

Evaluation of competencies for academic internship students

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Abstract— The rules and regulations on academic internships require all trainees to be "competent" and "qualified", but there is little direction on how institutions can prove that their workers and internship personal are knowledgeable and qualified. Competencies necessity to be correctly assessed, tested and verify, to fulfill the regulations of academic internship experiences, so that competencies continue to be assessed by a "competency standard", which specifies all the skills, talents, knowledge, abilities and experience required for each competency. This paper provides a competency assessments procedure used for academic internship practices.

Keywords—*competency, assessment, academic internships, evaluation procedure*

I. INTRODUCTION

All institutions need competent employees, especially when they are in their first academic internship, where errors can have disastrous consequences. Lack of certain competencies, skills and knowledge can contribute to serious accidents: it had been presumed that a trainee with a certain level of expertise and practice would be knowledgeable to do any task. This is a growing concern as institutions lose employees to retirement, work accidents, backlogs and staff reductions that in many cases mean more work for other employees and especially for interns.

Competence has always been key to protection and well-being [1]. The competency-based approach, as we all know, is an approach that has been known and developed for many years. In the 1970s, Bunk [2] introduced the term competency in the educational world; and he speaks of a competency as a way of showing that a person has skills and knowledge.

One of the first uses of the word "competences" is found in Classical Greece in a writing by Plato (Lysis 215 A, 380 AD). The root of the word is "ikano", a derivation of "iknoumai", which translates as "to arrive". In ancient Greece it had an equivalent for competence, which is *ikanótis* (ικανότης), this is the quality of being "ikanos" (capable), having the "ability to in order to achieve something", it is a skill. The origin of the term competence also appears in ancient Rome, from the Latin "*competens*", which means "to be able to".

The peculiarity of this word is that for many centuries it has always referred to labor and professional aspects and has not been used in educational terms until recent years. The concept of competence is therefore many centuries old, and achieving it has been the aspiration of many people throughout history in terms of work: to be professionally

competent or what is the same, to be sufficiently capable and able to perform certain tasks with maximum efficiency.

The RAE dictionary [3] gives as meanings, in the first instance everything related to disputes, oppositions and rivalry. As a second meaning it provides everything related to expertise, aptitude and suitability to do something. Therefore, the educational conception we are looking for has not yet reached the dictionary, although this second definition is very close to what educational systems are currently looking for when educating by competencies, since the aim is for the student to "be able to". There have been three approaches to the term "competency" since the middle of the twentieth century: behaviorist, generic and cognitive. Today we have the same prominence on competence; for example, medical standards [4-5-6] oblige all workforce in an organization to be competent and qualified in all the responsibilities, tasks and assignments they execute.

A. Competence

A competence is a combination of skills (capability and know-how to do a job or a task); knowledge (ability to comprehend the job or the task); and, experience (interval of time performance the job or the task) [7-8-9]. A competence includes standards/actions/behaviors/assertiveness [10], and 'non-technical' skills (communication, decision-making, autonomous and team working, etc.) [11]. A competence is developed by a combination of guidance, mentoring, coaching, knowledge and experience [12].

B. Qualification

'Qualified' means a trainee evaluated [13]. According to Flaig et al. [14] a qualification is '*a recognized result of an assessment and authentication procedure which is gained when a competent organization regulates that an individual has accomplished learning outcomes to a given standard*' (p. 99).

For this reason, in order for a practitioner/trainee to be called qualified in a competency, he/she must pass an evaluation (assessment) of that competency. So that to determine someone is competent does not necessarily mean to be qualified. Therefore, being qualified means that the competences of the trainee have been adequately assessed (evaluated).

C. How to demonstrate competence and qualification?

Some individuals feel that they can demonstrate mastery/domain of their competencies by citing their

academic and professional achievements, training programs completed and relevant experience [15]. Some individuals believe that they can demonstrate mastery of their competencies by citing their academic and professional achievements, training programs completed [16] and relevant experience [17], but presented in this way it creates a limitation because academic qualifications are only one academic feature of an individual's career history, and are not necessarily related to the job they are developing or will be performing as a trainee [18]. Thus, from this point of view, the demonstration of experience and qualification is inadequate and only allows rectifying this information by approaching external elements and individuals who may or may not recognize this skill presented by the individual [19]. A more accurate process is to have a competency assurance system that establishes appropriate competency standards and obliges to accomplish formal assessment and revision of previous evaluations.

D. How to recognize competence in academic internships

Many careers, rely on academic/professional credentials and qualifications, internship experiences, instructional programs, and on-the-job experience to develop or mastery competencies. Other careers demand the demonstration of the specific competences, such as medicine and nursing. This competency's validation is accomplished by completing practical, written and oral tests, carrying out exhaustive technical and professional simulations and to demonstrate the knowledge achieved by carrying out live practical exercises, such as laboratories [20]. Competence requires consistent practice [8][10]. Possessing certain competencies is limited to recognizing certain concepts, processes and principles, which sometimes require long practice to master [2] [10][12]. Knowledge factors are important, but they need to have a practical and domain-accurate context. Concepts are used to solve problems, and are part of each individual's RAM memory. Processes are attributed constant practice to achieve domain, but this will only allow an individual to be part of the process, and describe it. Competence in a process will include exchanging efforts, assessing conditions, solving failures, etc., to completely comprehend and appreciate the process [21].

II. COMPETENCE ASSESSMENT IN ACADEMIC INTERNSHIPS

According to Crowell [22] an individual's competence cannot be grounded only on he/she own's personal evaluation. It has to be independently evaluated: "... *men and women who aspire to be recognized as professionals require independent assessment of their competence when they are performing their internships processes...*" (p-26). In the same way, Maker & Zimmerman [23] consider that:

"To demonstrate competence in internship processes, students (trainees) must possess the necessary professional, personal experience, own technical skills, higher expertise, understand and execute behaviors required to perform a task or practical role, and be able to apply all these consistently and in accordance with established procedures and relevant internships' standards..." (p-259).

Assessment is a tool or process used to measure student/employee/trainee accomplishment of obtained learning outcomes [24]. The assessment procedure is a technical assessment and practical validation of understanding against "learning outcomes". This evaluative process ensures that trainees are competent to perform their academic, professional and job functions to an agreed standard [8]. There are various methods of assessing competencies; e.g., self-assessment; performance; examination; and, interview [12].

Evaluations shall be designed to assess the competencies of internships students or trainees using written, oral, practical, observational, or other trustworthy and objective means, and shall track a process that guarantees consistent direction of the assessments [25]. The evaluation strategy should guarantee the equivalence of the results of each evaluation, including content, validation of not only passing or failing the test, but also a degree of difficulty that allows to generate productive overthinking for each individual evaluated. This kind of evaluation strategy requires meticulous planning. The entire assessment strategy must be clearly organized, and detailed to the point of recognizing the minute details and steps in carrying out the assessment strategy [25]. The presence of an evaluator or mentor is indispensable when implementing an evaluation strategy [23]. Furthermore, it is essential to document the procedures to be tracked and the methodology to be followed to confirm the impartiality, validity, reliability and clarity of the evaluation. Table 1., shows the different processes used to assess competencies for internship students.

TABLE I. ASSESSMENT TYPES

Assessment Types	Assessment validation in the internship
Self-assessment	The practicum student self-assesses his or her competencies and subsequently has the opportunity to acknowledge, compare and receive feedback on his or her assessment with the subject matter expert assessor or mentor chosen for this strategy [26].
Observational assessment	Observational evaluation may be conducted by the supervisor or immediate boss of the academic practice, as well as the designated mentor. In this method of assessment, the mentor observes, records and evaluates the performance of the trainee over a long period of time (depending on the strategy designed). This process at certain levels and depending on the academic practice, can be impractical and generate an unrealistic evaluation [27].
Assessment by training	The value of the training must be assessed; through a written oral or practical examination and in many settings, e.g., virtually or face to face. This type of validation by examination is essential, as it is the only evidence that recognizes that the trainees have benefited from the training [28].
Interview	Interviews with trainees are very useful because they confirm instantly, clearly and at first hand the professional competencies that the trainees possess, as well as, their professional and/or academic weaknesses and shortcomings. It can be conducted with technical, practical, case studies or laboratories questions related to the competencies to be assessed [21].
Evidence-based assessment	This evaluation can be carried out to measure or compare one or several competencies. In order to perform this evaluation, it is indispensable to design tools with clear criteria to evaluate, judge, justify or specify the performance of the competency level required for the job/task in the internship process [29].

Source: Own elaboration

III. COMPETENCY EVALUATION PROCEDURE FOR STUDENTS IN ACADEMIC INTERNSHIPS

The previous section showed the different types of assessment used for the competencies of academic internship students. The assessment has to be delimited in a process that guarantees and certifies reliable evaluation organization. This section presents a generic assessment procedure designed for students in academic internships.

A. Recognize the level of competency the student possesses

Interns should know what competencies they possess, and what level of professional and academic experience those competencies will enable them to perform a specific task in their academic internship. The specifications of the specific job in the academic internship recognize the skills and competency profile that the student must possess. Similarly, they can be recognized through continuous performance evaluations [12].

B. Assess the competencies of trainees against specific local or in some cases international standards

A trainee's competencies are assessed against a "competency standard". Competency standards stipulate a general description of a competency and include the skills, knowledge, expertise and experience necessary for a competency. Internship students with recognized and certified proof that fulfill these requirements can obtain a positive qualification in the domain of that competency. There are private, commercial and public bodies for the regulation of competency standards, such as, the Scottish Qualifications Authority [30], the Singapore Ministry of Education [31] and the European Commission/EACEA/Eurydice [32]. These standards are essential procedures to qualify and certify students in internship processes.

C. Demonstrate compliance with the standards set by these bodies

The practicum student must collect and certify that he/she meets the competency standards to perform the activities of the academic practicum. These proofs are essential, specific and must be presented in formats pre-established by the regulations, e.g., the Hague apostille or an international certification comparable to a notarization

D. Find a competency assessor (mentor)

Competency assessment must be done formally, and registered with a specific entity, e.g., a university. The competency assessment must be carried out by a subject matter expert (SME), mentor or a private, commercial and public body. This individual or body must be appropriately qualified and independent, and be able to validate the suitable understanding, capabilities, skills and expertise to accomplish the necessary assessments of the SME.

E. The evaluation process

From the evaluation, the evidence gathered is considered sufficient or insufficient to consider the level of competence of the student in academic practice. If the evidence is insufficient, the student must take a formal test-type evaluation to recognize his/her level. The competency standards provided by the bodies contain the necessary details of the competency level that the candidate and/or student must possess. As Table 1 mentions, there are several methods to assess competencies (self-assessment, observation, assessment by training and interview).

F. Recognition: When the assessed student passes the standardized test and meets the requirements of the standard, he/she is awarded a proficiency level qualification (beginner, foundation, professional).

IV. E-MENTORING PROGRAM IN ACADEMIC INTERNSHIPS ASSESMENT PROCESS

The E-Mentoring in Academic Practices program is a learning strategy that has the function of recognizing and advising students in academic internships in the development of their professional competencies in training, the level of mastery they possess and also, it provides a clear evaluation strategy that helps these students to achieve the different competency levels issued by the regulations established by the European Commission/EACEA/Eurydice [32].

The individual can obtain as results after the mentoring process a demonstrable recognition of the level of competence mastery that he/she had at the beginning of his/her academic internship and at the end of it after having participated in the e-mentoring program. The competencies evaluated are shown in Table 2.

TABLE II. COMPETENCIES EVALUATED

Instrumental competencies	Interpersonal competencies	Systematic competencies
<ul style="list-style-type: none"> Effective communication. Problem-solving. 	<ul style="list-style-type: none"> Application of critical, logical and creative thinking. Teamwork. 	<ul style="list-style-type: none"> Learning to learn. Project management. Autonomous work.

European Commission/EACEA/Eurydice [32], competency standards were compulsory and provided the steps of the competency evaluation procedure for students in academic internships. The assessment, SMEs and recognitions were provided by the E-Mentoring program in Academic Internships [12]. The evaluation process is shown in Table 3.

TABLE III. ASSESSMENT PROCESS

Step	Detail
1	Internship student applies to the E-mentoring Program in Academic Internships for an assessment of a competency(ies).
2	Internship student is sent auto-assessment with list of competencies to evaluate (confidentiality requirements).
3	Internship student recognizes his/her Competencial level (beginner, foundation, professional) that he/she believes possesses.
4	E-mentoring Program in Academic Internships sends the selected European Commission/EACEA/Eurydice Competency Standard to the internship student.
5	Internship student verifies if he/she meets the qualifications, pre-requisites and co-requisites of the European Commission/EACEA/Eurydice Competency Standard.
6	Internship student completes and sends assessment to be evaluated.
7	E-mentoring Program in Academic Internships coordinator decides to evaluate the student, after consideration of required of qualifications, pre-requisites and co-requisites and in some cases he/she requires interviews with the student.
8	E-mentoring Program in Academic Internships coordinator appoints a mentor(s).
9	E-mentoring Program in Academic Internships coordinator sends a competency rubric assessment form to the mentor (s) to be assessed.
10	Internship student signs a 'Consent of participation (confirming that the evidence submitted is correct and accurate) and sends it to the E-mentoring Program coordinator.

11	Internship student is assessed on an agreed date by him/herself and the appointed mentor.
12	E-mentoring Program coordinator informs student of results of assessment.
13	E-mentoring Program coordinator recognizes and certifies the assessed competency (ies)
14	E-mentoring Program coordinator draws up a certificate of successful completion of the evaluation as proof of the evaluation.

The internship students finished their competency evaluations, and a new cycle of further evaluation in other competencies is initiated to demonstrate their competency level.

V. DISCUSSION AND CONCLUSIONS

Some institutions recognize and fully believe in the primary academic qualifications provided by ad hoc training programs and on-the-job experience to develop competencies. It is important to recognize that this approach is outdated, especially for the recognition of competency levels of students in academic internship programs. As stated by the European Commission/EACEA/Eurydice [32] "Qualification is an end; training is the means to an end.... Qualification is the outcome of assessment; training does not necessarily result in qualification." Currently, the demonstration of the competency levels of practitioners is done through assessment [33]. An assessed, certified and mastered competency becomes a qualification [26]. A learner who claims to possess a competency, without possessing verification with credible evidence such as an assessment, is recognized as unqualified in that competency [34-35].

The value of competency assessment is evident, and to achieve it, it is essential to follow the rules and regulations that the international recognized bodies offer to assess the competency levels of academic internships. According to O'Neill & Padden [25] assessments have many benefits:

- Concrete evidence of standards and regulatory compliance.
- The requirements it utilizes target the acquisition of skills, knowledge and experience.
- Promotes help to trainees to develop their own professional careers.
- Underwrites tests based on competency assessments.
- It has a quantitative basis for training and research requirements.

The requirements for each competency, their levels of mastery and assessments are part of the "competency framework" of the e-mentoring program [21]. In fact, following the European Higher Education Area [36] points out that for trainees to actively participate in the academic and practical processes "competence management systems" must be in place in an individual support program presented by a higher education institution [37], e.g., a mentoring program.

On the other hand, Rios et al. [38] argue that competency assessment, like any other assessment, cannot be considered perfect or adequate if the assessment procedures do not fit the needs of institutions, practitioners, and especially academic practice entities (businesses and institutions).

For Maker and Zimmerman [23] to achieve this adequate form of assessment, it must be guided by a well-designed

competency assessment program that is supported by all participants and is part of a formal mentoring program. Only in this way, the authors emphasize, will well-documented competency assessments enable competency management focused on fairness, safety and truth [39].

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