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Personal and Interpersonal Competencies of University Students Entering the Workforce: Validation of a Scale

Competencias personales y participativas vinculantes a la inserción laboral de los universitarios: Validación de una escala

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Abstract

The big changes that take place in a social and productive context demand putting a set of competencies into action that relate to the same equation of training, orientation and employment are demanded. Faced with this growing commitment of employability, the aim of this paper is to describe the construction of a scale of competencies for university students on entering the workforce and analyze the validity of construct of said scale. 931 final year undergraduate students from the University of Murcia and the University of Granada participated. To achieve the aim of this research, a quantitative methodological approach was adopted and a non-experimental, exploratory, and transversal study with a survey was applied. The main results indicated the reliability and validity of the proposed competency scale, as well as its adequacy to the proposed theoretical model that claims that relevance and active presence of personal (individual) and interpersonal (social) competencies are the most influential competencies for an optimal entry into the job market today. Universities must manage employability through a group of actions directed to encourage these kinds of competencies and promote better cooperative training with the objective to improve the university-workforce relationship, to access job opportunities and professional internships, and to form a long-term career goal

Keywords: Structural Equations Models, Confirmatory Factor Analysis, competency, higher education, entering the workforce

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Resumen

Los grandes cambios acaecidos en el contexto socio-laboral demandan la puesta en acción de un conjunto de competencias que relacionen en la misma ecuación, formación, orientación y empleo. Ante esta creciente apuesta por la empleabilidad, la finalidad de este trabajo es describir la elaboración de una escala de competencias vinculantes al proceso de inserción de los universitarios y analizar la validez de constructo de dicha escala. Para ello, participan 931 estudiantes de último curso de Grado de la Universidad de Murcia y la Universidad de Granada. Para la recogida de información y análisis de los datos, se adopta un enfoque metodológico cuantitativo a través de un diseño de investigación no experimental, exploratorio y transversal tipo encuesta. Los principales resultados denotan la fiabilidad y validez de la escala de competencias planteada, así como su adecuación al modelo teórico propuesto que reivindica la relevancia y presencia activa de la competencia personal (individual) y participativa (social), como las competencias más influyentes para un óptimo proceso de inserción laboral en la actualidad. Las universidades deben gestionar la empleabilidad mediante un grupo de acciones dirigidas a fomentar este tipo de competencias y promover una cooperación real que permita no solo mejorar la relación universidad-mercado de trabajo, sino también acceder a más oportunidades de trabajo y delimitar los objetivos profesionales a largo plazo

Palabras clave: Modelos de Ecuaciones Estructurales, Análisis Factorial Confirmatorio, competencias, educación superior, inserción laboral

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The big changes generated in the economy of knowledge, communications, and the labor market demand more flexible jobs that meet the new needs of employers who need to compete in an increasingly uncertain environment and future workers who seek

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success in his/her professional career and self-fulfillment through work (Blustein, Kenna, Gill, & DeVoy, 2008; Do Ceu Teveira & Rodríguez Moreno, 2010). In this context, professional competencies appear as a link to connect the two agents, as indicated by Clemente-Ricolfe and Escribá-Perez (2013), regarding the training in the professional world. To achieve this difficult balance between training and economic investment with greater access to the labor market (Martin-del-Peso, Rabadán-Gómez, & Hernández-March, 2013), professional competencies stand as the main element of change in the new educational and professional paradigm.

In this sense, from higher education institutions, there are growing concerns and actions aimed at achieving a greater and better fit between higher education and the demands of the productive system and the need for career guidance processes. Since the creation of the European Higher Education Area (EHEA), studies attempt to respond to the role of higher education to meet the demands of the labor market (Freire, Tejeiro, & Country, 2013) or attempt to analyze if the professional profiles of competencies demanded by employers match those provided by new university graduates (Almuedo, Brea, Buiza, Figueroa, & Torres-Olivera, 2011).

Faced with this growing commitment to the employability of young graduates at a national and international level (Bernston 2008; García Manjón, & Pérez López, 2008; Humburg, Van der Velden, & Verhagen 2013; Levels, Van der Velden, & Allen, 2014; McQuaid & Lindsay, 2005; Rodríguez Espinar, Prades, Bernáldez, & Sánchez, 2010; Toledo & Michavilla, 2009) along with the importance of putting a set of key competencies into action for employment in today's society (Ayast 2010; Mora 2011; Knight & Yorke, 2004; Teichler, 2008), empirical studies are needed to demonstrate the development of these competencies in university training to understand their relevance of entering the workforce of graduates.

In this research, a scale of professional competencies was designed and aims to measure two dimensions, that is, the development and relevance of competencies from the perspective of a final year undergraduate course student, considering this as the key player when entering the workforce so their contributions and assessments can be considered of special interest to promote and ensure employability and employment by initiating this process from the university community. This scale is incorporated, in turn, in an *ad hoc* designed questionnaire and titled *Guidance and Job Placement Questionnaire*, whose objective is to understand and analyze the expectations, beliefs, training and experience that the university possesses towards its professional future.

After the validation of content and construct of this questionnaire, the next job is to specifically address the design and validation of the scale of incorporated professional competencies. Due to the importance of having a set of competencies that suits the needs of career guidance, the objectives of this research are: a) describe the development of this scale of competencies and b) analyze the validity of construct of this scale, ensuring that the information collected, and subsequent interpretations accurately assess what is intended to be measured.

Method

Participants

The population of interest was formed by final year undergraduate students from the University of Murcia and the University of Granada of various degree programs. To select the minimum sample, the total enrollment of final year students was taken into consideration and the margin of error is determined by accepting ± 3.93 and confidence level of 99% (K = 2), with the most unfavorable condition ($p = q = 0.5$). The final sample was comprised of 931 students from both of the aforementioned universities through simple random sampling distributed in various degree programs as shown in Table 1.

Table 1 - Distribution of the sample by degree. Number of participates and answer rate

Degree	Enrolled in the final year of degree (N)	Participants (n)	Response rate (%)
Primary Education	526	310	58.9
Early Childhood Development	244	125	51.3
Social Education	117	82	70.1
Pedagogy	168	125	74.4
Professional Relations and Human Resources	300	59	19.7
Speech Therapy	84	50	59.5
Psychology	274	17	6.2
Pharmacy	47	38	80.9
Chemistry	62	18	29
Biotechnology	53	34	64.1
English studies	202	73	36.1
Total		**931**	

The response rate is also considered to reflect the proportion of students who answered the questionnaire based on the total number enrolled by degree type during their final undergraduate year. Of the total participants who completed the questionnaire, 701 (75.3%) are women and 230 are men (24.7%), with an average age of about 23 years.

Instrument to collect information

As an instrument to collect information, an *ad hoc* questionnaire was designed (Guidance and Job Placement Questionnaire, abbreviated in Spanish as COIL) to deepen knowledge about the entry process of the job market experienced by students in their final undergraduate year in university. This questionnaire utilizes a quantitative assessment as its methodological approach; however, some questions in the questionnaire are open-ended and allow the participant to write unique and individual answers. For the closed-ended questions, which include dichotomous questions, multiple choice or Likert-type scale (1 = none - 5 = a lot), the response options vary depending on the type of information that is intended to understand.

The questions were created based on the five major building blocks of the COIL: i) personal and academic information, ii) academic-professional experience, iii) training during the degree, iv) attitudes and expectations towards employment, v) resources and services for job placement. This research paper specifically focuses on and analyzes the results related to the third block, referencing the competency training received during the degree and student satisfaction of a scale of professional competencies within his or her studies. This assessment evaluates students in a Likert-type scale 1 to 5, based on two-dimensional basic analysis: the degree of development of these skills during their studies and the degree of relevance conferred upon them for their entry in the workforce.

Methodological design and process

To achieve the aim of this research, a quantitative methodological approach was adopted and a non-experimental, exploratory, and transversal study with a survey was applied. The procedure for the preparation of this work is structured in different phases, which are detailed below:

- *Problem and objectives:*

The research starts from a previous identification and analysis of the current situation. This analysis allows the identification of the main research problem with the increase of youth unemployment, including those with higher education.

- *Design of the instrument used for information collection and the scale of professional competencies:*

Based on the proposed objectives, the following instrument to collect information was designed: Guidance and Job Placement Questionnaire (COIL). Within this questionnaire, a list of key competencies for the employability of university students is proposed and it is intended to measure the development during their undergraduate degree and relevance that they give to these competencies for the process to find employment. The list of key competencies is part of the theoretical approach of competency model proposed by Bunk (1994) and subsequent adaptation in the proposed Professional Action Competencies by Echeverria (2002). In these theoretical approaches, there is a clear distinction between the technical competencies related to the knowledge and procedures and the personal and social competencies of the professional block. According to this double classification common among the cited models but denominated in a slightly different way, it is considered fundamental to analyze and evaluate the social and individual competencies within the purpose of the research.

Thus, a scale of professional skills that will depend more on the university itself and comprehensive skills training proposed in the new degrees oriented toward student employability (EC, 2010) arises, specifically scientific and technical specialties. In the latter case, it is the context, the job requirements, and the organization to determine what technical and methodological skills (according to the approaches of Bunk 1994 and Echeverria 2002) must be set into action, as reflected in Figure 1.

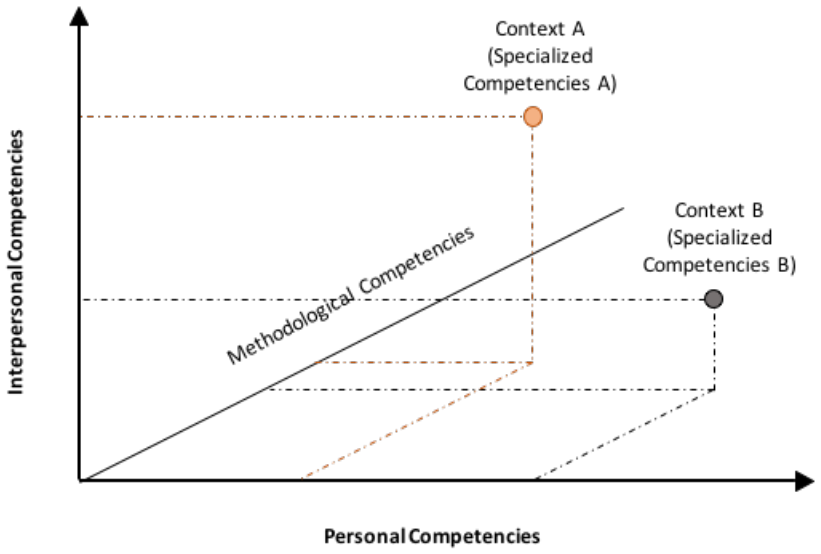

Figure 1. Putting the different components of professional competency into action

At a more specific level of the creation of this scale of competencies, the functional analysis of competencies in the field of training and employment was applied (Vargas, 2009; OIT, 2012) with the aim of facilitating the comprehension and evaluation of the scale that is intended to be incorporated in the questionnaire. This methodology is generally used to identify the inherent competencies in a productive function and is characterized by its flexibility of application (Mansfield & Mitchell 1996), so that it can be useful as an analysis of specific occupations even on a broader scale.

For the creation of a competency scale that serves as a reference for the employment of all university regardless of their degree is part of the first question: What can be done to achieve a smooth transition from college to the job market? This question leads to the approach of one main purpose: to promote and enhance the transition to the professional life for future university graduates. To do this,

the process of realization continues and aims, among other key functions, to promote competency-based training to improve the employability of students. Apart from this more general function, there are two more main functions within the functional map, which correspond to the two blocks of competencies to be developed by university students and future employees: interpersonal competencies and personal competencies, proposed in the models cited above.

Within both categories or main functions, the functional map allows a third level of classification to be created. In this level, 5 units of competencies are included which have a clearer and more specific meaning in the process of employment and therefore, have a higher implementation and evaluation level. Finally, these five units are divided into a total of 19 elements of competency to obtain the most specific and applied level in the analysis or functional map. It is those actions and behaviors that the university must demonstrate in job search and workforce entry process, as summarized in Table 2.

Table 2 - *Functional Map of the theoretical model of professional competencies when entering the workforce*

	Unit of competency	**Element of competency**
Interpersonal Competencies	Adapting to change	Flexibility and orientation to change Decision making Motivation for achievement Organization and planning
	Lifelong learning	Ability to learn and adapt Responsibility and perseverance Analysis, synthesis, and criticism
	Ethical Social Commitment	Teamwork Commitment to the organization People-oriented
Personal Competencies	Personal Identity	Search for excellence Resilience and frustration tolerance Ability to work under pressure Communication skills Self-awareness
	Initiative	Innovation Entrepreneurship Leadership Conflict resolution and negotiation techniques

The elements of competency that were collected lastly on the scale designed in the COIL questionnaire, based on the framework of the Chair of Professional Insertion of the University of Salamanca and coordinated by Pita and Pizarro (2013) catalog and includes a total of 18 elements of professional competencies required in the job market. This catalog was chosen for the great fit posing with different presented models of competencies and functional map as well as the presence and repetition of these competency elements in different national and international studies (Almerich, Díaz-García, Cebrián-Cifuentes, & Suárez-Rodríguez, 2018; Boffo, Federighi, & Torlone 2015; Freire, Tejeiro, & Country 2013; Kubler & Forbes 2005; Lowden, Hall, Elliot, & Lewin 2011; Martin-del-Peso, Rabadán-Gómez, & Hernández-March, 2013;; Mora, 2011; Palmer, Montaño, & Palou 2009; Pineda-Herrero, Agud-Morell, & Ciraso-Calí, 2016; Wye & Lim 2009; Yorke, 2006). All items mentioned in the COIL scale are considered essential for proper social and professional integration and success in the job search for students and graduates in any field of knowledge stated by the aforementioned studies and reports.

In the search for complementarity and coherency on the scale, it is evident that for some international analysts (Grant & Kinman

2014; Stephens, 2013), it is important that future graduates and employees of the 21st century are tolerant to frustrating situations and can recover to adversity and unpredictability through their situations, so it was decided to include the nineteenth element of competencies based on the resilience and frustration tolerance as part of the personal identity of the student. The final list of units and elements of professional competencies for entering the workforce of university graduates is represented in Table 3.

Table 3 - *Definition and code of the elements of competencies*

Questionnaire Code	Element of Competency
5.1	**Self-awareness** (Self-efficacy to perform a task, take responsibility or face the vital challenges in different areas)
5.2	**Analysis, synthesis y criticism** (Identify, simplify and improve understanding of problems through a critical and creative restructuring of knowledge)
5.3	**Organization and planning** (Define priorities in the accomplishment of tasks, establishing plans of action by means of the optimal use of time, means and resources)
5.4	**Communication skills** (Transmit and know how to receive information clearly and adapted to the context, whether oral, written, verbal or nonverbal)
5.5	**Responsibility and Perseverance** (Commitment and constancy in the task being performed, assuming the consequences that derive from it)
5.6	**Decision making** (Related to work autonomously, involves the identification and analysis of problems to undertake actions that facilitate their resolution and take advantage of the opportunities available)
5.7	**People-oriented** (Permanent attitude of having the needs and demands of others in mind to give a good service)
5.8	**Teamwork and cooperation** (Work in coordination, with the participation of all members to achieve common goals; the division of effort is linked in a single common result)
5.9	**Ability to learn and adapt** (Ability to learn throughout life, update and adaptability to new situations and challenges)
5.10	**Flexibility and orientation to change** (Ability to understand and appreciate different perspectives of a situation, to adapt and work effectively)
5.11	**Motivation for achievement** (Desire to establish and carry out own objectives, based on the contrast of who I am and what I can contribute in a professional way to reach the set goals)
5.12	**Commitment to the organization** (commitment of the person with the vision, strategy, goals and culture of the organization, institution or company)
5.13	**Ability to work under pressure** (Resistance to stress and self-control of one's emotions in situations of opposition, hostility or provocation)
5.14	**Conflict resolution and negotiation techniques** (Find suitable solutions to the conflicts that have arisen, identifying and studying the problems and possible solutions and alternatives)
5.15	**Search for excellence** (Assume the need and principle of doing things in the best way possible that is under the idea of development and continuous growth)
5.16	**Innovation** (Ability to generate ideas, develop them, evaluate them with a feasible criteria and implement them to achieve solutions or improve them in any professional environment)
5.17	**Entrepreneurship** (Ability to take risks, innovate, be creative and geared towards growth)
5.18	**Leadership** (To have responsibility and to act as support or guide of others with great communication skills and understanding of the viewpoints of each member of a group)
5.19	**Resilience and frustration tolerance** (Remaining stable against impediments or unfavorable situations, overcoming and learning from each of them)

- *Evidence of validity based on the content:*

After the creation of the scale of competencies, it is subjected to a validation process of qualitative content through the evaluation by experts and the aggregate individual method. In this process, evidence of the validity of context of the Guidance and Job Placement Questionnaire (COIL) are obtained

by completing a validation guide designed *ad hoc* from a quantitative methodological approach and structured into three main sections: a) introduction and instructions, b) content of the questionnaire, and c) overall rating.

After the participation of 12 experts, the agreement obtained through the W of Kendal (W = 172; Sig. = .044) along with their contributions allows for the extraction of information useful for debugging, defining and refining the final design of COIL. Most of these modifications are characterized by the change in the drafting and design of certain items, improving some of the instructions given over the instrument or the addition of three new variables. Regarding the scale of competencies discussed in this paper, there is unanimity among the judges when assessing the relevance and appropriateness of each of them. They include the improvement proposal made by experts (n = 9) on the possibility of incorporating a brief explanation of what each of the competency elements mean listed in the questionnaire, in order to improve comprehension and completion by the student.

- *Collection of information:*

Faculty who teach the final year undergraduate students of different degrees of the University of Murcia and the Faculty of Education at the University of Granada during the 2015/2016 course were contacted. They were limited to the class schedule most suitable to complete the questionnaire and during that time, a member of the research team was always present to provide appropriate instructions to students, resolve any doubts and remind them at all times, of the voluntary, anonymous and confidential nature of the questionnaire and its data.

- *Analysis and interpretation of data:*

From SPSS v23, an initial descriptive study of responses is performed together with the analysis of the trend and distribution. Later, with the help of the computer tool AMOS v7, we found both correlations and existing covariance between dimensions and variables proposed in the competency model and the model fit index of the proposed theoretical factor model. In the latter case, we resort to the application of Confirmatory Factor Analysis (CFA) and Structural Equations Models (SEM) in both the development dimension and the relevance of the competencies scale compared to the use of Exploratory Factor Analysis (EFA). This analysis option was chosen due to different authors (Ferrando & Anguiano-Carrasco, 2010; Marsh, Morin, Parker, & Kaur, 2014) confirming the use of CFA if the theoretical model with a known and determined priori in which the number of factors to be studied and the relationship among them are already established.

Results

Descriptive study of the competency scale

The descriptive analysis of the items on the competency scale includes the mean and standard deviation of the 19 elements of competency collected on the scale. Distributed according to the competencies of which they form a part of (interpersonal or personal) and by units of competencies according to the theoretical model proposed can be seen in Table 4 where the average valuation of these items regarding the development dimension is between 3.16 (entrepreneurship) and 4.09 (teamwork) on a Likert scale of 1 to 5 (1 = little and 5 = a lot).

Table 4 - *Descriptive and inferential analysis of the competency scale*

Competency	Unit of competency	Element of competency	Development		Relevent		Wilcoxon Test	
			$\bar{X}$	S.D.	$\bar{X}$	S.D.	Z	Sig.
Inter-personal	Adaptation to change	Flexibility and orientation to change	3.48	0.889	4.38	0.674	-21.228	.000
		Decision making	3.64	0.863	4.51	0.612	-20.794	.000
		Motivation for achievement	3.51	1.068	4.43	0.702	-19.644	.000
		Organization and planning	3.73	0.867	4.51	0.645	-20.164	.000
	Lifelong learning	Ability to learn and adapt	3.77	0.861	4.60	0.584	-20.326	.000
		Responsibility and perseverance	3.87	0.911	4.63	0.594	-19.427	.000
		Analysis, synthesis and criticism	3.51	0.813	4.33	0.728	-20.200	.000
	Ethical-social commitment	Teamwork and cooperation	4.09	0.906	4.59	0.675	-14.506	.000
		Commitment to the organization	3.36	0.967	4.24	0.777	-20.565	.000
		People-oriented	3.33	0.965	4.39	0.728	-21.977	.000
Personal	Personal Identity	Search for excellence	3.44	0.980	4.33	0.726	-20.112	.000
		Resilience and frustration tolerance	3.30	1.065	4.48	0.674	-21.860	.000
		Ability to work under pressure	3.54	1.138	4.39	0.732	-17.244	.000
		Communication skills	3.66	0.913	4.63	0.611	-21.291	.000
		Self-awareness	3.65	0.841	4.47	0.674	-19.998	.000
	Initiative	Innovation	3.31	0.986	4.46	0.654	-22.527	.000
		Entrepreneurship	3.16	1.020	4.41	0.711	-22.694	.000
		Leadership	3.19	1.031	4.18	0.808	-20.970	.000
		Conflict resolution and negotiation techniques	3.39	1.006	4.49	0.653	-22.015	.000

Reliability study

The reliability of the internal consistency of the competency scale is estimated with the statistical Cronbach's alpha (α), which allows the calculation of the correlation among items of the same construct. This statistic applies both to analyze the reliability of the scale as a whole and the two subscales that result from the theoretical division between the interpersonal and personal competencies. Table 5 shows good reliability levels per the classification made by George and Mallery (2003) on the statistic Cronbach's alpha (α) when this indicator exceeds the value 0.8. In addition, the result of α on the global scale in both dimensions is very close to 0.9, indicating an excellent value as rated by the same authors. These results are completed by verification that the elimination of any of the items does not increase the reliability of the global scale in any of the two dimensions analyzed.

Table 5 - *Reliability of the competency scale from Cronbach's alpha coefficient*

Subscales	Development α	Relevance α	Elements of competencies
Personal	.824	.793	9
Interpersonal	.829	.840	10
Global Scale	.897	.894	19

Study of construct validity

In order to test the theoretical structure proposed in the competency scale, a CFA with the SEM, whose standardized results are reflected visually in Figures 2 and 3, was performed. These two figures represent the observed structural relationships between the competencies discussed in the development dimensions (Figure 2) and relevance (Figure 3).

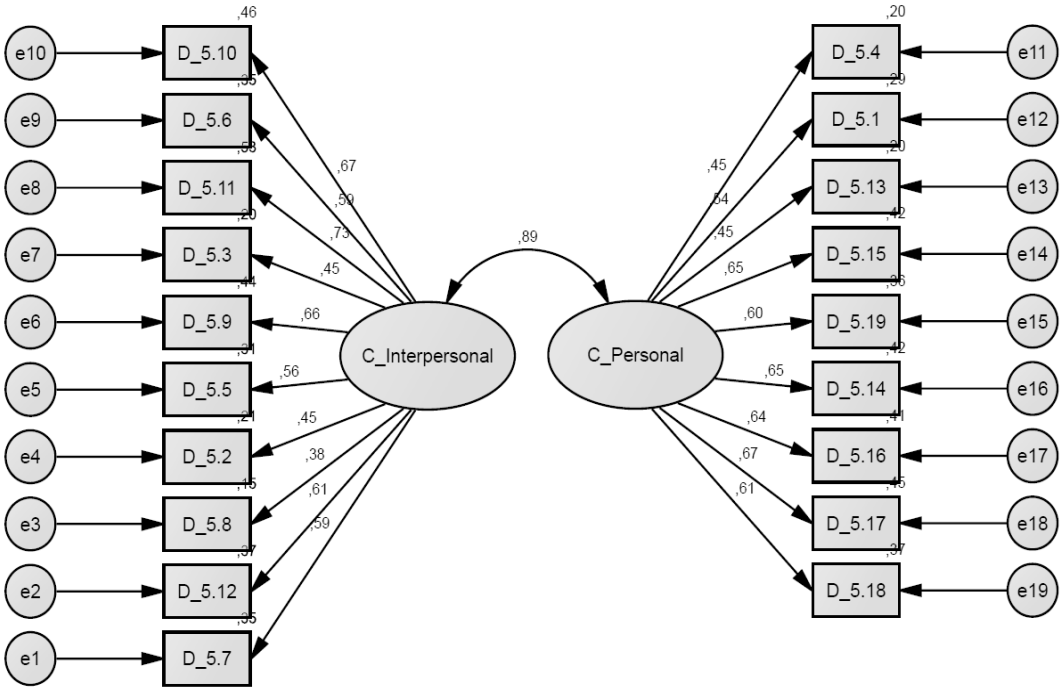

Figure 2. Structural Equations Model of competency scale of the COIL-Development questionnaire.

In these two structural equations models the same structure formed by two latent variables represented with an ellipse (personal and interpersonal competencies from the proposed model) are seen, influencing a group of observed variables represented by rectangles. Also, the two latent variables are interrelated with a bidirectional arrow indicating the covariance existing between them. Meanwhile, the observed variables correspond to the items or elements making up the competency scale. These are interpreted as saturation coefficients and are independent of each other; although, they are conditioned by the latent variable that determines them. In addition to being observable variables, they always have an associated prediction error which is represented with circles in the model.

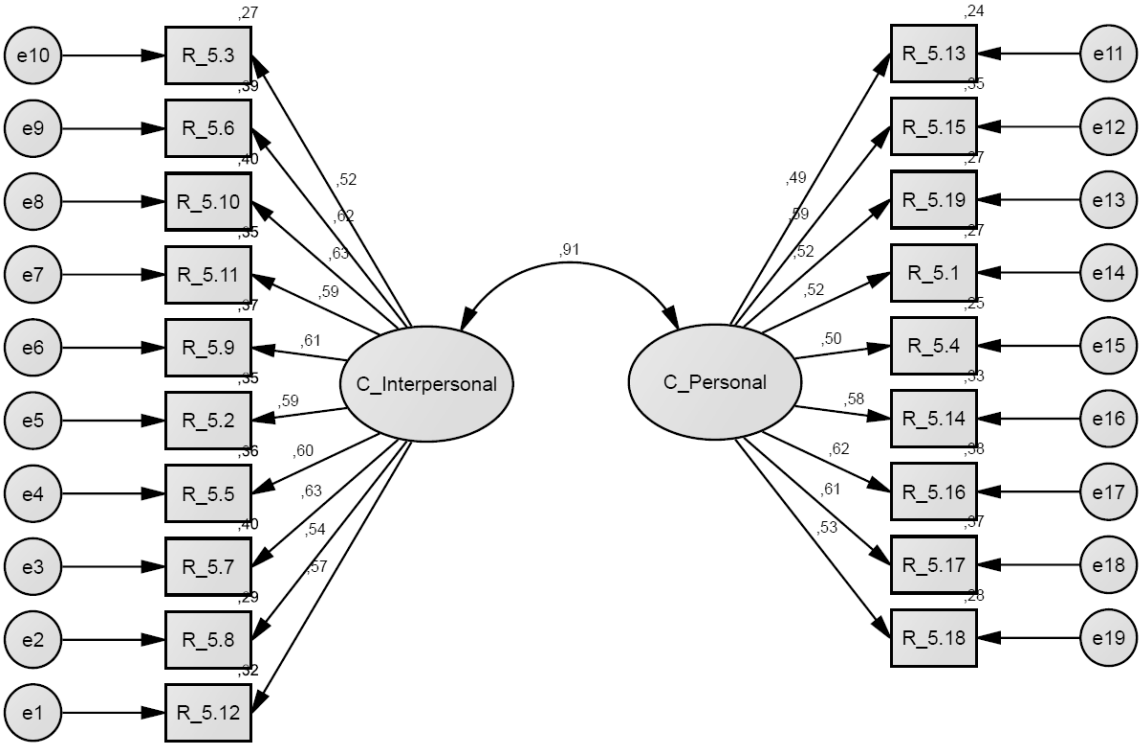

Figure 3. Structural Equations Model of competency scale of COIL-Relevance questionnaire

After the estimation of the model's parameters measured in Figures 2 and 3, it is necessary to evaluate its quality. To do this, the method most widely used for estimation is Maximum Likelihood (ML) estimation, considering it to be the least biased and invariant type of scale (Zurita, Castro, Álvarez, Rodríguez, & Pérez, 2016) and "facilitate convergence of the estimators with the parameters even in the absence of normal data" (Rial, Lamas, Braña, & Varela 2009, p. 138). This stage is crucial to determine whether the hypothetical model correctly specifies relationships between variables without omission of the parameter and therefore properly predicts reality.

Although there exists a large number of indicators in the model fit, they can be classified into three types according to the classification given by Ruiz, Pardo and San Martin (2010): absolute fit indices (residual value), incremental fit indices (compared to adjustment in respect to other models with bad fit) and indices of parsimonious fit (fit valued on the number of parameters used); classifications to which he included the Root Mean Square Error of Approximation (RMSEA) for its relevance in SEM, because as stated by Morata-Ramirez, Holgado-Tello, Barbero-García and Mendez (2015), the RMSEA is sensitive to the number of parameters that estimate the model to take into account the degrees of freedom. According to these authors and others (Schreiber, Stage, King, Nora, & Barlow, 2006), none of these indices alone provide all the information necessary to assess the model and it is common to analyze several of these indicators simultaneously.

Table 6 - *Most common statistics to identify the best fit of a model and results on the competency scale*

Statistics	Abrev.	Criteria	Development	Relevance
Absolute fit				
Chi squared	$\chi 2$		652,449	604,388
Degrees of freedom	gl	Sig.>,05	151	151
Level of probability	*p*		.000	.000
Incremental fit				
Comparative Fit Index	CFI	$\geq$ 0,9	.908	.910
Tucker-Lewis Index	TLI	$\geq$ 0.9	.884	.887
Incremental Fit Index	IFI	$\geq$ 0.9	.908	.911
Normalized Fit Index	NFI	Close to 1	.884	.884
Parsimonious fit				
Parsimonious Normed Fit Index	PNFI	Close to 1	.702	.703
Others				
Root Mean Square Error of Approximation	RMSEA	< 0.08	.060	.057

In Table 6, the most widely used statistics along with the recommended value to recognize a good fit of the model and the results obtained for each of them both in the development dimension and the relevant statistics were collected. These results denote a good fit of the model of empirical data on all indexes that appear on the Table 6. Although the Chi-square presented values associated with *p* are significant due in part to the amplitude of the sample, the other indicators met or exceeded recommended levels. This is the case of comparative fit indices such as CFI, TLI, IFI or NFI and PNFI as parsimonious fits, whose values are very close to the unit. Meanwhile, other important indicators such as GFI shown above 0.9 and RMSEA is less than 0.08, which is considered an appropriate setting according to this classification. In addition, the values of the latter index, RMSEA, are equal to or less than 0.06 (0.06 and 0.057, for development and relevance respectively), which represents a great fit between the proposed model and the observed data according to Hu and Bentler (1999).

Once the fit of the model and the estimation of its parameters have been verified, the CFA results are also represented by the coefficients obtained for all the causal relations and the model correlations. This data is shown on Tables 7, 8 and 9, where Regression Weight (R.W.) and Standardized Regression Weight (S.R.W.) appeared with the following parameters: estimation, standard error (S.E.), critical ratio (C.R.) and a *p* value associated with each parameter.

If each of these tables are analyzed individually, one can see that the weight regression among the variables of the development dimension (Table 7) are all significant. The weights of saturation when standardized approximates the value .5 considered acceptable, except for the element of competencies “Teamwork” (D_5.8.) that relates to the interpersonal competencies in a .384. In the case of Table 8, the standardized and non-standardized regression weights of the relationship of the variables for the relevance dimension are shown. As in the previous case, all relationships are statistically significant and noteworthy, specifically the element of competencies "People-oriented" (R_5.7) and "Innovation" (R_5.16), with the highest indices of regression with interpersonal and personal competencies respectively.

Table 7 - *Regression Weight (R.W.) and Standardized Regression Weight (S.R.W.) among the observable variables in the development dimension*

			R.W.				S.R.W.
			Estimations	**S.E.**	**C.R.**	***p***	**Estimations**
D_5.7	<---	C Interpersonal	1.000				,592
D_5.12	<---	C Interpersonal	1.034	,069	15,085	***	,611
D_5.8	<---	C Interpersonal	0.609	,059	10,329	***	,384
D_5.2	<---	C Interpersonal	0.644	,054	11,897	***	,453
D_5.5	<---	C Interpersonal	0.894	,063	14,127	***	,560
D_5.9	<---	C Interpersonal	0.995	,062	15,960	***	,661
D_5.3	<---	C Interpersonal	0.685	,058	11,864	***	,452
D_5.11	<---	C Interpersonal	1.359	,080	17,042	***	,727
D_5.6	<---	C Interpersonal	0.893	,061	14,728	***	,592
D_5.10	<---	C Interpersonal	1.049	,065	16,201	***	,675
D_5.4	<---	C Personal	1.000				,450
D_5.1	<---	C Personal	1.100	.098	11.211	***	.537
D_5.13	<---	C Personal	1.234	.123	10.057	***	.446
D_5.15	<---	C Personal	1.548	.126	12.287	***	.649
D_5.19	<---	C Personal	1.565	.132	11.891	***	.604
D_5.14	<---	C Personal	1.593	.129	12.302	***	.651
D_5.16	<---	C Personal	1.544	.126	12.237	***	.643
D_5.17	<---	C Personal	1.668	.134	12.472	***	.672
D_5.18	<---	C Personal	1.536	.128	11.967	***	.612

Note: S.E.=Standard Error; C.R.=Critical Ratio; *p*= ***=.000.

Table 8 - *Regression Weight (R.W.) and Standardized Regression Weight (S.R.W.) among the observable variables in the Relevance dimension*

			R.W.				S.R.W.
			Estimations	**S.E.**	**C.R.**	***p***	**Estimations**
R_5.12	<---	C Interpersonal	1.000				.567
R_5.8	<---	C Interpersonal	0.831	.062	13.384	***	.543
R_5.7	<---	C Interpersonal	1.046	.070	14.925	***	.633
R_5.5	<---	C Interpersonal	0.804	.056	14.331	***	.597
R_5.2	<---	C Interpersonal	0.979	.069	14.260	***	.592
R_5.9	<---	C Interpersonal	0.803	.055	14.490	***	.606
R_5.11	<---	C Interpersonal	0.938	.066	14.186	***	.588
R_5.10	<---	C Interpersonal	0.961	.065	14.850	***	.628
R_5.6	<---	C Interpersonal	0.867	.059	14.784	***	.624
R_5.3	<---	C Interpersonal	0.760	.059	12.951	***	.519
R_5.13	<---	C Personal	1.000				.492
R_5.15	<---	C Personal	1.188	.095	12.537	***	.589
R_5.19	<---	C Personal	0.981	.084	11.708	***	.524
R_5.1	<---	C Personal	0.970	.083	11.624	***	.518
R_5.4	<---	C Personal	0.853	.075	11.390	***	.502
R_5.14	<---	C Personal	1.044	.084	12.378	***	.576
R_5.16	<---	C Personal	1.120	.087	12.865	***	.617
R_5.17	<---	C Personal	1.198	.094	12.746	***	.607
R_5.18	<---	C Personal	1.180	.101	11.726	***	.526

Note: S.E.=Standard Error; C.R.=Critical Ratio; *p*= ***=.000.

Finally, the relationships established between the two latent variables or factors in the development dimensions and relevance (Table 9) can be seen by saturation weights of .89 and .91 with a critical proportion higher than 2 in both dimensions, which assumes, according to Andrade and Coba (2005) that the two parameters are different from 0 and therefore statistically significant to the .005 level, with only a 5% probability of error.

Table 9 - *Regression Weight (R.W.) and Standardized Regression Weight (S.R.W.) between the latent variables*

Dimension	**Covariance and correlation**			**R.W.**				**S.R.W.**
				Estimations	**S.E.**	**C.R.**	***p***	**Estimations**
Development	Comp. Personal	<->	Comp. Interpersonal	0.208	.021	10.142	***	.889
Relevance	Comp. Personal	<->	Comp. Interpersonal	0.145	.014	10.533	***	.914

Discussion

The results presented throughout this work denote the adequacy, reliability and validity of the competency scale designed and incorporated into the Guidance and Job Placement questionnaire (COIL). With them, the classification coordinated by Pita and Pizarro (2013) based on the experience of different agents involved in the training and production system was confirmed. A catalog of competencies was completed and inserted into a theoretical model that has, on one hand, the methodology of functional maps and on the other, the Model of Professional Competencies (Bunk, 1994) adapted by Echeverría (2002) as Professional Action Competencies Model.

This theoretical model is coherent with the empirical data of the research, following the fit indices obtained based on the methodological complementarity that includes evidence of validity of content and construct per the current trend to determine the validity of a scale and/or measuring instrument (Arias 2015; Lizasoain-Hernández, Etxeberria-Murgiondo & Lukas-Mujika, 2017; Prieto & Delgado 2010).

In the first case of this evidence, the expert agreement and its collected recommendations results in validity of content that reaffirmed the appropriateness of including the 19 elements of competency used in the scale and proposed the incorporation of a simple definition of each of these elements to improve compaction and completion by the student.

Regarding the validity of construct, the previous step with the descriptive analysis of the data and its distribution makes the divergence evident between the importance that students attach to professional competencies and the development or execution throughout their university education, as is the case in studies like European Centre of the Development of Vocational Training (CEDEFOP, 2014) or Palmer, Montaño and Palou (2009). Despite these differences, which are significant in all cases, the theoretical model is appropriately adapted to the empirical data, in both the relevance and the development dimensions. This conclusion is derived from the application of Confirmatory Factor Analysis (CFA) with the help of Structural Equations Models (SEM).

With this analysis, acceptable indices of model fit that give validity to the proposed model are obtained with the division of generic or transversal competencies into two major components: interpersonal and personal. These results agree first with the most widespread differentiation that makes references to generic and specific competencies, distinguishing them based on a criterion of extending the scope of the competence itself (Clemente-Ricolfe & Escribá-Pérez 2013; González & Wagennar

2003; Spencer & Spencer 2013). But, these results go beyond that and focus on generic competencies as those more transferable to different tasks and common functions to the majority of professions allowing said competencies to be grouped into two main components: interpersonal and personal, in accordance with competency models arising from the professional field (Bunk 1994; Echeverría 2002).

Therefore, one of the major contributions of this work resides in the statistical confirmation of the validity of this theoretical approach supported in the methodology of functional maps. The development of employability directs the focus to a series of observable behaviors (or elements of competencies), which are the result of the combination of different motivations, attitudes, values and skills. This statement is verified with internal satisfactory consistency obtained on the global scale like that in the two subscales that make up the 19 elements of competencies as covariate results between dimensions. A fact that can be explained from the results of other research such as Ayast (2010), Mora (2011), Knight and Yorke (2004) or Teichler (2008), is that the competencies of more individual and social order are related to each other with the employability of the student by its eminently transversal nature and common to the different areas and degrees.

With the results taken from this research, advancements are made with the validation of *ad hoc* measurement tests as a fundamental, inherent, and consubstantial process for all research of this kind. A measurement test is useless if it does not respond to the theoretical and pragmatic knowledge from which they arise. Attending to the reliability and internal validity of these types of tests should contribute to the advancement and construction of a body of solid knowledge based on scientific evidence on the psychometric characteristics of the instruments designed for that purpose.

Keeping the significance of measurement tests in mind, the results of this research reveal the importance of these types of competency scales to facilitate the adaptation of university students to the changing demands of the job market. Although there are some limitations in the study as the only perspective in the assessment are students, the high sample and the protagonist role of the student in the process of employment are considered sufficient and appropriate to carry out this analysis. However, along the same lines, one can consider confirming this competency scale with data from other agents involved in the process to better understand the development of these competencies in higher education and its relevance for graduates entering the workforce from different points of intervention as employability depends on many indirect professional factors. It is precisely this support of the betterment of the person and to one's integral development to prepare said person in all facets and vital areas in which personal (individual) and interpersonal (social) competencies are held.

The real added value this work offers is listening to the perception and beliefs of university students as a prioritized element of the analysis, giving prominence to expose their real-life situations and make judgments about different elements intended to facilitate their employment.

Universities must manage employability through a group of actions directed to encourage the personal and interpersonal competencies among its students. On top of this, it is necessary to promote better cooperative training with the objective to improve the relationship between the university and labor market, to access job opportunities and professional internships and to form a long-term career goal.

Higher education must adjust and respond to the new demands of the labor market, which are increasingly versatile and liquid, and for this reason, must provide a better knowledge of these demands in order to transform and improve the current labor market. With this intention, all efforts should be directed at offering university students a quality training

and training that equips them with the necessary skills to be able to make decisions about the professional alternatives most in line with their training.

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