

Designing a Competency-Based Evaluation Model in External Academic Practices (Internship)

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Abstract— This Innovative Practice Work in Progress paper presents a experience of internship assessment in two bachelor's degrees in Business administration, Industrial Engineering and Computer Engineering in Spain. In both studies internship are compulsory and although those studies have in essence many differences, in fact they have many common elements because both are orientated to professionalizing students. These characteristics encourage the authors, who are involved in internship as academic tutors, to propose an objective assessment model that can be used by different higher education degrees as evaluation model for internship. Therefore, this work defines a comprehensive evaluation process based on competencies for external academic internships at higher education. Integral in the sense of the participation of the academic and company tutors; and working in a double field: the academic and the professional. The evaluation model is based on the design of an evaluation rubric; from which emerges a set of assessment and qualification documents to be used as a reference/ guide to shows the level of competencies mastery by each student and how they will be measured. The final of the assessment process is an individualized Final report that summarizes student's learning process and his/her final quantitative rating; This report also includes the comments of the tutors about the skills worked, the progress in every competency and the different levels acquired by the student.

Keywords— *internship; higher education; evaluation rubric; competency-based assessment; final report*

I. INTRODUCTION

This innovative work-in-progress practice presents a proposal to assess the students' progress competency-based throughout the period of External Academic Practice (EAP). These courses programs provide students with relevant professional experience before they finish their bachelor's degree and represent a rich implementation of an experiential learning approach. The management aspects of these programs were designed and developed with not many difficulties, but the main challenge was to implement new assessment models capable of considering the specificity of the internship. Other important challenge is related to the role of industry employers in EAP. They play an important role along student's learning process and in particular in the evaluation process, as well as they are not accustomed to be part of the academic assessment.

Our University, from the European Higher Education Convergence disposed to include in all their Bachelor degrees,

EAP as a compulsory subject. This was an strategic differential factor, giving students the benefits of real work experiences in order to improve their professional's skills and competencies as well as facilitating their process of incorporation into the labor market. The intrinsic characteristics of EAP involve considering industry employers as external agents, unaccustomed to developing processes such as academic evaluation. Therefore, was necessary the review, updating and adaptation of teaching/learning methodologies and the establishment of techniques and practices that allow the integral assessment of the student process based on competencies instead of contents. In concordance with this, the authors of this paper, as academic tutors of EAP, started working on the incorporation of the competency-based evaluation in EAP as a way to guarantee the assessment of our institution students. As a result, we define an integral competency-based evaluation process for internship [1], with the aim of being applicable in the same subject in others faculties or even in other higher education institutions, with few adaptations.

Our starting point was to assume the assessment of the EAP as a global process that should consider the student's learning in a double scope: academic and professional. Therefore, this model must include the assessments of the evaluation agents, both academic and professional, and also be carried out at different times along the student's stay in the company. This approach, however, would not be feasible if at the same time it was not useful as an information tool for the student and as a follow-up of his/her competency progress; always with a double objective: to guide the way of working the subject and to report about his/her strengths and points of improvement. To this end, an individualized Final Report is designed that summarizes the details of his/her learning process and the final quantitative rating of the subject. This report also includes comments from the tutors on the competencies assessed as well as their different levels acquired.

II. OBJECTIVES

Our group wants to design a comprehensive evaluation model that includes management and comprehensive monitoring, based on the acquisition of competencies of EAP students.

For this, the objectives that arise are:

- Guarantee the objectification of the evaluation process
- Ensure student follow-up
- Guarantee the acquisition of the complete proficiency profile that the student must achieve in the subject

To achieve these objectives, we start with the design of an evaluation rubric from which all monitoring tools and individual evaluation reports (descriptive dossiers) are designed, under academic and professional aspects. These documents make up the qualitative and quantitative assessment included in the Final Evaluation Report (FER) (individual) competency-based.

The use of an evaluation rubric, as the main source from which all the proposed evaluation departs, is based on the fact that it is considered an ideal tool to carry out comprehensive and formative evaluations [2][3]. In addition, the rubric is also considered as a necessary instrument for the orientation and evaluation of the educational practice of higher education students [4]

III. METHODOLOGY

To obtain the FER we carry out a sequence of ordered actions that we detail below:

Phase 1. We begin with the design of an evaluation rubric as an instrument to monitor the student's learning through different evaluation reports. In each one of them, we define the competencies to be evaluated by the different agents (academics and professionals) and the results of this evaluation.

Phase 2. This provides us with the necessary information to assess the level of mastery of different competencies at different times and by different agents.

Phase 3. Due to the volume of information handled, the automation of the calculation of proficiency levels for each student is unavoidable. For this, we propose an algorithm that will facilitate this calculation process.

Phase 4. We design a Final Evaluation Report, with explicit individualized mention (numerical and commentated) of each of the competencies analyzed throughout the internship period and proposals for future improvement..

IV. RESULTS AND FUTURE PERSPECTIVES

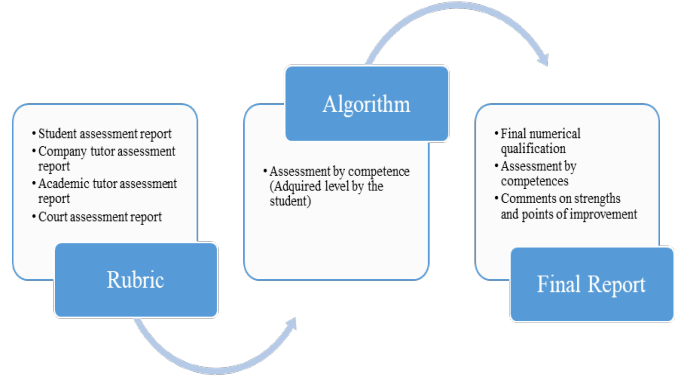
Although there are many theoretical studies in the literature that propose evaluation models competency-based [5][6], these usually end with a final grade of a subject and ignore the detail of the evaluation of each one of the competencies assessed. In this sense, this is the main contribution of our work, since we provide the necessary tools to measure the learning process of the students but always focusing on the acquired competencies.

To do this, we propose a reference/guide of the level of mastery of ever subject competencies and how will be measured. Next, we present the summary of the complete evaluation process that covers all phases of our model. See Fig. 1.

In the first phase of the process we design, based on an evaluation rubric, different evaluation reports, one for each evaluation agent (Report of the company tutor, Academic tutor's report, Student's report, Assessment court report). At the

same time, we define in each report the specific competencies that each agent will evaluate.

Fig. 1. SUMMARY OF THE ASSESSMENT PROCESS PROPOSAL



Given the need to establish a continuous assessment system, each of these reports must be completed at different times to guarantee the learning process during the internship. The complexity of this process implicated the need to have a model that automatically calculates the individualized mark per student, while allowing distinguishing the partial qualification of each evaluating agent by competency. All this process has been carried out using evaluation rubrics.

Already in the second phase and collected the four evaluation reports, we can score, according to the different indicators, each of the competencies assessed. See an example of Table 1 for one cross-disciplinary competency of the Bachelors' Degrees of Industrial Engineering, Computer Engineering and Building Engineering, in the Polytechnic School of University of Lleida.

To achieve this result, we have automatically developed a calculation template (algorithm). So that each of the evaluation reports generates a partial score for each competency and a total score, based on a previously established weighting.

TABLE 1: PART OF THE FINAL REPORT. COMPETENCY: CAPACITY OF PLANNING AND ORGANIZING THE PERSONAL WORK

Capacity of planning and organizing the personal work						
	AT	CT	S	C	G	
Ability to know how to order and distribute tasks, responsibilities and available resources to obtain the desired result in a rational and efficient manner. Demonstrates the ability to distribute your time in a balanced way according to priorities and organizes material and personal resources according to the time variable.						H
						MH
						ML
						L
Individual qualitative comment (relative positioning)	● Student ▲ Average of semester xx-xx					

AT: academic tutor; CT company tutor; S: student; C: court; G: global
H: high; MH: medium high; ML: medium low; L: low

Next, we detail this process:

1. We collect every used indicators by the different agents to evaluate the same competency.
2. We calculate the mark corresponding to each competency from the sum of the corresponding qualifications of each indicator of the same competency, weighted in turn, each of them by the weight that corresponds to it and the weight of each indicator.
3. We calculate the average result of each competency and we take this reference to place the level obtained by the student with respect to the rest of the group. Then, the student, apart from the absolute value of his/her qualification, knows if his/her level of mastery of the competency is higher or lower than the group average.

Finally, in the last phase, the final grade of the subject is obtained by weighting each of the partial grades as indicated in the previous stage. It should be noted that the change from a numerical final qualification to a qualitative qualification by competencies is not automatic. This requires a complex conversion process, having to consider at the same time the different quantitative weights of the final qualification of each agent and each competency indicators.

For this reason, we propose to elaborate the FER that specifies with precision the level of acquisition of each competency, so that we obtain the results through a double instrument to measure the level of learning:

1. The calculation template of the global numerical qualification by competencies of the subject of external academic practices, and
2. The final explanatory report of the specific levels for each competency worked.

In Table 2 we present our proposal for the FER that will be provided to the student at the end of his/her internship period. This document will include the evaluation reports of each one of the agents and a final summary in which all the evaluations will be integrated to conclude with the final qualification of each competency, the one of the subject and the recommendations of the academic tutor.

With this final report, we pursue a double objective. On the one hand, the academic tutor gives specific and individual recommendations to the student according their relative situation of competencies mastery. On the other hand, it facilitates detailed information so that he/she himself/herself becomes aware of which his main skills are and what his points of future improvement should be (following SII method [7]). This personalization and comment of the assessment results we believe is very innovative and we are not aware that this practice is carried out in other of higher education institutions.

V. CONCLUSIONS

The results obtained from this study are specified in a set of assessment and qualification documents, based on a global rubric. At the same time, this proposal is shown as a feasible way to follow the learning process of each student.

The evaluation process is organized in different documents and times, which allows the student to feedback during the

practices and gives information on their level of acquisition of each of the competencies. In this way, the student can adopt the corrective measures to achieve the necessary learning results to successfully pass the subject.

TABLE 2: FINAL EVALUATION REPORT

STUDENT:		CÓDIGO:			
		PARCIAL QUALIFICATION			
COMPETENCIES	QUALIFICATION	EVALUATION AGENTS			
		AT	CT	S	C
C1: Capacity to solve problems and prepare and defence arguments inside the area of studies.					
C2: Capacity to gather and interpret relevant data, within the area of study, to judge and think about relevant subjects of social, scientific and ethical nature.					
C3: Capacity to convey information, ideas, problems and solutions to both a specialized and no specialized public.					
C4: To have the skills required to undertake new studies or improve the training with self-direction.					
C5: Capacity of abstraction and of critical, logical and mathematical thinking.					
C6: . Capacity of analysis and synthesis					
C7: Capacity to work in situations with a lack of information and/or under pressure.					
C8: . Capacity of planning and organizing the personal work.					
C9: Capacity for unidisciplinary and multidisciplinary teamwork.					
FINAL MARK					
Academic tutor recommendations					
Strengths, improvements and insights					

AT: academic tutor; CT: company tutor; S: student; C: court

In addition to all that, this proposal is enough general and can be used in different higher education courses by changing the set of assigned competencies. The verification of this viability will be the challenge for our group in the coming years.

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