8th ICEEPSY 2017
The International Conference on Education and Educational Psychology

A GENERAL FRAMEWORK FOR A STANDARDIZED COMPETENCE ASSESSMENT PROCEDURE

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Abstract

The methodological rigour in the competence assessment represents a strategic choice to achieve a successful promotion of human capital. The role of personal and professional competences has been recognized in every professional areas and a huge number of studies have contributed to better understand how competence affect individual and organizational behaviour and what are the best methods to assure its effective assessment. The paper aims to propose an operative and standardized competence assessment procedure coherent with the more recognized international qualification frameworks, even if allowing customized reports. The proposed procedure is the result of the operationalization of a general framework able to offer good contextual and intra-individual adaptability. A four-step procedure has been identified. Each step or phase is structured in some specific sub-phases, which in turn are articulated into several activities, with a view to culminating in a structure coherent with the European Qualification Framework (EQF), where competence are described in terms of Knowledge, Skills, Ability and Other characteristics (KSAOs). The procedure, coherently with proposed framework, can be implemented both in the early stages of the job search, as i.e. graduate employability, or to detect highly specific competence finalized to promote individual and/or organizational performance. In this regard, the standardized competence assessment procedure appears to be a valid instrument to enhance individual potential, encourage competence-based organizational development and to promote Human Capital as organizational competitive resource.

Keywords: Competence assessment procedure, competence certification.

1. Introduction

"In a fast-changing global economy, skills will to a great extent determine competitiveness and the capacity to drive innovation. They are a pull factor for investment and a catalyst in the virtuous circle of job creation and growth" (European Commission 381 final, 2016).

By adopting this perspective, it is possible to understand why the issue of competence assessment has been one of the most debated by scholars working in vocational training sector over the last twenty years. Competence can be understood as part of a wider construct renowned in Human Capital (HC) literature and defined by Franke and Bermanke (2007) as "an amalgam of factors such as education, experience, training, intelligence, energy, work habits, trustworthiness, and initiative that affect the value of a worker's marginal product". From the same perspective, Arthur et al. (2003) underline that HC is the "stock of skills and knowledge embodied in the ability to perform labour so as to produce economic value".

As affirmed by Spencer & Spencer (1993), competence can be defined as "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".

However, competence should not be considered solely as an intrinsic characteristic of the individual, but it is strongly affected by different life experiences, the formal and informal learning contexts. Several scholars states that people do not show competences independently from the context in which they are embedded (Fisher, 1993; Delamare Le Deist et al., 2005).

1.1. Certification frameworks as global issue

In this last twenty years competence has represented a global challenge as academic and professional topic, generating copious debate with the intent to define a framework for competence certification. United States of America (USA) revealed the need for a competence-based approach, as showed by some accounting bodies. In fact, in the USA are born two important competence frameworks developed by American Institute of Certified Public (AICP): Certified Public Accountants (CPAs) and Chartered Global Management Accountants (CGMAs).The CPA Core Competency Framework (AICPA, 1999) identifies functional, personal, and business categories composed by 20 competences considered universally applicable to a diverse and expanding set of accounting career options. The CGMA is considered to be the bridge between education and employment as well as a roadmap to lifelong professional learning and experience. It is composed by four knowledge and skill areas: technical, business, people, and leadership. Each area prescribes a series of skill sets to assist in the CGMA 's professional development and it breaks into skills that are evaluated through four proficiency levels linked to roles or positions that a individual might aspire to. The levels are identified as follows: foundational, intermediate, advanced and expert (Boritz et al., 2017).

The policy adopted by the UK is rather different, since it is aimed at identifying a nationwide unified system of work-based qualifications as National Vocational Qualifications (NVQs) (Delamare Le Deist et al., 2005). In the UK context, NVQs are structured in a specific manner: awards are made at particular levels and each award is made up of 'units'. The purpose of a unit is to cluster particular set of

skills deemed important for a specific work tasks, process and situations. Vocational qualifications are assessed by qualified assessors.

The act of assessing competencies takes place through a number of methods which encompass, for example, direct observation by the assessor, personal statements produced by the candidate about aspects of the role they have achieved, witness testimony transcribed by a manager or expert who can corroborate the candidate's work and achievements and, finally, professional discussion that is a planned and structured discussion between the assessor and the candidate to distil aspects of expertise and accomplishment in the candidate's role (Stokes, 2017). Regardless of the specific competence approach, it seems to be an implicit and common agreement in explaining the individual differences of Human Capital in terms of Knowledge, Skills, Ability and Other characteristics (Ployhart et al., 2011). From this point of view, the European Qualification Framework (EQF) represents an attempt to make explicit such agreement, proposing a useful framework for mapping qualifications using knowledge, skills and abilities as descriptors (Mulder et al., 2017).

2.   Problem Statement

One of the first challenges for scholars working in the competence field was represented by the individuation of the key constructs of competence in order to offer a shared landmark.

Tuning Educational Structures in Europe II (2010), also known as Tuning II, make a difference between learning outcomes and competences to distinguish the different roles of trainers and trainees. While learning outcomes are defined in terms of the knowledge, skills, and abilities that trainees have attained as a result of the training activities, competences represent a dynamic combination of knowledge, understanding, skills and abilities. Accordingly with this approach, competence can be articulated in generic and specific ones, albeit with differing degrees of explicitness (Achcaoucaou et al., 2014).

A critical aspect regards the competence identification. The main problem is related to the degree of detail of the considered framework. A too general framework, that contain only general statements, can not provide enough guidance. Otherwise, a too detailed framework risks to convert the entire process of competence assessment as excessively bureaucratic and time-consuming.

Scholars suggest the identification of specific and generic competencies to incentivize access to labour market for graduates (Andrews et al., 2010; Dacre Pool et al., 2007). Considering the total amount of potential generic and specific competencies, the difficulties related to competencies assessment are widely comprehensible, further aggravate by a lack of a standardized competencies assessment procedures. Guillaume, Houé & Grabot(2014) propose to use the fuzzy model for competence modelling and to use the Choquet integral to take into account the possible interactions between competences, although this approach, strongly associating competence with task, turns out to be particularly complex from an operational point of view.

Therefore, the shortage of a shared and standardized assessment procedure force organizations and professionals to adopt discretionary procedures.

3. Research Questions

From these premises, it is therefore possible to assume three different propositions.

P1: The standardization of a competence assessment procedure can generate a more valid and reliable evaluation of competence

Competence cannot be observed directly but only inferred from performance. Hence, under a performance based assessment system, assessors will judge from performance-based evidences whether an individual meets the criteria specified in a competence standard model (McMullan et al., 2002). A standardized assessment procedure may be useful to conciliate the need of exploring and evaluating the competence of an individual with the need to refers to a competence certification standard model, also respecting the construct and ecological validity of competences assessment (Drisko, 2014).

P2: A valid and reliable standardized competence assessment procedure increase the fit between demand and supply of competence on the labour market

As is well known, in these last fifteen years several European countries experienced the increase in the unemployment rate and were engaged in structural reforms of their labour markets to become more competitive (Izquierdo et al., 2017). This events forced the public decision makers to adopt a more complex vision about what is and how to proper manage employment rates, mainly taking into account that employability can be divided into two main dimensions: the internal employability, that refers to the job-related abilities, skills and knowledge of individuals; the external employability, that refers to the prevailing state of the external labour market that can affect the extent to which individuals may find an employment (Caricati et al., 2016). From this point of view, a standardized competence assessment procedure can positively contribute to reinforce the fit between internal and external employability, since the employees' competences are the key determinants of employment (Mäkikangas et al., 2013).

P3: Standardizing a model can better respond to international certification requirements

As shown by Boritz & Carnaghan (2017) and Stokes (2017), one of the greatest difficulties in the competence assessment field is the correspondence and uniformity among the various international qualifications frameworks and standards. The lack of a sharing assessment procedure appears to foster this discrepancy among the several different frameworks. The proposed procedure could fit with the international certification requirements, even if maintaining a customized choice of assessment tools to adapt the operational procedure to individual competence assessment needs.

4. Purpose of the Study

The study proposes a general framework for a standardized competence assessment procedure. The aim is to define a detailed procedure for the assessment and valorisation of competences in order to respond to international requirements. The procedure was conceived as highly adaptable and flexible to allow the practitioner a certain degree of discretion with regard to the assessment tools while remaining within the specifications of the general framework. Similarly, the procedure has been built with the intent

to assure a fully personalization of the competence assessment, considering the intra-individual and intra-contextual variability.

4.1. Identifying Knowledge Skills, Abilities and Others characteristics (KSAOs) to respond for supply-demand competences

As sustained by scholars, a competency models is also based on the assumption that a whole-person assessment or holistic approach have to be developed in order to identify and explore the competencies that an individual could possesses or need to acquire (Suhairom et al., 2014).

From this point of view, the first aim of a competence assessment procedure can not be the measurement of competencies through performance tests, but it should be primarily oriented towards the identification of the competencies that will be determinant for defining a professional career path (McMullan et al., 2002).

As suggested by Galanis, Mayol, Alier & Peñalvo (2016) "the program acknowledges that European countries are increasingly aware that an individual's knowledge and qualifications in terms of skills and competences are heavily defined by their informal and non-formal learning activities. For this reason there is an on-going effort searching for solutions on the problem of validation of such learning experiences. In order to correctly validate them these experiences first need to be identified, documented and assessed".

The individuation of competencies is the result of complex process managed through semi-structured interviews (Mihyeon K., 2014).This implies the need for qualified professional able to rewrite with the client his life and professional experience for exploring and identifying the key competencies properly. This seems to be well connected with the idea that interprets an act of evaluation as an evidence collection process made up by a variety of appraisal tools, much more than the simple submission of performance tests. From this perspective, the use of narrative techniques seems to be a targeted route for the competence assessment procedure (Hlebowitsh P. S., 2013).The contribution of narrative learning within the competence assessment is given by its ability to attribute meaning to the events, allowing to reconstruct the personal history and learning experiences of individual. Hence, it is possible to identify skills that, if appropriately assessed, can represent the key resources for the insertion or reintegration of a individual into the labour market.

4.2. Standardized assessment between methodological rigour and individual variability

Although the identification of the key competences of an individual is the result of a qualitative analysis, it is not enough to say that an individual possesses a certain competence in some specific degree.

In order to certify the degree of competency possession it is necessary to measure it accurately and, obviously, adopting a quantitative perspective. As underlined by Suhairom, Musta'amal, Amin & Joharid (2014), "when measuring the competencies of an individual during training or in practice, the goal is for each assessment to be an accurate measure of the person's knowledge, skills, abilities, or performance".

Competence assessment can be done through various tools and methodologies. Self-assessment has often been used in the health care field to assess the competence of nurses (Lima et al., 2014). Some

scholars proposed the Situational Judgement Test (SJT) to assess critical thinking in problem solving and communication and entrepreneurial skill (Zakaria M. H. & Ismail S., 2014).

It is possible mentioned two approach to evaluation: self-assessment and the assessment through individual and group performance. These two approaches can be used differently depending on the measurement object. Nevertheless, to collect more data it is suitable to adoptan integrated approach that integrate the self-evaluation and performance analysis. This appears consistent with the results of a study conducted by Kajander-Unkuri et al., (2014), who observed that "comparing the evaluations of students to assessments by supervisors and teachers as well as observation or knowledge tests could be used alongside a self-assessed competence instrument to give a wider picture of the competence of students".

In our opinion, self-assessment should be combined with individual performance tests such as in-basket tools or more generally cognitive performance tests. The simulation are integrated with capability evidence that includes knowledge and understanding, personal skills and qualities, and cognitive processes (Boritz et al., 2017).

5. Research Methods

The study adopts a qualitative research method that, as sustained by Yin R. K. (2015), is marked by "the challenge of doing original research and pursing three important objectives: transparency, methodically, and adherence to evidence". In this sense the choice of adopting a qualitative perspective has been dictated by the need to plan an operational procedure that could become a base for a successive experimental design.

The standardized competence assessment procedure is the result of suggestions by ISFOL (2011), that identifies some phases in the process of competence validation. The contribution provided by this study is the attempt to show the specific connections between the different operational phases. A first analysis was conducted respect to the current state of the art on competencies construct, the competence assessment and certification frameworks and the dynamic nature that characterizes the construct of competence itself (Santagata et al., 2016).

6. Findings

The proposed standardized competence assessment procedure is inspired by ISFOL (2011)model to validate competencies, that is composed by four interdependent and consequential phases, named as follows:

- Reception, Information and Orientation
- Identification and Formalization of competencies
- Evaluation of Dossier Evidence /Assessment
- Validation and Release of competencies declaration

Each phase is characterized by specific activities. Figure 01 shows the four phases and correspondent sub-phases of the proposed general framework for a standardized competence assessment procedure.
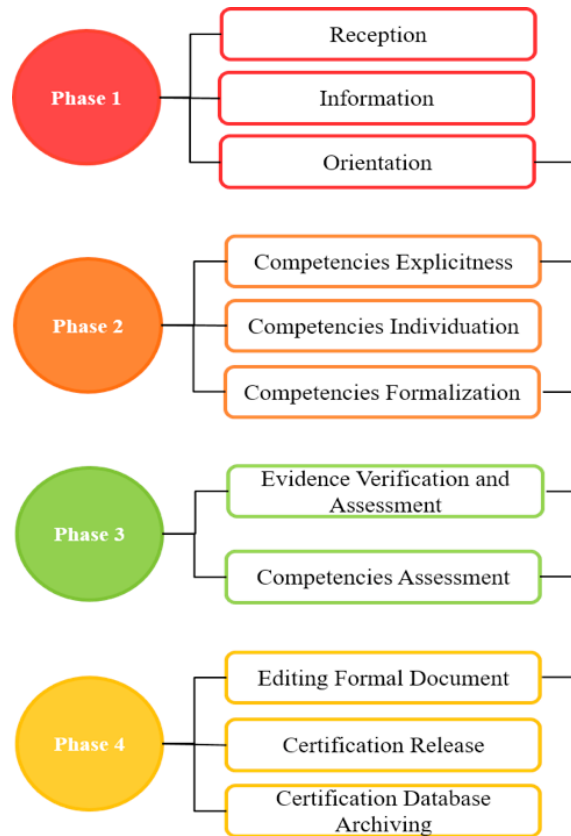
Figure 01. Representation of the four phases of the operational procedure for valorisation, assessment and certification of competences.

The main sub-phases considered in the four phases will be briefly described as follows.

Phase 1: Reception, Information and Orientation

Reception sub-phase represents the first contact with the user and consists on the identification of the general needs of the user, the provision of basic information, and the possible referring to an expert in competence assessment. The professional invites the users to provide their own certificates and certifications (hereinafter referred to as "evidences").The basic aim of this activity is to establish a relationship of mutual collaboration between professional and users.

Information sub-phase is carry out through one meeting between the user and the expert in competence assessment. During this activity the professional provide customized information to the user about the competence assessment procedure, with the main aim to meet his needs and the professional history that begins to emerge just at this stage. The professional proceeds with a customization activity also because of the evidence received.

Orientation sub-phase is considered as a competence counselling conceived to carry out a deep analysis of the procedure that will lead to identify the competences that have to be assessed and validated.

Phase 2: Competencies Explicitness, Competencies Individuation, Competencies Formalization

Competencies explicitness sub-phase represents the core of the competence assessment procedure. First of all, it must be stated that successful exploration can only take place if there is a confident

relationship between the user and the professional. The expert has to retrace the different stages of user's life, thus doing not only an exploration of his experiences, but at the same time providing an evaluation of the information obtained by using appropriate tools (i.e., by the narrative learning methods).

Competencies individuation sub-phase refers to the translation of user activities and experiences in measurable and framed competencies in accordance with international qualifications frameworks.

Competencies formalization sub-phase consists in the recognition of the competencies emerging by the user. At the end of this activity, user and professional sign a document that formally certifies the mutual agreement about the competencies to be evaluated.

Phase 3: Evidence, Verification and Assessment,& Competencies Assessment

During the evidence, verification and assessment sub-phase the expert begins to verify the evidences provided by the user. A panel of selected subject matter experts often does the evaluation of these evidences.

Competencies assessment sub-phase is characterized by performance test. This activity represents an appendix of the previous one and it is oriented to assess the knowledge, skills and abilities and any other characteristics of the user, based on the identification and formalization of the skills previously performed. Through the descriptors of the European Qualification Framework (EQF), the professional will be able to attribute a specific degree for the knowledge, skill, and ability showed by the user. If, following the evaluation process, the user will demonstrate that he does not have a certain knowledge, skills or abilities at a sufficiently high level for the desired career path, the professional may suggests to attend to some training activities aimed at increasing the degree of such competence.

Phase 4: Editing Formal Document, Certification Release, Certification Database Archiving

During the editing formal document sub-phase, throughout the collected documentation, a formal document is issued that authorizes the issuance of the certification.

During the certification release sub-phase, the user is provided with a certification of the outcomes carried out by the competence assessment procedure, with the signature of the organization and the officials who have approved the assessment process. Certification may refer to a local, national or international regulatory framework, depending on the certified competence and on the level reached by the user.

Certification database archiving sub-phase represents the conclusion of the assessment procedure. The users' certifications are stored in a special database, which allows the user to access to a personalized section to dispose of them for the uses permitted by law.

7. Conclusion

The proposed model appears an interesting step forward to assure a standardized evaluation and certification of the individual competence in line with the emerging needs testified by the national and international modern labour market. The generation of an operative proposal seems coherent with the

intent of Bologna Process that recommend, as reported by Salas Velasco M. (2014), to adopt a behaviouristic competence model.

References

Achcaoucaou F., Guitart-Tarrés L., Miravitlles-Matamoros P., Núñez-Carballosa A., Mercé Bernardo &Bikfalvi A., (2014). Competence Assessment in Higher Education: A Dynamic Approach. *Human Factors and Ergonomics in Manufacturing & Service Industries, 24: 4*, 454–467.

American Institute of Certified Public Accountants (1999). *The AICPA Core Competency Framework for Entry into the Accounting Profession*. Available at: http://www.aicpa.org/edu/corecomp.htm

Andrews J. &Higson H., (2008) Graduate Employability, 'Soft Skills' Versus 'Hard' Business Knowledge: A European Study.*Higher Education in Europe, 33:4*, 411-422.

Arthur O., Sheffrin, S. M., & Prentice-Hall, I. (2003). *Prentice Hall economics: principles in action*.

Boritz J. E., &Carnaghan C., (2017).*Competence-based Education and Assessment in the Accounting Profession in Canada and the USA*. In M. Mulder (Ed.), Competence-based Vocational and Professional Education, Technical and Vocational Education and Training: Issues, Concerns and Prospects (pp. 273 – 296). Switzerland: Springer International Publishing

Caricati L., Chiesa R., Guglielmi D., &Mariani M. G., (2016).Real and perceived employability: a comparison among Italian graduates. *Journal of Higher Education Policy and Management, 38:4*, 490-502.

Dacre Pool L., Sewell P., (2007) The key to employability: developing a practical model of graduate employability, *Education + Training, 49: 4*, 277-289.

Delamare Le Deist F., &Winterton J., (2005). What Is Competence? *Human Resource Development International, 8:1*, 27-46.

Drisko J. W., (2014) Competencies and Their Assessment, Journal of Social Work Education, 50:3, 414-426.

European Commision (2016).*A New Skills Agenda For Europe. Working Together To Strengthen Human Capital, Employability and Competitiveness*. Strasburg: COM 381, 1-18.

Galanis N., Mayol E., Alier M., &Peñalvo F. J. C., (2016). Supporting, evaluating and validating informal learning.A social Approach.*Computers in Human Behavior,55,* 596-603.

Gareth R. (1997). *Recruitment and Selection: A Competency Approach*. London: Chartered Institute of Personel and Development (CIPD).

Guillaume R., Houé R., Grabot B., (2014). Robust competence assessment for job assignment.*EuropeanJournal of Operational Research, 238*, 630-644

Harpan I., &Draghici A., (2014). Debate on the multilevel model of the human capital measurement.*Social and Behavioral Sciences, 124*, 170-177.

Hlebowitsh P. S., (2013). Foreword. In Tyler R. W., *Basic Principles of Curriculum and Instruction.* (pp. vii-xii). Chicago: The University of Chicago Press, 1949/1969/2013.

Istituto per lo Sviluppo e la FormazioneProfessionaledeiLavoratori - Isfol (2011). *LineeGuida per la ValidazionedelleCompetenze da Esperienza, 2-21*.

Izquierdo M., Jimeno J. F., Lamo T. K. A., Millard S., Rõõm T., &Viviano E., (2017). Labour market adjustment in Europe during the crisis: microeconomic evidence from the Wage Dynamic Network Survey. Bank of England, 661, 2-60

Kajander-Unkuri, S., Meretoja, R., Katajisto, J., Saarikoski, M., Salminen, L., Suhonen, R., &Leino-Kilpi, H. (2014). Self-assessed level of competence of graduating nursing students and factors related to it. *Nurse Education Today, 34(5)*, 795-801.

Lima S., Newall F., Kinney S.,Jordan H. L., & Hamilton B., (2014), How competent are they? Graduate nurses self-assessment of competence at the start of their careers, *Collegian, 21*, 353-358

Mäkikangas A., De Cuyper N., Mauno S., &Kinnunen U., (2013). A longitudinal person-centred view on perceived employability: The role of job insecurity. *European Journal of Work and Organizational Psychology, 22:4*, 490-503.

McMullan M., Endacott R., Gray M. A., Jasper M., Miller C. M. L., Scholes J., et al., (2002). Portfolios and assessment of competence: a review of the literature. *Journal of Advanced Nursing, 41: 3*, 283-294.

Mihyeon K., (2014) Family Background, Students' Academic Self-Efficacy, and Students' Career and Life Success Expectations. *International Journal for the Advancement of Counselling, 36:4*, 395-407.

Mulder M., &Winterton J., (2017). *Introduction*. In M. Mulder (Ed.), Competence-based Vocational and Professional Education, Technical and Vocational Education and Training: Issues, Concerns and Prospects (pp. 1-43). Switzerland: Springer International Publishing.

Ployhart R. E. &Moliterno P., (2011). Emergence of the Human Capital Resource: A Multilevel Model. *Academy of Management Review, 36:1*, 127-150.

Rutledge L., LeMire S., Hawks M. &Mowdood A., (2016) Competency-Based Talent Management: Three Perspectives in an Academic Library. *Journal of Library Administration, 56:3*, 1 -27

Salas Velasco M., (2014). Do higher education institutions make a difference in competence development? A model of competence production at university.*Higher Education, 68:4*, 503-523

Santagata R., &Yeh C., (2016).The Role of Perception, Interpretation, and Decision Making in theDevelopment of Beginning Teachers' Competence.*ZDM Mathematics Education, 48:1*, 53-165

Spencer, L. and Spencer, S. (1993). *Competence at Work: A Model for Superior Performance*, New York: Wiley.

Stokes P., (2017). *NVQs and Approaches to Competence in the UK: Contexts, Issues and Prospects*. In M. Mulder (Ed.), Competence-based Vocational and Professional Education, Technical and Vocational Education and Training: Issues, Concerns and Prospects (pp. 297-315). Switzerland: Springer International Publishing.

Suhairom N.,Musta'amal A.H., Amin N. F. M.&Joharid 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.

Tuning Educational Structures in Europe II (2010). *Final Report. Pilot Project - Phase 2.*from: http://www.deusto-publicaciones.es/ud/openaccess/tuning/pdfs_tuning/tuning03.pdf

Yin R. K., (2015). *Qualitative Research from Start to Finish*. New York: The Guilford Press.

Zakaria M. H. & Ismail S., (2014). Implementation of graduate employability skills SJT instrument in Universiti Utara Malaysia. *AIP Conference Proceedings, 1635*, 962 – 965.