Competence-Based Profile of Undergraduate Students in Madrid Universities: Differences in Terms of the Gender and Age

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Abstract

The change in the teaching model that universities are undergoing with the implementation of the European Higher Education Area, centers on competencies development so that students acquire the necessary skills and capacities. In order to corroborate whether the development of academic excellence is affected by the gender and age of students, a sample of 364 students from different universities in the Community of Madrid were applied COMPEUEM, a test that assesses the extent to which students possess eight academic competencies: communication, leadership, teamwork, adaptation to changes, initiative, problem solving, decision making, organization, and planning. The results show that older subjects score higher in the acquisition of skills than younger ones. On the other hand, significant differences were found in function of the gender of the students.

Key words: competence, university, gender, age

Introduction

The European Higher Education Area (EHEA) has meant a transformation of the universities, by changing the traditional model of education that focused on the content and the specific powers, and that had been followed in these institutions up to that time. For more than fifteen years, universities have been forced to develop another type of competencies in students in order to increase their employability and complement the specific training to their
area of expertise. These are the so-called transferable skills or general. One reason for this change has been caused by the approach of the university to the professional world and society. As will the European Commission (1997), the goal is "the development of the capacity of employment through the acquisition of skills necessary to promote, throughout life, creativity, flexibility, adaptability and the ability to learn how to learn and to solve problems" (as paraphrased by Bricall et al., 2000, p. 7-8).¹

Following this approach, education focuses on learning and not education. Educational programs should focus on the student develop a series of core competencies for their professional development. The teacher will be the person facilitator to design learning situations in which the student learns by doing. This becomes the protagonist of the teaching-learning process.

One of the greatest challenges of the European Higher Education Area is the evaluation of the level of development reached by different competencies that have been worked within each of the subjects of each curriculum. For the university teacher, this change of model is a great challenge. In addition to preparing the professionals of the future to develop the profession for which they are trained his qualifications, must develop in them a series of skills and cutting skills related to the "know", "savoir faire", "know" and "know how to be" (Echeverría Los Samanes, 2005).

These transferable skills are considered key to the performance of a large number of jobs in the recent graduates, being transferable from one to another and, therefore, by providing a higher level of employability (Escobar Valencia, 2005). In this sense suggests recent reports in the Spanish context, such as the one carried out by the Center for Innovation in employment in 2014, attended by more than 400 students and 111 companies, or studies as the prepared by the consultant McKinsey in the same year, from 8,000 questionnaires among young people, companies and training centers in 8 major European countries (Mourshed, Patel, & Suder, 2014).

Spanish universities are not alien to the demands of the new labor market in regard to the importance of skills development overlapping in their graduates. In fact, they are increasingly becoming the most universities that incorporate the development of these competencies in their plans of study or to design and implement training programs complementary ad hoc covering the current gap between the skills with the emerging recent graduates and the demands of the professional environment.

In this sense, the universities have different initiatives emerged as the project Development of the tool eCompetentis for the assessment of transferable skills (Garcia-Garcia, M. J. et al., 2010), or other initiatives such as the draft EvalCOMIX (Ibarra Saiz et al., 2010), projects as EvalHIDA (Rodríguez Gomez, 2009), Flexo I and Flexo II, in addition to Re-Eval ua² (www.re.is), among others.

Among the methods of evaluation of wider application in the field of labor, highlights the questionnaire by SOSIA Management Competencies, which evaluates 21 generic competences

¹ Bricall et al. (2000) cite this phrase of the Communication from the Commission in quotation marks, but it is a paraphrase synthesizing the following: "The development of employment skills thanks to the acquisition of skills that are necessary because of the evolution of work and your organization. This means that now, more than ever, it is necessary to promote life-long creativity, flexibility, adaptability, the ability to teach and learn to solve problems" (European Commission, 1997, p. 3).
² Development projects and adaptive learning accessible in open source systems (flexo I [Ref. TSI-020301-2008 -19] and flexo II [Ref. TSI-020301-2009 -09]). Funded by the subprogramme AVANZA R&D.
and defines 4 styles of workplace behavior (Gordon, 2008). In the valuation of the acquisition of the skills you can use different approaches depending on who the reviewer: the student own (self), the companions (coevaluation), professor or third (heteroevaluation); as well as various strategies such as: performance protocols, situational tests, interviews 360°, interviews, test of multiple selection, portfolio, scenarios, evaluation and monitoring (Martínez & Echeverría Clares Los Samanes, 2009; Njora, Darmawan, & Keeves, 2004). The questionnaires of perception, in which the students self-assess according to a certain scale in different components of the competition, are currently the most widespread by the ease in its application and because they can also be completed by the companions of the student, professor or external evaluators (Maassen & Landsheer, 2000; Scarpa & Nart, 2012).

However, we cannot ignore the fact that, in the development and acquisition of skills, age, almost always linked to a greater work experience and the sex of the students, you can have a modulating role. With respect to age, you can be considered that the competencies are crystallized and consolidated with the experience, during adult life, from the conjunction of reality, knowledge and values, that is based on the technical (Quintanilla, 1993-94, p. 16). Numerous studies show these differences between Thursday and adults. Lieb (1991) argued that the adults show a high interest in peer learning, develop their leadership skills among them. Following this reasoning, Richardson (2007) noted that older students possess a high degree of motivation toward the training programs that they choose to undertake, what they were positioned in the development of the powers of time planning and autosuggestion. Wynne (2010), in the same line, suggested that older students have a greater capacity to learn in environments participatory, collaborative, and like them develop autonomy in learning. Jara (2007) conducted a study in two Chilean universities in which shows a higher level of development of skills in students that are between 3 and 7 years of work experience, and those with more than 8 years working.

Following this line of argument, it is important to deepen in the investigation of the influence of the gender variable in the development and acquisition of skills, although there is not much literature on this subject. Garaigordobil and lasts (2006) found significant differences in teamwork and adaptation to changes in favor of the female gender. On the other hand García-Valcarcel and Arras Vote, (2010) noticed significant differences in favor of women in planning and organization: For his part, Arras Vote, Torres Gastelu and García-Valcarcel (2011) demonstrated that women linked to the area of technology and communication are getting higher scores related to ethical aspects of computing resources and work than men. Alonso Martin (2010) stated that, in a sample of students in degree of Social Education, the men gave more importance to the women to the powers of general basic knowledge of the profession, oral and written communication, knowledge of the diversity and multiculturalism (p. 97). For its part, the women perceived as much more important information management (2010, p. 97-98); With regard to the competencies linked to the initiative, Santana, Feliciano and Jimenez (2012) showed that women scored significantly higher than men.

Taking these considerations into account, the aim of the present work is to check if the gender and age significantly influence the self-perceptions that have students of their competence development.

Method

Participants

The sample consisted of 364 students of past courses of public and private universities in the Community of Madrid, 174 men (mean age: 22.78 , Sx: 4.66 ) and 190 women (mean
age: 22.79, Sx: 4.69). The criterion for inclusion to form part of the study group was be enrolled in any subject of the last year of the various degree courses. In Table 1 you can see the distribution by university.

<table>
<thead>
<tr>
<th>University</th>
<th>Men</th>
<th>Women</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcalá de Henares</td>
<td>3</td>
<td>16</td>
<td>19</td>
</tr>
<tr>
<td>Complutense of Madrid</td>
<td>82</td>
<td>72</td>
<td>154</td>
</tr>
<tr>
<td>La Salle</td>
<td>6</td>
<td>9</td>
<td>15</td>
</tr>
<tr>
<td>Camilo José Cela</td>
<td>6</td>
<td>27</td>
<td>33</td>
</tr>
<tr>
<td>Carlos III</td>
<td>32</td>
<td>42</td>
<td>74</td>
</tr>
<tr>
<td>Europea de Madrid</td>
<td>45</td>
<td>24</td>
<td>69</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>174</td>
<td>190</td>
<td>364</td>
</tr>
</tbody>
</table>

The qualifications that make up the sample cover the graduate studies in nursing, Business Administration, Finance, Computer Engineer, Sociology, physiotherapy and right.

**Instruments**

To all the subjects of the sample were administered COMPEUDEM. This is the self-test developed by TEA editions, which consists of 80 items in which the student must respond to the statements that are presented, depending on the frequency with which they are produced in the certain behaviors and according to their degree of agreement with a series of statements. The scale of response is 1 to 4 (1: never or almost never, 2: rarely, 3: often and 4: always or almost always).

The test assesses 8 competencies: communication, leadership, team work, adaptation to the changes, initiative, problem solving, decision making, organization and planning. The questionnaire incorporates a social desirability scale that allows you to detect those subjects who are trying to give an image that doesn't correspond with yours. With regard to the reliability of the questionnaire, it has been calculated by Cronbach's Alpha of the questionnaire (.74).

**Procedure and Analysis of Data**

All students were tested for the self in person, in the classrooms of the different university center that participated in the study. The information on the objectives of the test was facilitated by independent technical moments before its realization, along with the questions of the questionnaire and answer sheet. In this way I try to avoid certain social desirability between the participants that could distort the results.

The analysis of the data obtained has performed with the statistical software SPSS 20 IBM.

**Results**

Table 2 shows the descriptive statistics of the test applied in the entire sample and differentiated by gender.
Table 2. Descriptive statistics of COMPEUDEM throughout the sample

<table>
<thead>
<tr>
<th>Competence</th>
<th>Media</th>
<th>Sx</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Asymmetry</th>
<th>Kurtosis</th>
<th>Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication</td>
<td>20.36</td>
<td>2.91</td>
<td>9</td>
<td>28</td>
<td>-.259</td>
<td>.712</td>
<td>.80</td>
</tr>
<tr>
<td>Leadership</td>
<td>21.40</td>
<td>3.70</td>
<td>12</td>
<td>31</td>
<td>.183</td>
<td>-.052</td>
<td>.80</td>
</tr>
<tr>
<td>Team Work</td>
<td>20.65</td>
<td>3.49</td>
<td>8</td>
<td>28</td>
<td>-.242</td>
<td>-.096</td>
<td>.76</td>
</tr>
<tr>
<td>Adapt. to changes</td>
<td>15.33</td>
<td>4.11</td>
<td>3</td>
<td>28</td>
<td>-.274</td>
<td>.447</td>
<td>.63</td>
</tr>
<tr>
<td>Initiative</td>
<td>28.34</td>
<td>3.33</td>
<td>18</td>
<td>39</td>
<td>-.006</td>
<td>.108</td>
<td>.66</td>
</tr>
<tr>
<td>Problem-solving</td>
<td>27.98</td>
<td>3.98</td>
<td>18</td>
<td>39</td>
<td>-.094</td>
<td>.044</td>
<td>.68</td>
</tr>
<tr>
<td>Decision-making</td>
<td>20.34</td>
<td>2.98</td>
<td>13</td>
<td>28</td>
<td>-.013</td>
<td>-.078</td>
<td>.78</td>
</tr>
<tr>
<td>Planning and org.</td>
<td>22.49</td>
<td>3.35</td>
<td>14</td>
<td>31</td>
<td>-.065</td>
<td>-.136</td>
<td>.68</td>
</tr>
</tbody>
</table>

The kurtosis can be taken as an indicator of normalcy. This is usually rejected if values exceed the +- 2, while the asymmetry reflects to what extent the distribution of scores is symmetrical, and taken as a reference that the values do not exceed +-1 (Muthen & Kaplan, 1985). In this sense, all the ranges keep criteria of normality and symmetry. Table 2 also reflects the Cronbach's alpha of each of the scales, which oscillate in a range of servants. ’’63 These are and .80.

On the other hand, is applied the T test for independent samples in order to check if there are significant differences between the sexes (Table 3).

Table 3. T test for independent samples depending on the sex.

<table>
<thead>
<tr>
<th>Competence</th>
<th>Men Media</th>
<th>Sx</th>
<th>Women Media</th>
<th>Sx</th>
<th>t</th>
<th>gl</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication</td>
<td>2059</td>
<td>2.88</td>
<td>20.16</td>
<td>2.92</td>
<td>1.40</td>
<td>362</td>
<td>.161</td>
</tr>
<tr>
<td>Leadership</td>
<td>22.09</td>
<td>3.68</td>
<td>20.76</td>
<td>3.61</td>
<td>3.48</td>
<td>362</td>
<td>.001</td>
</tr>
<tr>
<td>Team Work</td>
<td>20.16</td>
<td>3.76</td>
<td>2109</td>
<td>3.16</td>
<td>-2.56</td>
<td>362</td>
<td>.011</td>
</tr>
<tr>
<td>Adapt. to changes</td>
<td>16.02</td>
<td>3.81</td>
<td>14.70</td>
<td>4.28</td>
<td>3.08</td>
<td>362</td>
<td>.002</td>
</tr>
<tr>
<td>Initiative</td>
<td>28.95</td>
<td>3.27</td>
<td>27.79</td>
<td>3.29</td>
<td>3.36</td>
<td>362</td>
<td>.001</td>
</tr>
<tr>
<td>Troubleshooting</td>
<td>28.53</td>
<td>3.92</td>
<td>27.46</td>
<td>3.98</td>
<td>2.58</td>
<td>362</td>
<td>.010</td>
</tr>
<tr>
<td>Decision-making</td>
<td>20.86</td>
<td>3.00</td>
<td>19.86</td>
<td>2.88</td>
<td>3.23</td>
<td>362</td>
<td>.001</td>
</tr>
<tr>
<td>Planning and org.</td>
<td>21.78</td>
<td>3.43</td>
<td>2315</td>
<td>3.14</td>
<td>-3.97</td>
<td>362</td>
<td>.000</td>
</tr>
</tbody>
</table>

As you can see, there are significant differences in favor of the men in the following competencies: Leadership, adaptation to the changes, initiative, problem-solving and decision-making; and in favor of women: Working as a team and in planning and organization (figure 1).
In order to verify if the age of the students can modulate the degree of skills acquired, the sample was divided in two. Students of up to 22 years (mean: 20.449 Sx: 3.58 ) and students of 23 years and older (average 25.99 Sx 4.09 ). The group subject of up to 22 years was composed of 212 subjects (91 men and 121 women), the group of subjects of 23 years or more was composed of 152 subjects (83 men and 69 women). Applied the T test for independent samples in order to check if there are significant differences between both groups (Table 4).

<table>
<thead>
<tr>
<th>Competence</th>
<th>Media &gt; 22</th>
<th>Sx &gt; 22</th>
<th>Media &lt; 23</th>
<th>Sx &lt; 23</th>
<th>t</th>
<th>gl</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication</td>
<td>20.16</td>
<td>2.98</td>
<td>20.64</td>
<td>2.79</td>
<td>-1.56</td>
<td>362</td>
<td>.118</td>
</tr>
<tr>
<td>Leadership</td>
<td>21.01</td>
<td>3.68</td>
<td>21.93</td>
<td>3.68</td>
<td>-2.36</td>
<td>362</td>
<td>.019</td>
</tr>
<tr>
<td>Team Work</td>
<td>2015</td>
<td>3.53</td>
<td>21.34</td>
<td>3.32</td>
<td>-3.25</td>
<td>362</td>
<td>.001</td>
</tr>
<tr>
<td>Initiative</td>
<td>28.40</td>
<td>3.39</td>
<td>28.27</td>
<td>3.24</td>
<td>-.350</td>
<td>362</td>
<td>.721</td>
</tr>
<tr>
<td>Troubleshooting</td>
<td>27.58</td>
<td>3.98</td>
<td>28.53</td>
<td>3.92</td>
<td>-2.27</td>
<td>362</td>
<td>.024</td>
</tr>
<tr>
<td>Decision-making</td>
<td>20.14</td>
<td>2.96</td>
<td>20.62</td>
<td>2.99</td>
<td>-1.50</td>
<td>362</td>
<td>.447</td>
</tr>
<tr>
<td>Planning and org.</td>
<td>2206</td>
<td>3.46</td>
<td>23.10</td>
<td>3.09</td>
<td>-2.95</td>
<td>362</td>
<td>.003</td>
</tr>
</tbody>
</table>

As is reflected in the table, there are significant differences in the following competencies of the analyzed: leadership, teamwork, adaptation to change, troubleshooting, and planning and organization, in favor of the subject with 23 years or more (see Figure 2).
Figure 2. Averages of the 8 competencies assessed in the COMPEUEM between older and younger than 22 years.

Discussion

Determine which is the degree of influence of age on the acquisition of skills is necessary to establish to what extent influences the age and the work developed in the classrooms, in subjects who have a demonstrated greater competence level. On the other hand, allows you to raise different educational models for the various educational levels that we have in the universities (Higher Level Training Cycles, degree, master, doctorate) in which the age of the students is different. And also for the various formats in which offer these studies (traditional student, pupil that aligns its teaching with his professional activity).

The results reveal the existence of significant differences in the students studied in function of the two variables: gender and age.

When we look at the sample of students according to their genre, we find that in 5 of the 8 powers there are differences in favor of men and 2 in favor of women. Women are more organized and with a greater capacity for teamwork, which continues the storyline of other research (Arras Vote et al., 2011; Garaigordobil & lasts, 2013; Garcia-Valcarcel & Arras Vote, 2010), while the men show a much higher level in leadership, adaptation to the changes, initiative, problem-solving and decision-making. In this regard, it is likely that the differences in function of the genre can be modulated by gender differences associated with academic performance. The educational models in the European Higher Education Area have a marked weight associated with the competency assessment, and the differences in performance have been treated on numerous occasions in the scientific literature. Muñoz and Gomez (2005) found significant differences in favor of women in technical qualifications (Technical Architect, a Public Works Engineer, Technical Engineer of Telecommunications, Technical Engineer in Computer Systems). In this line, an investigation conducted by Rodriguez, Inda and Peña (2014) reflection that girls get better rates of return that the students, in the qualifications of
Health Sciences and Education Sciences. In any case, it should be noted that both students and the students have different strategies, but there is no confirmation of a model by gender to improve the results of each (Waiter, Martin del Buey, & Smith, 2000).

With respect to the results obtained when the analysis is performed based on the age of the participants, it may be noted that, with the exception of initiative and decision-making, in the rest of competencies students with 23 or more years are perceived with a higher level of competence development. Find differences in favor of the older pupils falls within the expected. These students have lived in most cases more experiences, possibly have already become involved in activities related to the business world, and even may have become independent family units. However, it is curious that neither initiative and decision making differences. This result could be related to the low level of entrepreneurship that presented the Spaniards when compared with other countries (De Castro, Right, & MAYDEU: Car olive groves, 2008), despite the outstanding effort that during the last ten years has been carried out from different organizations, both public and private, to the development resources for teaching/learning of the endeavor (Ferrer Cervero et al., 2013, p. 16, Quoting Defourny & Nyssens, 2008; Ferrer, Cabrera, & Aláiz, 2011; Ferrer, Rimbau, & Ventura, 2011; Gunn & Durkin, 2010).

Results of this kind allows you to raise that establish reliable tools of assessment in academic skills will help to design new teaching methodologies more adapted to the individual differences of students and to the needs you will find when incorporated into the labor market.

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