
—English translation—

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

Oscar García*
Facultad de Ciencias Biomédicas
y de la Salud
Universidad Europea de Madrid
Madrid, España
oscar.garcia@uem.es

Sara Redondo
Centro de Excelencia de Investigación en
Innovación Educativa
Universidad Europea de Madrid

Gema Santiago
Vicerrectorado de Calidad e
Innovación Académica
Universidad Europea de Madrid

Francisco López
Facultad de Ciencias de la Actividad Física
y el Deporte y Fisioterapia
Universidad Europea de Madrid

Ana Cruz
Centro Profesional Europeo de Madrid
Universidad Europea de Madrid

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, team work, adaptation to the 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

*Corresponding author

Suggested citation: García, O., Redondo, S., Santiago, G., López, F., & Cruz, A. (2015). Competence-Based Profile of Undergraduate Students in Madrid Universities: Differences in Terms of the Gender and Age. *Higher Learning Research Communications*, 5(2), 67-76.

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 the 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 (Rodriguez 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 (Martinez & Echeverria 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 1. *Distribution of the sample by university*

University	Men	Women	Total
Alcalá de Henares	3	16	19
Complutense of Madrid	82	72	154
La Salle	6	9	15
Camilo José Cela	6	27	33
Carlos III	32	42	74
Europea de Madrid	45	24	69
Total	174	190	364

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 COMPEUEM. 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 COMPEUEM throughout the sample*

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

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.*

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

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).

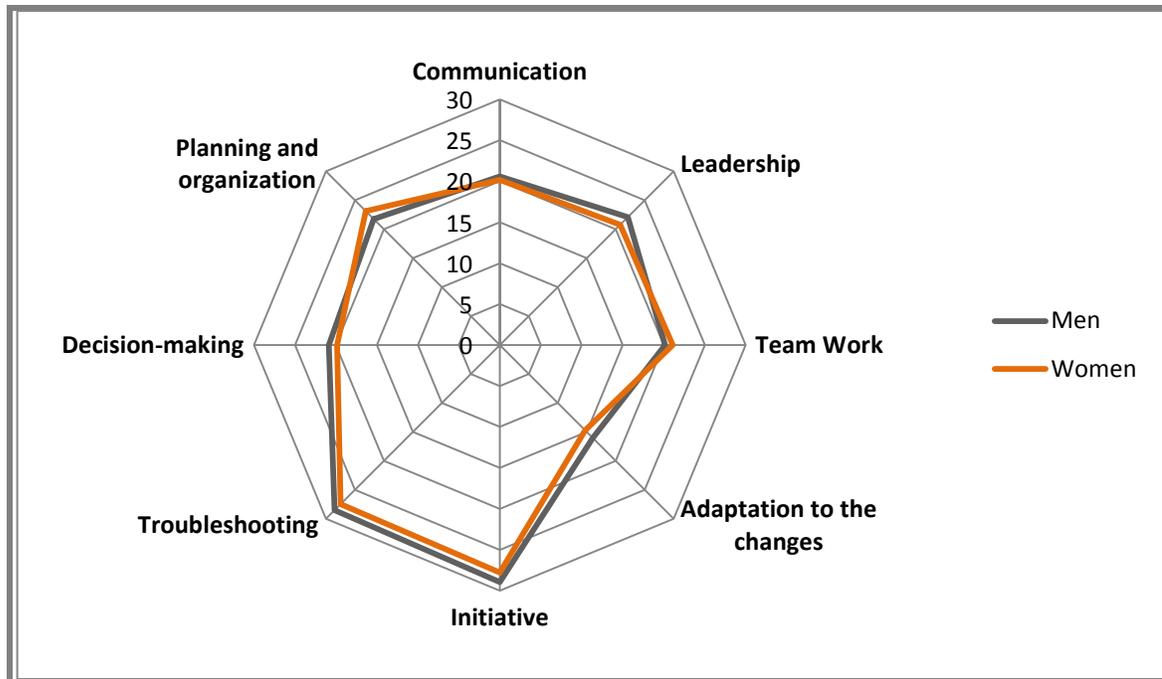


Figure 1. Half of the 8 competencies assessed in the COMPEUEM between men and women.

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 4. T test for independent samples as a function of age.

Competence	Media > 22	Sx > 22	Media < 23	Sx < 23	t	gl	Sig.
Communication	20.16	2.98	20.64	2.79	-1.56	362	.118
Leadership	21.01	3.68	21.93	3.68	-2.36	362	.019
Team Work	20.15	3.53	21.34	3.32	-3.25	362	.001
Adap. to changes	14.76	4.13	16.13	3.96	-3.16	362	.002
Initiative	28.40	3.39	28.27	3.24	.350	362	.721
Troubleshooting	27.58	3.98	28.53	3.92	-2.27	362	.024
Decision-making	20.14	2.96	20.62	2.99	-1.50	362	.447
Planning and org.	22.06	3.46	23.10	3.09	-2.95	362	.003

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).

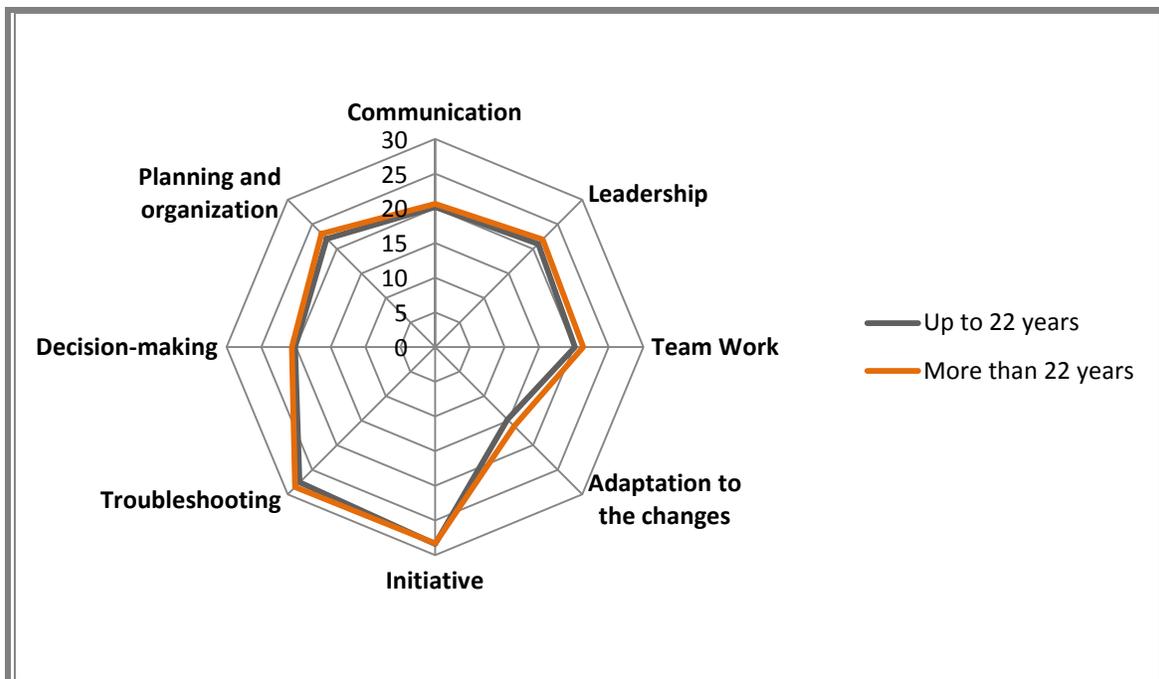


Figure 2. averages of the 8 competencies assessed in the COMPEUEM between older and younger than 22 years.

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.

References

- In Alonso-Mart, A. (2010). The importance and level of development of the competencies in the field of psychology. *Psychology from the Caribbean*, 25, 84-107
- Arras Vote, A. M. G. , Torres Gastelu, C. A. , & Garcia-Valcarcel Muñoz-Repiso, A. (2011). Skills in information and communication technologies (ICT) for university students. *Latina Magazine of Social Communication*, 66, 1-26. <http://dx.doi.org/10.4185/RLCS-66-2011-927-130-152>
- Bricall, J. M. (Coord.). (2000). Report university 2000. Barcelona, Spain: Conference of Rectors of Spanish Universities).
- Waiter, F. J. , Martin del Buey, F. , & blacksmith. J. (2000), styles and learning strategies in college students. *Psicothema*, 12(4), 615-622. Access through: <http://www.psycothema.com>
- European Commission (1997, 12 November). *For a Europe of knowledge* [COM(97)563]. Brussels, Belgium: DG XXII (Education, Training and Youth). Access through: <http://eur-lex.europa.eu>
- De Castro, J. O. , Just, R. , & MAYDEU: Car Olivares, A. (Eds.) (2008). The nature of the entrepreneurial process in Spain in the international context. Bilbao, Spain: Editorial BBVA Foundation.
- Defourny, J. , & Nyssens, M. (2008). Social enterprise in Europe : Recent trends and developments [social enterprises in Europe: Trends and recent developments]. *Social Enterprise Journal*, 4(3), 202-228. <http://dx.doi.org/10.1108/17508610810922703>
- Escobar Valencia, M. (2005). The occupational competencies: what are the labor market strategy for the competitiveness of organizations? *Management Studies*, 96 (JUL/SEP), 31-55. Access through: <http://www.redalyc.org>

-
- Echeverría Los Samanes, B. (2005). *Powers of action of the guidance teacher*. Madrid, Spain: ESIC Editorial.
- Ferrer, V. , Cabrera, O. , & Aláiz, E. (July 2011). *Complexity and social entrepreneurship learning skills development* [Complexity and competence learning social entrepreneurship]. Paper presented at the 3rd EMES International Research Conference on Social Enterprise: Social innovations through social entrepreneurship in civil society, Roskilde, Denmark.
- Ferrer, V. , Rimbau, C. , & Ventura, J. (April 2011). *Social entrepreneurship in the University of Barcelona-Spain* [social entrepreneurship at the University of Barcelona-España]. Paper presented at ENSCAT Social Action in Europe: Sustainable Social Development and Economic Challenges Conference, Bruxelles.
- Garaigordobil, M. , & Irujo, A. (2006). Relations of self-concept and self-esteem with sociability, emotional stability and responsibility in adolescents aged 14 to 17 years. *Analysis and modification of behavior*, 32(141), 37-64 - Access via : <http://dialnet.unirioja.es/>
- García, M. J. , Arranz Manso, G. , White Cotano, J. , Edwards Schachter, M. , Hernandez Perdomo, W. , Mazadiego Martínez, L. , & Piqué, R. (2010). Ecompetentis: a tool for the assessment of generic skills. *Redu. Journal of University Teaching*, 8(1), 111-120. Access through: <http://redu.net/redu/index.php/REDU>
- García-Valcarcel Muñoz-Repiso, A. , & Arras Vote, A. M. G. (Coords.)" (2010). *ICT skills and academic performance in the university: differences by gender*. Spanish Agency for International Cooperation for Development (AECID). Access through: <http://hdl.handle.net/10366/121354>
- Gordon, L. V. , & ECPA. (2008). *SOSIA. Skills Management* (N. Seisdedos Cubero & J. Pereña Brand, adapters). Madrid, Spain: TEA.
- Gunn, R. , & Durkin, C. (2010). *Social entrepreneurship . A Skills Approach* [social entrepreneurship. A-skills approach], Bristol, UK: Policy Press.
- Ibarra Saiz, M. S. , Head Sánchez, D. , Leon Rodriguez, A. R. , Rodriguez Gomez, G. , Gómez Ruiz, M. A. , Gallego Night, B. , Quesada Serra, V. , & Cubero Ibanez, J. (2010). In Moodle EvalCOMIX: a means to promote the participation of students in the e- assessment. *NETWORK, Journal of Distance Education*, 24, 1-11. Access through: <http://revistas.um.es/red>
- Jara, C. T. (2007). The development of employability competencies in two Chilean universities. An empirical study. *OIKOS Magazine*, 11(24), 47-72.
- Lieb, S. (1991). *Principles of adult learning* [Principles of adult learning]. Sex-Collègue South Mountain Community.
- Maassen, G. H. , & Landsheer, J. (2000). Peer-perceived social competence and academic achievement of low-level educated young adolescents [social competence perceived by the torques and the academic success of young adolescents with low levels of education]. *Social behavior and personality: An international journal*, 28 (1), 29-40. Access through : www.sbp-journal.com
- Martinez Clares, P. , & Echeverría Los Samanes, B. (2009). Competence-based training. *Journal of educational research*, 27(1), 125-147. Access through: <http://revistas.um.es/rie>
- Mourshed, M. , Patel, J. , & Suder, K. (2014). *Education to employment: Getting Europe's youth into work* [Education for employment: by making the European youth obtain work]. McKinsey Center for Government, McKinsey & Company. Access through : <http://mckinseysociety.com>
- Muñoz, E. , & Gomez, J. (2005). Approaches to learning and academic performance of students. *Journal of Educational Research*, 23(2), 417-432.
-

- Muthen, B. , & Kaplan, D. (1985). A comparison of some factor methodologies for the analysis of non-normal Likert variables [a comparison of several methodologies for the factorial analysis of non-normal variables Likert]. *British Journal of mathematical and statistical Psychology*, 38 ,171-189.
- Njora, H. , Darmawan, I. G. N. , & Keeves J. P. (2004). Examining the validity of different assessment modes in measuring competence in performing human services [examining the validity of the different modes of assessment to measure the competence in the performance of human services]. *International Education Journal*, 5(2), 154-175. Access through : <http://www.iejcomparative.org/>
- Center for Innovation in the employment. (2014). *EOI Report on young people and the labor market: The path from the classroom to the company*. Spain: OIE. Access through: <http://www.oie.es>
- Quintanilla, M. A. (1993-94). Six lectures on philosophy of technology. *Plural (Magazine of the Administration of Regional Colleges of the University of Puerto Rico)*, 11-12 (1-2).
- Richardson, J. T. E. (April 2007). Studying strategies and learning styles among adult, flexible students[study strategies and learning styles among adult learners, flexible]. Paper presented at the Conference of the *Norway Opening Universities: Den Usynlige student invisible* [The student], Oslo, Norway.
- Rodriguez Gomez, G. (Dir.). (2009). *EvalHIDA: competency assessment tools with dialogic interaction asynchronous (forums, blogs and wikis)*. Cadiz, Spain: Publications Service of the University of Cadiz.
- Rodriguez, M. D.C. , Inda, M. D. , & Penalty, J. V. (2014). Performance in the PAU and choice of studies scientific-technological gender. *REOP-Spanish Journal of guidance and Educational Psychology*, 25(1), 111-127. <http://dx.doi.org/10.5944/reop.vol.25.num.1.2014.12016>
- Santana Vega, L. E. , Feliciano Garcia, L. , & Jimenez Llanos, A. B. (2012), decision-making and gender in the High School. *Journal of Education*, 359, 357-387, <http://dx.doi.org/10.4438/1988-592X-RE-2011-359-098>
- Scarpa, S. , & Nart, A. (2012). Influences of perceived competence on sport physical activity enjoyment in early adolescents [influences the perception of sporting competition in the enjoyment of physical activity in young adolescents]. *Social behavior and personality* , 40(2), 203-204. Access through: www.sbp-journal.com
- Wynne, R. (2010). Characteristics of adult learners [Extract; characteristics of adult learners]. *Learner Centerd Methodologies*. Dublin, Ireland: ASSET - Adding Support Skills for European teachers; University College Dublin.