Competence acquisition and its relationship to employability: A case study

Perez-Calderon Este*, University of Extremadura, 10001, Spain.

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Abstract

The idea of employability is one of the pillars of the European Higher Education Area. The study sample consists of the questionnaires for assessment of competence acquisition by students of the University of Extremadura, Spain, specifically studying for the Bachelor's Degree in Business Management and Administration during the academic years 2013/14 and 2014/15. Data analysis was carried out using factorial analysis and structural equations. The relationship between transversal and specific competences is demonstrated, also between transversal and general competences. The design of the curricula is adequate but the cooperation between internships coordinator and the degree's quality committee should be closer and actions should be proposed aimed at improving the results obtained. Universities’ own models for improving management should be complemented by others external reference such as the indicators supplied by business associations or by the National Agency for Quality Assessment and Accreditation of Spain.

Keywords: European Higher Education Area, employability, competences, skills, internships.
1. Introduction

Regrettably, the present panorama of economic crisis together with the loss of professional, ethical and moral values is an opportunity for public universities to offer syllabuses capable of providing a response to a situation of disappointment and uncertainty. It is to be hoped that something as ambitious as the Bologna process will result in Spanish universities transmitting values and competences to make future graduates into people and professionals with the capabilities to take us to a far better society and economic situation.

One of the biggest criticisms made of the university education system is the lack of adaptation of its graduates to their social and business/employment environment, specifically to the qualification needs required by modern companies and the knowledge society. This affects the employability of graduates and is reflected in the high unemployment rates among higher education graduates (Alonso, Fernandez & Nyssen, 2009; ANECA, 2007a).

There is no doubt that one of the main benefits of the new education system in the European Higher Education Area (EHEA), particularly in the case of Spain, is the democratization of the education process, more importance having been given to its different participants and interested parties. Specifically, students and employees become the most important points of reference showing whether the quality of the education given matches the objectives established in terms of employability, among other things. To manage achievement of these objectives, we need to use monitoring mechanisms to obtain indicators that show us the present situation. In this way, a reference point is available on which to base the design of an action strategy for continuous improvement of education and acquisition of the necessary competences.

For the specific case of the University of Extremadura, the first students following the education plans of the Bachelor's Degree in Business Management and Administration (BDBMA), designed according to the Bologna process, have been finishing their courses. So we now have the opportunity to record and analyze the extent to which the competences deemed indispensable for the education of future graduates have been acquired and the objectives initially established have thus been met.

The study examined the satisfaction of professionals (those responsible for tutoring students during nearly 3 months of internships and in many cases direct or indirect employers) with students' acquisition of those competences which have closest relationship with their professional performance. This monitoring will detect the competences that require greater attention and also the acquisition of which is shown, thereby confirming the effectiveness of the study plans.

2. Literature review

One of the pillars in the design of EHEA education plans is the concept of competence. This concept serves as a link between contents, methodologies and the capabilities/skills that are presupposed of quality education, adapted to the needs of modern society and the employment supply of employers competing in an environment subject to great uncertainty. This was recognized in the main background studies published for the design of new degrees in which it was established that competences should be the main objective of the whole process (EME, 1999).

From an academic perspective, an acquired competence is associated with the command of a particular discipline of knowledge (Barnett, 2001). In the work environment, competence is identified with employability: acquired capability, ability, the skill necessary to carry out a task or perform an activity (Alonso et al., 2009). In management language, the concept of competence is closely related to that of qualification (Friedman, 1946). Competences have also been considered prerequisites for effective action, acquisition of the ability to do something or know how to do something, surpassing mere knowledge (Allen, Ramaekers& Van Der Velden, 2003; Finkel, Parra & Roquero, 2010).
From all the foregoing, we can say that competences are combinations of knowledge, know-how learning, abilities and capabilities (Gonzalez & Wagenaar, 2006).

Use of the idea of competence as a bastion of what the result of the university education process should be and that could provide a response to the changes in organization and new employment requirements has aroused some doubts. The term “competence,” associated with the ideas of adapted capabilities, employability, flexibility and versatility, has not been exempt from many criticisms (Moreau & Leathwood, 2006; Alonso et al. 2008; Finkel et al., 2010).

In spite of these limitations, competence acquisition as the desirable result in graduates has become consolidated in the EHEA and become the objective to strive for. So it is highly desirable to assess whether these competences have been acquired when a student’s time at university is over. To do this, we need to assess the extent to which the education system designed achieves the aim of the students acquiring the desired competences.

The literature contains several studies carried out with the aim of giving support to the decision-making required to redirect contents or learning methodologies in order to improve the level of competence acquisition, or in order to identify new competences that might be demanded by the employment market and which should be included in study plans. The following projects are particularly important:

- Careers after Higher Education: a European Research Survey – CHEERS (Teichel, 2001). In this project, over 36,000 European graduates from up to 12 different countries were surveyed three or four years after they had finished their studies. The main objectives set were to analyze the employment grounding of recent graduates in their first years as professionals; the possession and use of competences in their work; the relationship between their jobs and positions with the education received; and the extent to which their professional expectations had been met. The results showed the graduates’ perception of their high theoretical preparation and general knowledge but their deficient acquisition of competences such as negotiating ability, planning and organization, efficient time management, leadership or management of pressure in the job (Schomburg & Teichler, 2006).

- Tuning Educational Structures in Europe - TUNING (Gonzalez & Wagenaar, 2006). Considered an updated, improved version of the previous project. A total of 5,183 graduates, 944 employers and 998 European academics took part in the study. In the results, the graduates stressed the importance of competences such as command of a second language, ethical commitment, and the use of information and communication technologies. Employers also coincided with the students about acquisition of competences such as ethical commitment. They also stressed teamwork. The least highly valued competence turned out to be the ability to work independently. The group of academics expressed themselves in similar terms, the greatest difference between them and the previous two groups being their more positive consideration of interpersonal skills.

- The Flexible Professional in the Knowledge Society – FPKS (ANECA, 2007b). The study proposed was necessary because the employment market not only requires acquisition of certain specific competences but also others which complement the capacity for employability and adaptation to uncertain, highly changeable environments such as the present one, exemplified by what is called the flexible professional. Replies were obtained from over 45,500 graduates from 13 European countries who had completed their studies five years earlier. The conclusions included facts such as low salaries, level of emancipation or low international mobility conditioning employment expectations of Spanish graduates. Spanish graduates showed a greater level of dissatisfaction with the high theoretical load of their degrees. According to graduates, the competences most required in the course of their work were the ability to make oneself understood, teamwork and performance under pressure. Except teamwork, the competences acquired during their university education stage were declared of little use. In short, university education, to a greater or lesser extent depending on the branch of knowledge, should re-orientate its teaching methods and syllabuses towards the acquisition of competences required in the employment market.
One study that we consider of interest because it analyses both students’ and employers’ points of view is that by Alonso et al. (2009). These authors studied how far the expectations of entrants to the labor market and those of managers of companies or institutions matched each other. The study also examined the factors crucial for effective insertion in the professional world. The conclusions highlighted by the authors include the fact that competences that traditionally have not been taken into account in the development of the academic curriculum, such as social skills, leadership, emotional intelligence, teamwork or stress management, are precisely those which are most highly valued by employers. The competences most highly valued include command of languages, discipline and work capacity. With regard to the students, the study concludes with their disappointment at not seeing their university training better recognized economically, although they acknowledged the education and personal maturity reached. The university graduates also criticized the obsolescence of syllabuses with regard to new demands from employers, and the lack of practical training.

In the former, internship of students of different degrees of the NUDL (National University of Distance Learning) was assessed by questionnaires. The study sample consisted of 108 replies from students and 36 from tutors in companies (representing employers). The results show high levels of satisfaction among students and the period of internship being seen as indispensable for the Consolidation of professional competences acquired in the education period. Employers’ opinions are also very favorable with regard to internship, although they acknowledge that its development could be better organized. In addition, the tutors value competences such as teamwork or social skills less highly; those they score most highly are motivation and creativity (Ballesteros et al., 2004).

The second study evaluates internships of students of a Master’s degree in Social Science research methodology. The authors subjected the development of generic and personal competences to evaluation, using a sample of students of the degree and their tutors in the companies in which they carried out their practical training. In addition, the level of importance of these competences for the sector is measured. Outstanding as the main results are the coincidence between the students and teachers about the development of the competences examined, but some discrepancy about their importance in professional performance (Finkel et al., 2010).

The study of Martín, Rabada & Hernández (2013) of the main results of questionnaires aimed at employers in the Community of Madrid (872 surveys and 40 semi-structured interviews) should also be mentioned. The authors observed that, although the overall evaluation of the preparation of graduates in technical subjects on entering the employment market is good, there is a mismatch between the level of generic and specific competences acquired by graduates and that required by companies, this being greater by subject than by years of education.

Finally, in the study carried out by Perianez, Luengo, Pando, De la Pena, & Villaba, (2010), related to the Basque Country (Spain), the essential competences demanded by employers of organizations were analyzed. For this purpose, the employers, represented by associations of economists, assessed three large groups of competences related with knowledge, skills, attitudes and values. The study sample comprised 500 validated questionnaires representing the different sectors of business activity. As their main conclusions, the authors stressed commitment/maturity, ethics and integrity (values), and also teamwork, the capacity for self-teaching, and time management (skills).

In Spain, in application of the Bologna Declaration, clear preference for education in competences orientated towards employability (RD 1393/2007) is shown. Specifically, in a framework document prepared by the Ministry of Education, Culture and Sport (LO 8/2013), referring to the educational level of bachelor’s degrees, the need is established to offer an education integrating generic basic competences, transversal competences, and specific competences. The main objective of identification and definition of these competences will be the employability of future graduates, using professional profiles and qualification catalogues of possible destination professions as the highest point of reference (EME, 1999; RD 1393/2007).

The first non-legislative Spanish reference point for the design of the BDBMA degree was the White
Paper on Economics and Business (ANECA, 2003). According to the recommendations of this guide for the design of study plans in the subjects of economics and business studies, internships induces what are called transferable competences, those which can bridge the difference between the capabilities and skills acquired in the classroom and those really needed for a particular job (ANECA, 2003). So it would be a complement to the competences previously acquired in the classroom and just before the graduate enters the employment market.

Because of all the foregoing, in the study we are presenting, in which we analyze the level of competence acquisition of the students of the BDBMA degree of the Faculty of Business Studies and Tourism of the University of Extremadura on concluding their work practice, we considered it of interest in relation to management of the degree and very timely, because these being the first years to graduate means management mechanisms can be established to improve in future graduates the level of acquisition of competences currently less highly valued by employers. In addition, at the same time we also subject employers who will quantify the level of competences acquired by the students carrying out internship in their organizations to the same assessment.

3. Methodology

3.1. Study hypothesis

In this context, where the competences acquired by students determine their level of education and future employability, we analyze whether the competences are conditioning each other and up to what point they affect overall assessment (Figure 1).

H1. The development of transversal competences determines the development of specific competences.

H2. The development of transversal competences determines the development of general competences.

H3. The development of specific competences determines the development of general competences.

H4. The development of general competences determines the overall assessment of internships by the collaborating tutors in the companies (employers).

![Figure 1. Proposed theoretical model and study hypothesis](image-url)
3.2. Sample and measurements

The data were obtained from the surveys of satisfaction with the internship carried out by students of the BDBMA of the Faculty of Business Studies and Tourism. They were collected in academic years 2013/14 and 2014/15. The questionnaires were aimed at the collaborating tutors in the companies receiving students to carry out their internship. This survey subjects answered by carrying out an assessment of the competences acquired by the students up until a week before the end of internships. In many cases, these collaborating tutors in the companies are those directly or indirectly responsible for recruitment of future employees in their companies.

The questionnaire presented is organized into two blocks of questions. The first part is focused on the assessment of general, transversal and specific competences as specified in the verified report of the BDBMA degree. In the second block of questions, management of internships activity by the faculty is assessed in general, and an overall assessment of internships carried out by the students is made.

Specifically, the questionnaire assessed 18 competences, two generic, twelve transversal and four specific competences. Assessments were made on a Likert scale from 1 to 7, where 7 represents the highest level of agreement with the acquisition of competences and 1 the lowest. In addition, the overall assessment of internships (1 item) was measured on a scale from 1 to 10, where 10 represents the highest level of satisfaction and 1 the lowest.

3.3. Data analysis

This study used the SPSS AMOS 20.0 software package with the maximum probability algorithm. Following Anderson & Gerbing (1988), the measurement models were first estimated using confirmatory factor analysis (CFA) to guarantee that the items pre-established to show the same latent construct are highly correlated and therefore reliable. In addition, Cronbach’s alpha was used to evaluate the internal consistency of the items, where alpha must be greater than 0.7 and correlation between the items must exceed 0.3 (Cronbach, 1951; Nunnally, 1978). The suitability of each multi-item scale in the capture of its respective construct is examined below. So the internal validity of the measurement models was evaluated by calculation of the composite reliability, which should be greater than 0.7, and through the extracted variance, greater than 0.5. Finally, to determine whether the constructs in the model are distinct from each other, we performed a test of the scales’ discriminant validity following Berné, Múgica, & Yagüe (1996). This condition is met if the Cronbach’s alpha of each scale is higher than any of the correlations between that scale and the rest.

After testing the adequacy of the measurement model, Structural Equation Modeling (SEM) was used to test causal relationships. As is customary, the SEM results can be interpreted in terms of the importance of individual coefficients and in terms of goodness of fit (Jöreskog & Sörbom, 1988). With regard to goodness of fit, in general using several indices is recommendable, such as chi-square ($\chi^2$); comparative fit index (CFI); goodness fit index (GFI); normed fit index (NFI); adjusted goodness fit index (AGFI) and robustness of mean squared error approximation (RMSEA). The CFI, GFI, NFI and AGFI indices should be close to 0.9 or 1.0 and the error measure should not exceed 0.1 and ideally be between 0.05 and 0.08, as noted by Hair et al. (1998).

4. Results

4.1. Confirmatory factor analysis

The full list of items including their means and standard deviations is shown in Table 1. So it can be seen that in the transversal competences, the student’s ethical commitment at work stands out (mean = 6.56), followed by capacity for teamwork (mean = 6.49). In the case of specific competences, the ability to identify and use tools in problem-solving (6.25) and the ability to apply acquired knowledge
in practice (6.25) stand out. With regard to general competences, integration in business management is the most highly valued aspect (6.27). Finally, it is observed that tutors' level of overall satisfaction with students' internship is very satisfactory (8.98); while their satisfaction with students' time in the company (6.58) and their progress during internship (6.41) are given positive but lower ratings by tutors.

Validation of the measurement model was then begun. First, the internal consistency of the items comprising each scale was evaluated using Cronbach’s alpha. All items showed a correlation greater than 0.3 and all the scales showed reliability greater than 0.7, so it was not necessary to eliminate any item from the analysis (Table 2). After analysis of the reliability of the scales, a CFA was carried out to assess the underlying structure of the variables comprising the model (Table 1). This factor analysis evaluates the measurement model for the model’s latent constructs represented by the specific, transversal and general competences, and the overall satisfaction assessment. The results of the CFA indicate that the proposed model fits the data adequately ($\chi^2 = 432.96; p < .01; \text{RMSEA} = .08; \text{CFI} = .94; \text{GFI} = .82; \text{NFI} = .90$).

| Table 1. Confirmatory Factor Analysis |
|-----------------|------|-----|---|-----|
| Scales          | Mean | SD  | $\beta$ | CR  | AVE |
| Transversal competences |      |     |      |     |     |
| TC1. Capacity for organization and planning | 6.12 | .94 | .85 | -   | -   |
| TC2. Oral and written communication in his or her native tongue | 6.37 | .82 | .71 | -   | -   |
| TC3. Ability to analyze and find information from various sources | 6.23 | .89 | .79 | -   | -   |
| TC4. Problem solving ability | 6.01 | 1.01 | .88 | -   | -   |
| TC5. Capacity for decision-making | 5.74 | 1.06 | .83 | -   | -   |
| TC6. Capacity for teamwork | 6.49 | .79 | .77 | -   | -   |
| TC7. Personal skills | 6.31 | .91 | .71 | -   | -   |
| TC8. Capacity for criticism and self-criticism | 6.00 | .99 | .82 | -   | -   |
| TC9. Ethical commitment at work | 6.56 | .73 | .65 | -   | -   |
| TC10. Capacity for self-teaching | 6.29 | .93 | .84 | -   | -   |
| TC11. Capacity for adaptation to new situations | 6.18 | .89 | .89 | -   | -   |
| TC12. Initiative and spirit of enterprise | 5.96 | 1.10 | .85 | -   | -   |
| Specific competences |      |     |      |     |     |
| SC1. Identification and use of tools/software to solve problems | 6.25 | .93 | .83 | -   | -   |
| SC2. Knowing and understanding the foundations of the legal framework | 5.94 | .94 | .79 | -   | -   |
| SC3. Capacity for applying knowledge in practice | 6.25 | .96 | .89 | -   | -   |
| SC4. Skill at information search and research | 6.16 | .96 | .84 | -   | -   |
| General competences |      |     |      |     |     |
| GC1. Capacity for integrating in company management | 6.27 | .89 | .83 | -   | -   |
| GC2. Capacity for administrative, managerial and business performance | 6.09 | .98 | .89 | -   | -   |
| Overall assessment |      |     |      |     |     |
| OA1. Are you satisfied with the student’s time in your company? | 6.58 | .77 | .87 | -   | -   |
| OA2. Are you satisfied with the coordination with the faculty tutor? | 5.46 | 1.58 | ni | -   | -   |
| OA3. Is the length of the student’s internship sufficient? | 5.44 | 1.39 | ni | -   | -   |
OA4. How do you assess the student’s progress during internship? 6.41 .82 .85 - -
OA5. What is your overall assessment of the student’s internship? 8.98 1.17 .89 - -

χ²=432.96; df=181; GFI=.82; CFI=.94; NFI=.90; RMSEA=.08.
SD: standard deviation; β: standard regression weight; CR: composite reliability; AVE: average variance extracted.

All the standardized regression coefficients of the individual items with regard to their latent variables were greater than the required minimum threshold of 0.4, with the exception of the items OA2 and OA3, which were therefore eliminated in this second stage of the analysis. In addition all items are significantly associated with their specific variable (p<.01). In addition, all scales successfully passed the composite reliability tests (greater than 0.7) and average variance extracted (over 0.5), showing that all the scales have high reliability and validity. Finally, as can be seen in Table 2, the model’s discriminant validity was also checked, because each scale’s Cronbach’s alpha is greater than each of the correlations between that scale and the rest. So all these tests of reliability and validity confirm the suitability of the proposed measurement model for the data.

Table 2. Correlation matrix and alpha value of latent constructs

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4.2. Structural equation model

The suitability of the measurement model having been guaranteed, analysis of the results obtained was carried out in the proposed structural (Figure 1). The model has a good fit in terms of the indices used: χ²=446.52; df=183; GFI=.81; CFI=.94; NFI=.90; RMSEA=.08. All the hypotheses proposed were confirmed. So it has been confirmed that transversal competences determine specific competences (β=.97; t=14.43; p<.01), accepting H1. It has also been confirmed that transversal competences (β=.46; t=4.63; p<.05) and specific competences (β=.51; t=1.66; p<.05) positively affect general competences, leading us to accept H2 and H3.

Finally, it was also possible to confirm H4, relating general competences with the overall assessment of internships (β=.94; t=12.94; p<.01). Therefore, the results suggest that a satisfactory level of acquisition of general competences was reached by students because of its influence on the overall assessment of internships (Figure 2).
In addition, in terms of explained variance it must be pointed out that the models determinants, i.e., the development of transversal, specific and general competences acquired by the students, explain 88.8% of the overall assessment of internships by companies' collaborating tutors. The results show the model has a high predictive power and reflect the suitability of the selected determinants for explanation of the assessment of internships. However, 11.2% of variance remains unexplained. This result suggests that other determinants should be considered to explain the complete variance (for example, suitability of internships to students' preferences, students' attitudes, level of delegation, type and size of company, education of the assessor and competences desirable to companies not included in the degree's curriculum).

5. Conclusions and discussion

The Bologna Declaration specifically advocates graduate employability. The BDBMA's obligatory internship assignment is intended to be an initial assessment of the competences acquired by students before they offer them on the employment market. Their assessment allows us to see the extent to which future graduates are prepared to join it when their chance comes.

Because of this, we think this training period of internship is a highly desirable, timely mechanism for monitoring the acquisition of competences by the future graduates and so that it was a good decision to include it as obligatory in the curriculum designed for the University of Extremadura.

In general, the assessment made was very satisfactory, particularly of the capacity for decision-making, and the capacity for criticism and self-criticism. However, some competences like problem-solving capability or capability for initiative and spirit of enterprise have lower ratings. In principle, these results are understandable, because one of the most frequently repeated criticisms is the short duration of this training period, one of the consequences of which would be limited experience of problem-solving.

With regard to the participation of the different competences in the overall assessment with internships, transversal competences were those which conditioned this assessment to the greatest extent. Our study agrees with similar studies (Alonso et al., 2009) in that students are grateful for what their university education gives them, especially in the development of their personal and professional maturity (associated with transversal competences and professional traceability).

In our opinion, we think it necessary for new mechanisms of cooperation between the degree's quality committee and companies' assessors to be implemented. Specific activities for assessment of competence acquisition should be designed. Along these lines the assessment questionnaire should to a greater extent fit the needs of the employment market rather than the competences included in the curriculum so that weaknesses or new necessary competences with which to propose improvements more propitiously can be detected. The study of Perianez et al. (2010) is a good example of how to organize the design of this kind of cooperation activity questionnaire with which to assess not only the
competences included in the curriculum but also those required by the employment market in which the students do their internship.

In this sense, both contents and methodologies or assessment systems should fit what is required by the present employment market better. Competences found to have been acquired less well should be subjected to analysis by the degree's quality committee and that of the education centre on the proposal of internships committee. Those in charge of the subjects with the competitions involved should review their contents, methodologies and assessment systems and orientate them towards improving their records.

The foregoing proposal is conditioned by the excessive workload involved in introduction of any quality system in a situation where resources are scarce. Furthermore, it must be borne in mind that a large part of teaching staff are subject to high standards of demand to establish themselves and, therefore, their ability to cooperate to a greater extent with the new educational project is very limited. The reflection of Professor Docampo (2001) about what this new model should not be materializes the same contents and procedures being absorbed in a new structure without the necessary focus on employability.

We believe cooperation between the University and employers should be increased. The progress of the education/employability binomial should be assessed integrally by internships monitoring committees and the degree committees. We propose that a representative of business from, e.g., an association of economists or employers' organization be included on these committees. This would provide a more direct point of view favoring employability. Also, periodically, at the end of the course with the next one in mind, questionnaire should be sent to the various business groups and large companies for them to assess internships programme and express the competences and new trends in training required by companies.

Nationwide, the National Agency for Quality Assessment and Accreditation of Spain should encourage more researches in universities or business groups to analyze in due time the satisfaction indexes of future employees with the competences acquired and exercised during university education. This monitoring process should be publicized and used as another reference by the quality committees of degrees for suitable continuous improvement of them.

One limitation of the study we can point out is the size of sample used. In addition, variables should be introduced such as business sector, company size, training of companies' assessors and companies' technological level. Students' assessment of competence acquisition could also be included, which would allow comparison of the employer/student binomial. Support for the work presented: Junta de Extremadura & Fondos FEDER.

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