

Research Article

Generic Competences in University Students from Barranquilla, Colombia

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Study describes the level of importance and development of *generic competences* from the perception of a group of students of higher education in the city of Barranquilla (Colombia). According to Wattiez Franco (2007, cited in Beneitone et al., 2007), competences are the capabilities that every human being requires to resolve life situations efficiently and autonomously; not only the *how-to* to solve problems, but the knowledge that allows an individual to be part —as a person— of a complex, changing and competitive world. Competences are divided into three categories: basic, generic and specific. The *generic competences* are the general knowledge, skills and abilities that any graduate student must have before entering the job market. The generic competences discussed here (mathematical and quantitative thinking, communication in a second language and commitment to the environment) are addressed from the perspective of the *Alfa Tuning Latin America Project* and the guidelines of the National Ministry of Education of Colombia. The study allowed the researchers to understand how undergraduate students of last semesters are facing profound transformations due to the challenges of the current Knowledge Society, and how they consider generic competences as “highly valuable”; but, at same time, it shows the academic struggles they face to develop these same competences.

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1. Introduction

Despite the efforts to improve the educational system, in some cases, persists the belief that Higher Education follows a teaching-learning process based on routine learning activities (or accumulation of information) in which the main protagonist would be the teacher. However, in today's globalized world, characterized by the widespread use of ICT tools and the rapid generation of new knowledge that is constantly reassessed, the higher education student becomes the center of the teaching-learning process, and is invited to take advantage of every opportunity to update, deepen and enrich his (or her) academic preparation to adapt to a constantly changing world (Delors, 1996; Ciria Cosculluela, 2008; Clark, UNESCO; 2015). For this reason, it is necessary to create pedagogical spaces that allow students to develop skills for thinking deep about their environment and the constant and inconclusive search for solutions to the problems that afflict their current and professional reality (Ortiz-Padilla, De Tarazona, Roncancio, Campo - Beef, & Gravini-Donado, 2015).

UNESCO, at the 1998 World Conference, declares that higher education in the 21st century must face the profound transformations of the knowledge society, that allow the foundations for the cultural, socioeconomic and ecologically sustainable development of individuals, communities and nations, in order to transcend merely economic considerations and assume more deeply rooted dimensions of morality and spirituality. Thus, the contemporary labor and professional world demands from graduates not only knowledge and skills, but also the ability to adapt to new areas and environments, as flexible professionals, prepared with generic and transversal competences that allow them to successfully face transformations and challenges of the current Knowledge Society (Guedea Medrano, 2008).

According to Wattiez Franco (2007, cited in Beneitone et al., 2007, p. 35), competencies are *"the capacities that every human being needs to resolve life situations efficiently and autonomously, and not only mere knowledge based on the what-and-how, but the true knowing of how to be a person in a complex, changing and competitive world"*. In addition, generic competencies are understood as the attributes that a university graduates must have regardless of their degree. *"They include generic aspects of knowledge, abilities and skills that all graduates must have before entering the labor market"* (Martínez López, 2008, p. 29-30). While specific competence *"defines a specific professional area"* (Pulido Trullen, 2008, p. 36).

Furthermore, acquiring certain knowledge is the requirement for effective action. On the other hand, sheer knowledge and theoretical information does not guarantee a competent professional. Thus, Perrenoud (2008) defines *competences* as those which allow mastering a category of complex situations

through the mobilization of several resources (knowledge, skills, abilities, attitudes, information) acquired by students during their academic journey, that often depend on different disciplines or experiences (for instance, no one would like to be treated by a wise doctor who has read all the medical books but has not previous training in diagnoses or health therapies).

About *action*, Londoño (2015) —in his book about teaching and evaluating Competences in higher education— says that it is time to take action on the issue of competencies, since there are many theories, models, methodologies and proposals, but there are still enormous challenges to face on how to develop competencies in a concrete and precise way, and how to assess them. For example, instead of doing an academic chemistry-lab experiment on water testing, it is better to address to real problems in the community and ask students to test the water of their own houses in order to analyze the results of their field work; therefore, it will be easier to conceptualize and reflect on the subject. This conception is compatible with the *Constructivist* proposals of authors such as Ausebel (1983) related to *meaningful learning*. Ausebel stated that, to ensure the success of education, teachers ought to take the categories they intend to teach —as well as the methodologies— based on the realities and daily life of students, along with the resources provided by the students and their previous concepts. In addition, intrinsic motivation is gained with this type of significant constructivist strategies, since students are motivated by the knowledge they achieve by their own personal development and not because of external influences, such as grade recognition or academic promotions.

In any case, as Villarroel and Bruna (2014) state, the teaching of generic competences in universities represents a challenge for higher education institutions. This forces to review the ways to improve the design of a competency-based curriculums —including guidelines for teaching procedures and evaluation— based on the fact that its implementation requires the design of high-quality practical activities and teacher preparation, due to the fact that this type of competency-based approach requires more personalized teaching, along with constant training, evaluation and feedback. Consequently, the ability to thoughtfully use educational resources (knowledge, skills, attitudes, information) in real time, requires specific training for good decision-making and mental reflection, in a "*double-way connection: citizenship awareness and the development of Competences*" (Perrenoud, 2001; Morín, 1999, p. 23).

Academic preparation is responsible for initial training of graduated students to mobilize knowledge and skills, and guarantee a minimum of efficiency when they enter the labor world; but it is a process that must go on during their professional life (Perrenoud and Carreras Barnes, 2008; Armengol Asparo, et al., 2011). Based on these considerations, Ciria Coscolluela, from the University of Zaragoza (2008), asks an

essential question: are students really learning the competences the labor world demands from them for the social, professional, globalized and changing society of knowledge?

The answer to such question, must come from contextualized investigative and reflective processes. Therefore, it is necessary, according to Armengol Asparo (et. al, 2011, p., 73-74), *"to propose new paths and ideas —for students and graduated students— related to the importance that the labor market gives to competent professionals"*. Above all, the development of competences referred to solving problems, self-initiative, interpersonal communications (along with the ability to speak in public); flexibility, the capability to swiftly adapt to changes, teamwork skills and the competences for planning and organize complex processes, among many others.

It is necessary that educational personnel —especially those in charge of comprehensive learning in the early years— take into account an educational process that emphasizes civic coexistence, respect for differences, and the interest in the circumstances of the people who share their lives in a social context. The so-called *Prosocial Behaviors*, which are defined as any behavior that is displayed to helping another person without expecting something in return (Escobar, & Carlos, 2014, Marín 2017). Numerous studies show the positive incidence of teaching prosocial behaviors to young people; not only the benefit of learning attitudes and behaviors of solidarity and altruism towards others, but also because for the advantage that this type of empathic habits could potentially have in preventing aggression, disruptive outbreaks, and even preventing future stages of *asocial* behaviors (Gutiérrez Sanmartín, Escartí Carbonell, & Pascual Baños, 2011).

After reviewing the importance and development of *generic* and *transversal* competences, it is necessary to identify not only the way these competences are acquired (for instance, by continuous training, internships in companies and by self-professional experiences), but also *"how to bring them to reality by defining who should develop and apply these new methodologies: the individual, the educational system, the university or the business companies, in order to prepare responsible, committed citizens with sufficient capability to face the challenges of the new information and knowledge society"* (Guedea Medrano, 2008, p. 18).

In 2007, within the context of the REFLEX Project, coordinated by Maastricht University, more than 40,000 graduated students from all over Europe were surveyed in order to answer three questions about Generic Competences: What skills do higher education students require to take part into the knowledge society? What role do universities play in developing these Competences and skills? How the expectations of graduated students can be articulated with the demands of the labor and professional world?

Furthermore, the *Alfa Tuning Latin America Project* (Beneitone, 2007) —also looking forward to answer these questions—, brought together 180 Latin American universities from more than 18 countries, seeking to develop a strategy concerning the issue of Generic Competencies in order to improve the innovation, quality, mobility and recognition of university graduates; considering Competences as a common reference that respects the autonomy, freedom and diversity of the institutions participating in the project.

The purpose of this research is to contribute to the joint-effort to understand the influence of Generic Competencies in the students' learning process as future citizens and professionals for the globalized world, through the formulation of theoretical-practical guidelines for its development, use and evaluation; along with a teaching-learning methodology of Generic Competencies in higher education students from the city of Barranquilla (Colombia), through the perspective of the Alfa Tuning Latin America Project. In order to achieve this goal, the researchers measured the level of importance and the level of development of Generic Competencies in undergraduate students of last semesters from a University of Barranquilla. Therefore, the Generic Competencies were classified in order of importance (from highest to lowest) according to the perception of the participating students.

2. Methods

The study was based on a quantitative methodology with a Positivist approach, of an analytical empirical type, with a non-experimental transectional design (Hernández Sampieri, 2010). The population was 324 undergraduate students of last semesters (8th, 9th and 10th semester) from a University of Barranquilla. The data was collected through a Questionnaire of Generic Competencies in Higher Education, adapted from the instrument used by the Tuning Latin America Project (2007), applied to more than 9,100 students from the entire region. It consists of 28 items to measure the importance and development of generic skills with a Likert-type scale from 1 to 4, in which 1 is *few* and 4 is *plenty*. The content validity was obtained from the judgment of six experts with a doctorate degree and a pilot test on 80 subjects. Reliability was determined through Cronbach's Alpha Coefficient, which gave a reliability of 0.906 for the instrument. The analysis of the results was carried out using descriptive statistics of frequency distribution through the SPSS program version 24.0.

3. Results

The main difference between the level of *importance* and the level of *development* of Generic and Transversal Competences, is that the majority of students consider Generic Competences "very important", while they ranked the level of its development –in their HEIs– only as "quite important". Comparing the previous results with the doctoral study of Hernández Moreno, at the University of Granada (2010), it was found that also for the 190 participating students, the *importance* of Competencies in their professional training has values between "a lot" and "very much"; but when they were asked about the level of *development* of Competences, carried out by their own Institutions, they ranked them only between "a few" and "many".

On the other hand, the doctoral study of San Martín López, carried out at the Universidad Veracruzana de México (2012, p. 381), confirms the results of our investigation: *"most students do not have the development and mastery of basic skills, due to the fact that its development is not being encouraged. The high Competence skills that students showed were those related to the use of ICT, but its development was empirically or extracurricular. Most of the teaching-learning processes are based on traditional procedures, which are the opposite of today challenges that demand educational methods centered on students and based on their Competencies development"*.

Despite the coincidence in the answers of more than 9,000 students in Latin America and the 324 students surveyed in this study, regarding the level of *commitment to quality* —in which they gave it the first place—, the next four places showed a difference in the level of importance: for the subjects of this study, the ability to apply knowledge in practice, or to apply knowledge in the area of study or profession; along with the ability to identify, propose, and solve problems —with the ability to abstract, analyze, and synthesize— ranked second, third, fourth, and fifth in the level of importance. While for the 9,162 students who were part of the Alfa Tuning Latin America Project, these places are occupied by the ability to learn and update oneself, ethical commitment, the ability to apply knowledge in practice and the ability to make decisions (see Tables 1 and 2).

Generic Competences	Importance	Development
Commitment to quality	3,66	3,27
Ability to apply knowledge in practice	3,65	3,2
Knowledge about the area of study and profession	3,65	3,26
Ability to identify, formulate and solve problems	3,65	3,19
Capacity for abstraction, analysis and synthesis	3,61	3,11
Capacity for teamwork	3,6	3,22
Ability to learn and constantly update	3,57	3,05
Ability to search, process and analyze information from various sources	3,56	3,11
Decision making ability	3,56	3,11
Interpersonal skills	3,56	3,19
Ability to formulate and manage projects	3,55	3
Ethical commitment	3,54	3,27
Research capacity	3,53	3,31
Ability to work autonomously	3,52	3,01
Ability to act in new situations	3,5	3,01
Ability to organize and time planning	3,48	2,88
Oral and written communication abilities	3,48	3,1
Critical and self-critical capacity	3,48	3,06
Social responsibility and civic engagement	3,44	3,05
Creative ability	3,44	2,89
Commitment to the sociocultural environment	3,44	2,95
Appreciation and respect for diversity and multiculturalism	3,44	2,95
Ability to motivate towards common goals	3,4	3
Skills in the use of ICT	3,37	2,81
Commitment to environmental conservation	3,27	2,7

Generic Competences	Importance	Development
Ability to work in international contexts	3,27	2,5
Ability to communicate in a second language	3,14	2,39
Mathematical Thinking and Quantitative Literacy	2,91	2,49

Table 1. Importance versus development of Generic Competences according to 324 students surveyed in a University of Barranquilla, Colombia.

Note. Results showing the level of *Importance* versus the level of *development* of Generic Competences carried out by a University of Barranquilla., according to 324 students of 8th, 9th and 10th semester; by Maury Mena y Ortega, April of 2017.

According to the subjects of the investigation, all the Generic Competences have a value level above 3.1 with the exception of the competence of "mathematical thinking and quantitative literacy" which has a value of 2.91; that is, below 3.0.

It is important to analyze this result considering the significance that the Ministry of National Education of Colombia -MEN (2008) gives to this particular competence, pointing it out as one of the four main Generic Competences that all higher education students must acquire at the end of their professional careers. Specifically, this *importance* is described as "*being able to use mathematical knowledge to solve problems, adapt them to new situations, establish relationships or learn new concepts*" (Ortiz & Gravini, 2012, p. 141). On the other hand, regarding the degree of development and performance of the Generic Skills, only 9 skills (of 28 skills in total) were below 3.0. Therefore, it is possible to establish that the students surveyed consider that 19 Generic Competencies have been at least *sufficiently* developed in their career training.

It should be noted that the competence that has the highest average value in *importance* is "commitment to quality", in the students' perception of development and achievement. It is also relevant to point out the three competencies that are considered least important by students: "ability to work in international contexts", "ability to communicate in a second language", and "mathematical thinking and quantitative literacy", which are also the least developed according to students.

The resulting data generates great concern, since the Ministry of National Education of Colombia (2008, 2009) states that the “ability to communicate in a second language” —especially English— and “mathematical thinking and quantitative literacy” are two of the four Generic Skills that all higher education students must acquire at the end of their professional trainings.

Table number 2 allows comparisons between the results of this study (in Table 1) and the results of the Alfa Tuning Latin America Project.

Generic Competences	Importance	Development
Commitment to quality	3,7	3,12
Ability to apply knowledge in practice	3,68	2,92
Knowledge about the area of study and profession	3,68	3,09
Ability to identify, formulate and solve problems	3,68	2,85
Capacity for abstraction, analysis and synthesis	3,67	2,92
Capacity for teamwork	3,65	2,92
Ability to learn and constantly update	3,61	2,89
Ability to search, process and analyze information from various sources	3,59	3,02
Decision making ability	3,57	2,93
Interpersonal skills	3,56	3,14
Ability to formulate and manage projects	3,53	2,73
Ethical commitment	3,51	2,89
Research capacity	3,51	2,88
Ability to work autonomously	3,5	2,82
Ability to act in new situations	3,5	2,66
Ability to organize and time planning	3,49	2,49
Oral and written communication abilities	3,48	2,79
Critical and self-critical capacity	3,48	2,73
Social responsibility and civic engagement	3,48	2,73
Creative ability	3,47	2,73
Commitment to the sociocultural environment	3,44	2,77
Appreciation and respect for diversity and multiculturalism	3,44	2,77
Ability to motivate towards common goals	3,44	2,85
Skills in the use of ICT	3,4	2,75
Commitment to environmental conservation	3,34	2,48

Generic Competences	Importance	Development
Ability to work in international contexts	3,31	2,24
Ability to communicate in a second language	3,22	2,02
Mathematical Thinking and Quantitative Literacy	2,48	2,48

Table 2.Importance versus development of Generic Competences according to Latin American students

Note. This table shows the level of *Importance* versus the level of *development* of Generic Competences according to Latin American students (sample of 9,162 students in 18 countries and 180 universities), by Proyecto Alfa Tuning América Latina (2007).

By comparing tables 1 and 2, it is necessary to analyze in depth the Generic and Transversal Competences that the surveyed students consider less *developed* and less *important*, since there are coincidences between the results (the evaluation scale) of the students from a University of Barranquilla. and the results of the students who participated in the Alfa Tuning Latin America Project.

Specifically, these are: “mathematical thinking and quantitative literacy”, the “ability to communicate in a second language”, especially English, which is the language of business world globally and is also the second most widely spoken language after Mandarin (UNESCO, 1998); the “skills to work in international contexts”, the “commitment to the preservation of the environment” and the skills in the use of ICT.

There is concern about the Competence of “commitment to the preservation of the environment” due to the fact that appear in both groups surveyed as *unimportant* and *underdeveloped*. This result indicates a failure of environmental education, considered by Sarmiento (2013) as a dynamic process of global and local awareness, with the objective to promote the harmonious relationship between nature and human activities; which relies on the culture of conservation in accordance with the possibility of sustainable development.

This means that, despite the many efforts of numerous institutions and educators, who tries to aware the population about the preservation of environment, the efforts must go on in order to accomplish the Stockholm Congress proposal proclaimed in 1972, which stated that the awareness for the conservation of the environment is one of special relevance and the drive for the development of this competence must

continue, designing and evaluating processes and solutions from the Environment – Society – Economy perspective, with a systemic and complex vision that satisfies current and future human needs (Ull Solis et. Al, 2009).

Likewise, it will be necessary to work on teaching-learning methodologies and procedures to fully develop Generic Skills. In fact, this study is only the beginning of what should be a complex process of research and study that starts from the point of view of students but also should be extended to graduated teachers, professionals and businessmen worldwide in the labor area.

4. Discussion and Conclusions

The Higher Education of the 21st Century must face the profound transformations of the knowledge society, giving basis to the cultural, socioeconomic and ecologically sustainable development of individuals, communities and nations (UNESCO, World Conference on Higher Education, 1998). At present, the current education has become a student-centered education, an inclusive education to endure throughout life; to incorporate citizens into a developed society, to be productive and to be able to enjoy in it.

This new approach is based on the development of human being by an integral education made of four elements: *learning to know*, *learning to do*, *learning to be* and *learning to live together* (Delors, 1996). Universities in Latin American are invited to assume the new currents of thought, of debate, of culture and innovation, and to be in tune with the surrounding reality and with the new paradigms of higher education.

In conclusion, universities in Latin American, and especially the University of Barranquilla where the investigation took place, are invited to spread ideas, to think deeper, to expand knowledge; to compare the state of the art of Generic Competences —at the institutional level—to face the importance that the working market, businessmen, entrepreneurs and the knowledge society give to these skills; paying special attention to ensuring that university education is comprehensive, practical and dynamic and that it uses new technologies to respond to the demands of the current labor market and society.

This leads to the fact that "the mission of universities is in permanent transformation and their leadership in the field of knowledge development and transmission requires new sensitivities to face social changes in order to create educational programs that properly train future professionals and

citizens" (Beneitone et al., 2007, pp 34). Therefore, Generic Competencies become a dynamic and evolving process, declared by the Alfa Tuning Latin America Project (2007).

References

- Armengol Asparó Carmen, Castro Ceacero Jariot García, Diego, Mercè Massot Verdú, Margarita & Sala Roca Josefina (2011). El Practicum en el Espacio Europeo de Educación Superior (EEES): Mapa de Competencias del Profesional de la Educación. *Revista de Educación*, 354, enero-abril. Madrid, España.
- Ausubel, D. (1983). *Teoría del aprendizaje significativo*. Fascículos de CEIF, 1.
- Beneitone, Pablo y otros (2007). Reflexiones y perspectivas de la Educación Superior en América Latina. *Informe final Proyecto Tuning América Latina 2004-2007*. Bilbao, Universidad de Deusto and Universidad de Groningen.
- Ciria Cosculluela, José Carlos (2008). *Competencias genéricas y transversales de los titulados universitarios: Metodologías activas para el desarrollo de competencias genéricas*. Facultad de Ciencias, ICE, Universidad de Zaragoza, España.
- Clark, Helen (2015). *Educación 2030. Declaración de Incheon y Marco de Acción para la realización del objetivo de Desarrollo Sostenible 4*. UNESCO, 2015.
- Conferencia de Estocolmo (1972). *Conferencia de las Naciones Unidas sobre el Medio Humano*. Estocolmo, Suecia, June 5 to 16 1972. <http://www.ecologiahoy.com/conferencia-de-estocolmo>
- Declaración de Bolonia (1999). *Declaración conjunta de los Ministros Europeos de Educación Bolonia*. June 19th 1999. http://www.educacion.gob.es/boloniaensecundaria/img/Declaracion_Bolonia.pdf
- Delors, Jacques (1996). Los Cuatro Pilares de la Educación Encierran un Tesoro. *Informe a la UNESCO de la Comisión internacional sobre la educación para el siglo XXI*, 91-103. Santillana & UNESCO (Eds). Madrid, España. http://uom.uib.cat/digitalAssets/221/221918_9.pdf el 10 dic 2016.
- Escobar, M., & Carlos, J. (2014). Conductas prosociales en los barrios Modelo y Los Trupillos de Barranquilla. *Psicogente*, 17(31), 211-225.
- Guedea Medrano, Isabel (2008). *Competencias genéricas y transversales de los titulados universitarios. Las demandas de las empresas*. ICE Universidad de Zaragoza, España. <http://www.unizar.es/ice/images/stories/publicacionesICE/Col.%20Documentos%2008.pdf>
- Gutiérrez Sanmartín, M., Escartí Carbonell, A., & Pascual Baños, C. (2011). Relaciones entre empatía, conducta prosocial, agresividad, autoeficacia y responsabilidad personal y social de los escolares. *Psicothema*, 23(1).

- Hernández Sampieri, Roberto et al. (2010). *Metodología de la Investigación*. 5th Edition. McGraw Hill (Ed). México.
- Hernández Moreno, Esther María (2010). *Aprendizajes, competencias y rendimiento académico en la titulación de estudios socioculturales de la Universidad de Cienfuegos*. Facultad de Ciencias de la Educación, Universidad de Granada, España.
- Londoño Orozco, Guillermo y Cano García, Elena (2015). *Formación y evaluación por competencias en educación superior*. Universidad de La Salle. Bogotá.
- Martínez López, Silvia Eugenia y otros (2010). Las prácticas de evaluación de competencias en la educación preescolar mexicana a partir de la reforma curricular. Análisis desde un modelo socio constructivista y situado. *Revista Mexicana de Investigación Educativa*, vol. 15(47) oct-dic. <http://www.redalyc.org/pdf/140/14015564003.pdf> en jun 2016
- Ministerio de Educación Nacional de Colombia, MEN (2009). Educación Superior. Competencias Genéricas en Educación Superior. *Boletín Informativo 13*.
- Ministerio de Educación Nacional de Colombia, MEN (2009). Educación Superior. *Boletín informativo 15*.
- Marín, J (2015). Los procesos psicosociales comunitarios: una mirada integral. In *Matrices y horizonte de la investigación en Trabajo Social*. Aguilar Caro, A., Molina Correa, M., Orozco Idárraga, A., García Navarro, Á., Jiménez Reyes, M., Ramírez Martínez, C. & Pasos Simanca, E. Universidad Simón Bolívar(Ed). Barranquilla.
- Morín, Edgar, (1999). *Los siete saberes necesarios para la educación del futuro*. UNESCO, 1999. Trad. From Mercedes Vallejo-Gómez. Universidad Pontificia Bolivariana de Medellín, Colombia. <http://eduteka.icesi.edu.co/pdfdir/MORIN7SaberesEducacionFuturo.pdf>
- Ortiz-Padilla, M., & Gravini, M. (2012). Estudio de la competencia matemática en la infancia. *Psicogente*, 15 (27).
- Ortiz-Padilla, M., De Tarazona, S., Roncancio, V., Campo-Ternera, L., & Gravini- Donado, M. (2015). Percepción frente a la formación básica para la investigación en estudiantes del Área Ciencias Económicas y Administrativas. In *Estudios actuales en Psicología*, (pp 109-128). Alarcón, Y., Vásquez, F., Pineda, W. & Martínez, Y. (Eds.). Universidad Simón Bolívar (Ed). Barranquilla.
- Perrenoud, Philippe (2001). *La formación de los docentes en el siglo XXI*. Facultad de Psicología y Ciencias de la Educación, Universidad de Ginebra. Trad. María Eugenia Nordenflycht. In *Revista de Tecnología Educativa*, XIV (3) 503-523. Santiago, Chile.
- Perrenoud, Philippe y Carreras Barnes, Josep (2008). El debate sobre las competencias en la enseñanza universitaria. Competencias y planes de estudio. Transmisión de conocimientos y competencias.

Cuadernos de Docencia Universitaria n. 05. Octaedro (Ed.), ICE. Barcelona, España.

- Proyecto Alfa Tuning América Latina (2004-2008). <http://tuning.unideusto.org/tuningal/>
- Pulido Trullen, Juan Ignacio (2008). *Competencias genéricas y transversales de los titulados universitarios. Competencias genéricas ¿Qué son?* ICE, Universidad de Zaragoza, España.
- San Martín López, Alma Luz (2012). *Competencias básicas de los egresados de la Facultad de Odontología de la Universidad Veracruzana Región Poza Rica-Tuxpan, México*. Universidad de Granada, Andalucía. España.
- Sarmiento P. (2013). Bioética ambiental y ecopedagogía: una tarea pendiente. *Acta bioethica*, 19 (1), 29-38. <https://dx.doi.org/10.4067/S1726-569X2013000100004>
- Ull Solis, A., Martínez Agut, M., Aznar Minguet, P., (2009). *Competencias para la sostenibilidad en los planes de estudio de los nuevos títulos universitarios de grado*. In VII Jornadas de Redes de Investigación en Docencia Universitaria, June 4 and 5. Alicante, España. www.eduonline.ua.es/jornadas
- UNESCO, (1998). Conferencia Mundial sobre la Educación Superior: La Educación Superior en el Siglo XXI. *Vision y Acción*, 9 (oct). <http://www.unesco.org/education/educprog/wche/declaration/spa.html>
- Universidad de Maastricht (2007). Proyecto REFLEX, 6º. Programa de la Unión Europea (Contrato No: CIT2-CT-2004-506-352). Coord. by *Research Centre for Education and the Labour Market* from Universidad de Maastricht.
- Villarroel, V, & Bruna, D. (2014). Reflexiones en torno a las competencias genéricas en educación superior: Un desafío pendiente. *Psicoperspectivas*, 13(1), 22- 34. <https://dx.doi.org/10.5027/psicoperspectivas-Vol13-Issue1-fulltext-335>

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