 24 items of Mentoring only 5 items were retained, out of 21 items of Capability Development 7 items were retained, out of 32 items of Competency Based Assets 10 were retained, and finally out of 33 items of Continuous Capability Development 11 items were retained. Thus in all, a total of 46 items were retained for the final questionnaire.

#### **Evaluation of Psychometric Properties of Questionnaire**

To establish the psychometric properties of the questionnaire, a measurement model was evaluated. A confirmatory factor analysis (CFA) was conducted using AMOS 21.0. The measurement models shows an acceptable model fit (table no. 3) as chi-square to degree of freedom ratio (CMIN/df) was less than 5 as suggested by Wheaton, Muthen, Alwin, & Summers (1977). Other fit indices were also taken into consideration. Byrne (2013) argued that, the data is evaluated on a number of goodness and badness of fit indices. Goodness of fit indices are GFI (Goodness of Fit Index), AGFI (Adjusted Goodness of Fit Index), CFI (Comparative Fit Index), and NFI (Normed Fit Index) while, badness of fit indices include SRMR (Standardized Root Mean Residual) and RMSEA (Root Mean Square Error of Approximation). Table no. 3 shows the model fit statistics of each construct in line with the recommendations made by Wheaton et al. (1977). It is clear that, all the values meet the cut off criteria. Thus, it is concluded that data fits the model well.

**Table No. 3: Model Fit Statistics for Each Construct**

Particulars	CMIN/DF	GFI (Goodness of Fit Index)	AGFI (Adjusted Goodness of Fit Index)	CFI (Comparative Fit Index)	NFI (Normed Fit Index)	SRMR (Standardized Root Mean Residual)	RMSEA (Root Mean Square Error of Approximation)
Acceptable Levels	1-5	≥ 0.90	≥ 0.90	≥ 0.90	≥ 0.90	≤ 0.08	≤ 0.10
Training & Development	4.589	0.981	0.941	0.975	0.968	0.028	0.077
Competency Analysis	4.337	0.986	0.952	0.976	0.969	0.027	0.075
Mentoring	4.729	0.988	0.954	0.979	0.974	0.025	0.079
Competency Based Assets	3.962	0.967	0.932	0.962	0.950	0.033	0.070
Capability Development	4.807	0.976	0.938	0.970	0.962	0.040	0.080
Continuous Capability Development	4.599	0.956	0.914	0.930	0.913	0.036	0.077

**Reliability**

According to Fornell & Larcker (1981), reliability of a construct is its test retest ability. This means that, the outcome of a scale should be same when it is used again and again. There are two ways to measure reliability, first is through construct reliability wherein, cronbach alpha value is calculated and it should be above 0.7 and secondly, through composite reliability of the construct, the value of which should also be above 0.7. Table no. 4 shows the reliability of these construct.

**Convergent Validity**

According to Carmines & Zeller (1979), convergent validity is the degree of agreement between two or more items measuring the same construct. According to Hair, Black, Babin, Anderson, & Tatham (2006), there are three ways to measure convergent validity. Firstly, standardized factor loadings should be above 0.5; secondly, average variance extracted should be above 0.5; and thirdly, composite reliability score should be above 0.7 (Kesharwani, Sreeram, & Desai, 2017). Table no. 4 shows that, all these values for each construct are acceptable. Therefore, these practices show adequate convergent validity (as shown in table no. 4).

**Discriminant Validity**

Discriminant validity is the degree to which each construct differs from another in a model (Carmines & Zeller, 1979). The purpose of testing discriminant validity is to ensure that different latent variables in the model does not have high correlation among them. According to Fornell & Larcker (1981), to achieve discriminant validity three conditions should be met. Firstly, average variance extracted should be greater than maximum shared variance  $AVE > MSV$ , secondly, average variance extracted should be greater than average shared variance, and thirdly, square root of average variance extracted should be greater than the correlations between the constructs. Table no. 5 shows pair wise correlation matrix of constructs, wherein, non-diagonal items are correlation among constructs and diagonal items are square root of average variance explained by that construct. Also, table no. 5 shows that, MSV and ASV values of the construct are below the AVE values respectively.

Finally, table no. 6 presents the items retained along with their individual contribution to the respective constructs.

**Table No. 4: Reliability and Validity Scores of Each Construct**

Particulars	Reliability		Convergent Validity		Discriminant Validity	
	Cronbach's Alpha ≥ 0.70	Composite Reliability ≥ 0.70	Standardized Factor Loadings ≥ 0.50	Average Variance Extracted ≥ 0.50	Maximum Shared Variance ≤ AVE	Average Shared Variance ≤ AVE
Training & Development	0.788	0.886	0.764	0.528	0.464	0.393
Competency Analysis	0.757	0.859	0.707	0.507	0.429	0.334
Mentoring	0.746	0.832	0.700	0.502	0.392	0.328
Competency Based Assets	0.849	0.920	0.884	0.536	0.464	0.430
Capability Development	0.802	0.893	0.871	0.547	0.458	0.411
Continuous Capability Development	0.748	0.921	0.870	0.516	0.458	0.413

**Table No. 5: Pairwise Construct Comparison for Discriminant Validity**

Particulars	TD	CA	ME	CBA	CD	CCD	AVE
<b>TD</b>	0.727						0.528
<b>CA</b>	0.580	0.712					0.507
<b>ME</b>	0.571	0.423	0.709				0.502
<b>CBA</b>	0.681	0.655	0.615	0.732			0.536
<b>CD</b>	0.644	0.610	0.606	0.666	0.740		0.547
<b>CCD</b>	0.652	0.595	0.626	0.659	0.677	0.718	0.516

*Note: The Diagonal elements are square root of Average Variance Extracted (AVE); Non diagonal elements are correlations between constructs.*

#### **Establishing Criterion Referenced Norms**

The data collected was then used to establish external standard or criterion and comparison of scores are made with it. This process is known as criterion referencing. Criterion referenced scale has a fixed performance criterion. If a respondent is able to achieve a predetermined score, it is said that the respondent is capable of the total performance demanded by the scale. Glaser (1963) explained criterion reference scale as one in which the performance of the test is linked or related to some behavioural measures or referents. Table no. 7 show the criterion reference norms developed for Competency Development Practices scale.

#### **Re-validation of Competency Development Practices Scale**

Once the questionnaire was finalized it was administered on 1068 managers working on the top, middle, and lower level management in different organization. Out of these managers, 701 were males and 367 were females. Confirmatory Factor Analysis was applied again to this data to

**Table No. 6: Showing retained items with their individual contribution to the construct**

Q. No.	Statement	R <sup>2</sup>
	<b>Training &amp; Development</b>	
1.	Critical skills required for performing each employee's assigned tasks are identified.	0.677
2.	Training needed in critical skills of each employee are identified.	0.831
3.	Employees receive timely training needed to perform their assigned tasks.	0.730
4.	Development discussion is held periodically with each employee.	0.698
5.	Director HR is assigned the responsibility for assisting and advising units on T&D activities and procedure.	0.703
6.	Within each unit, a manager or executive is assigned responsibility and authority for ensuring that T&D activities are performed.	0.591
7.	Appropriate measurement tools are used to determine the status and performance of T&D activities.	0.826
	<b>Competency Analysis</b>	
8.	Each of the organization's workforce competencies is analysed to identify the knowledge, skills, and process abilities that compose it.	0.698
9.	Workforce competency descriptions are documented and maintained according to a documented procedure.	0.694
10.	Employees best in each workforce competency perform competency based processes, which act as benchmark for other employees.	0.856
11.	Information on capabilities of employees in their workforce competencies is collected and maintained according to documented procedures.	0.730
12.	Competency information is updated on a periodic and event driven basis.	0.692
13.	Appropriate measurement tools are used to determine the quality of workforce competency descriptions and competency information.	0.574
	<b>Mentoring</b>	
14.	Each mentoring program is communicated to mentor and mentee.	0.609
15.	Each mentoring program is communicated to mentor and workgroups.	0.818
16.	Mentors and mentees receive appropriate orientation in mentoring practices.	0.766
17.	Practices and procedures for performing mentoring are defined and documented.	0.614
18.	Appropriate measures are used to determine the effectiveness of mentoring activities.	0.710
	<b>Competency Based Assets</b>	
19.	Selected components of competency based information and artifacts are organised into Competency based assets and made available for use.	0.736
20.	Competency based assets are updated to reflect periodic revision in the knowledge, skills, and process abilities constituting workforce competencies.	0.762

Q. No.	Statement	R <sup>2</sup>
21.	Competency based assets are integrated into competency based processes and related technologies.	0.786
22.	Individual employees use competency based assets in performing their business activities.	0.672
23.	Employees responsible for developing the organization's competency based assets develop the knowledge, skills, and process abilities needed to perform their responsibilities.	0.662
24.	Employees responsible for deploying the organization's competency based assets develop the knowledge, skills and process abilities needed to perform their responsibilities.	0.731
25.	Practices and procedures for capturing and using the competency based assets are defined and documented.	0.787
26.	Employees involved in capturing or using competency based assets have the knowledge, skills, and process abilities needed to perform their responsibilities.	0.724
27.	Appropriate measures are used to determine the status and performance of activities contributing to and using competency based assets.	0.675
28.	Executive management periodically reviews the competency based assets activities, status, results, and resolves issues.	0.775
	<b>Capability Development</b>	
29.	Activities related to development of competencies among the workforce are based on plans for each workforce competency	0.843
30.	Organization makes available the description of workforce competencies and information about development opportunities related to them.	0.708
31.	Experience and information related to competencies are captured and made available to all.	0.702
32.	Director HR is assigned the responsibility for coordinating Competency Development activities across the organization.	0.795
33.	Within each unit, a manager or executive is assigned the responsibility and authority for ensuring that activities pertaining to development of competencies are performed.	0.749
34.	Appropriate measures are used to determine the quality of Competency Development activities.	0.715
35.	The definition and use of Competency Development are periodically audited for compliance with organizational policies.	0.647
	<b>Continuous Capability Development</b>	
36.	Individual employees are empowered to continuously improve their capability for performing competency based processes.	0.686
37.	Within each critical workforce competency, objectives are defined for critical competency based processes.	0.678

Q. No.	Statement	R <sup>2</sup>
38.	Within each critical workforce competency, capability objectives for competency based processes are compared to process performance baselines to identify improvement objectives.	0.694
39.	Individual employees evaluate the capability of their personal work processes to identify opportunities for improvement.	0.816
40.	Individual employees continuously improve the capability and performance of their personal work processes.	0.719
41.	Recommendations resulting from improvements in workgroup operating processes are reviewed to determine if they should be incorporated into competency based processes.	0.749
42.	Within selected workforce competencies, a manager identifies the opportunities for improving the capability and performance of competency based processes.	0.611
43.	Within selected workforce competencies, a manager, identifies, evaluates, and select improvements to competency based processes.	0.749
44.	Selected improvement recommendations are incorporated into competency based processes and made available for use.	0.725
45.	Adequate resources are provided for continuously improving overall workforce capabilities.	0.702
46.	Mentoring support is offered to improve the capability and performance of individual employees.	0.753

**Table No. 7: Criterion Reference Norms**

Level of Maturity	Practices	Low	Medium	High
Managed	Training and Development	7-15	16-26	27-35
Defined	Competency Analysis	6-13	14-22	23-30
	Capability Development	7-15	16-26	27-35
	Total Defined	13-28	29-48	49-65
Predictable	Mentoring	5-10	11-18	19-25
	Competency based Assets	10-22	23-37	38-50
	Total Predictable	15-33	34-55	56-75
Optimized	Continuous Capability Development	11-24	25-40	41-55

revalidate the scale on a larger sample. Vandenberg (2006) and Schermelleh, Moosbrugger, and Müller, (2003) argued that, chi-square is not used as a good measure to accept or reject a model as it is a non parametric test which is very sensitive to larger sample. Thus, it is recommended to use the other goodness and badness of fit values like GFI, AGFI, CFI, RMSEA, and SRMR to test the measurement model. Table no. 8 shows the model fit indices for revalidating competency development practices scale on large sample of 1068 respondents.

**Table No. 8: Model Fit Statistics for Revalidation of Each Constructt**

Particulars	GFI (Goodness of Fit Index)	AGFI (Adjusted Goodness of Fit Index)	CFI (Comparative Fit Index)	NFI (Normed Fit Index)	SRMR (Standardized Root Mean Residual)	RMSEA (Root Mean Square Error of Approximation)
Acceptable Levels	≥ 0.90	≥ 0.90	≥ 0.90	≥ 0.90	≤ 0.08	≤ 0.10
Training & Development	0.970	0.905	0.941	0.937	0.0357	0.10
Competency Analysis	0.983	0.939	0.964	0.960	0.0325	0.90
Mentoring	0.980	0.924	0.955	0.952	0.0343	0.11
Competency Based Assets	0.963	0.924	0.948	0.941	0.0366	0.082
Capability Development	0.979	0.946	0.972	0.968	0.0397	0.077
Continuous Capability Development	0.956	0.914	0.918	0.908	0.0407	0.084

### Conclusion & Managerial Implications

The present study developed a standardized scale to measure Competency Development of managers working at different levels in the organization with the established criterion reference norms. This scale containing 46 items is an accurate and quick measure of Competency Development and norms established out of 1068 respondents in Indian context. The categorization of managers has been done on the basis of different maturity levels i.e., managed, defined, predictable, and optimized and their scores on high, medium, and low. Managers scoring high of each level perceive that their organization is practicing the Competency Development pertaining to the level of maturity. Organizations at **Managed level** can be categorized on the basis of respondent scoring high on Training and Development scores and low on all other Competency Development practices. At this level, organizations have a major focus on managing the performance of employees and coordinating the contribution of employees into overall performance of a unit or department. To assess the capability of an organization to perform, the performance of individual units put together is analysed. This can only be achieved by ensuring that employees possess the requisite knowledge, skills, and process abilities to perform their assigned tasks. Proper measurement tools are used to assess the performance and relevant developments are made as per the gap areas identified. Organizations are categorized at **Defined level** when the managers of these organizations score high on both managed and defined level while, medium or low score for predictable and optimised level. It means that, organizations are not only providing training and development but also focusing on competency analysis and development of capabilities of its employee. At this level, organization develops a comprehensive framework of competencies which builds the structure of the workforce of the organization. Every single workforce competency identified is fundamental to structure of the workforce and their dependencies on competency based processes. Thus, this becomes a basic element of element of the strategic business plan. Organization which are perceived to have reached the **Predictable level** are those whose managers score high on managed, defined, and predictable level but low or medium at optimized level. At this level, organization conducts mentoring programs to manage and exploit the capabilities of superior performing employees and create a workforce competency framework. This framework aids in predicting the capability of the organization to perform assigned tasks as it can quantify the capability of its workforce and that of the competency-based processes. Organizations which are categorised in **Optimised level** are those whose employees score high on the practices of competency development. At this level, the whole organization

targets on continuous development and improvement. These developments are conducted to enhance capabilities of employees as well as workgroups to perform competency-based processes. Organization empowers its employees to identify their knowledge skills and process ability gaps in comparison with the benchmarks & process performance baselines and work towards the improvement. A culture of performance excellence is created and maintained wherein, employees set their own improvement objectives and work in the direction to attain them.

### Limitations of the Research

Since the study has been conducted in India, its applicability is limited to other countries. The finding of this study, therefore, may not have universal applicability.

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