Design and Evaluation of Basic Generic Skills for University and Business[1]

Diseño y evaluación de competencias genéricas básicas para la universidad y la empresa

Desenho e avaliação de competências genéricas básicas para a universidade e a empresa

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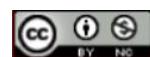
Abstract

The formative development of generic skills is necessary in any field, and accordingly, these skills are becoming increasingly supported in education and sought after by businesses. The objective of this article is to present and validate the scores of an instrument used to measure basic generic skills. This was achieved by first defining the construct of generic skills and then identifying the underlying dimensions, subdimensions, and indicators, and preparing the items. The final version of the questionnaire was administered to a sample of 547 freshman college students in the Community of Madrid. The analyses indicate that the scores of the questionnaire are reliable and valid and support the theoretical model. The findings show an adequate questionnaire that can be used to measure the development of basic generic skills and assess education provided in this respect.

Keywords: competences, skills development, higher education

Resumen

El desarrollo formativo de las competencias genéricas es necesario en cualquier ámbito. En este sentido, son cada vez más promovidas en la educación y más demandadas por las empresas. El objetivo de este artículo es presentar y validar las puntuaciones de un instrumento de medición sobre competencias genéricas básicas; para ello, definido el constructo de competencias genéricas, se identificaron las dimensiones subyacentes, subdimensiones e indicadores, y se elaboraron los ítems. La versión final del cuestionario se aplicó a una muestra de 547 alumnos de primer año de universidad de la Comunidad de Madrid; los análisis indican que las puntuaciones del cuestionario son fiables y válidas, y apoyan el modelo teórico. Los resultados muestran un cuestionario adecuado para medir el nivel de desarrollo de las competencias genéricas básicas y para valorar la formación impartida en esta materia.

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Palabras clave: competencias, educación superior, cuestionario, validación

Resumo

O desenvolvimento formativo das competências genéricas é necessário em qualquer área. Nesse sentido, são cada vez mais promovidas na educação e mais demandadas nas empresas. O objetivo deste artigo é apresentar e validar as pontuações de um instrumento de medição de competências genéricas básicas; para isso, uma vez definido o construto de competências genéricas, foram identificadas as dimensões subjacentes, subdimensões e indicadores e desenvolvidos os itens. A versão final do questionário foi aplicada a uma amostra de 547 estudantes universitários do primeiro ano da Comunidade de Madrid; as análises indicam que as pontuações do questionário são confiáveis e válidas, e apoiam o modelo teórico. Os resultados mostram um questionário adequado para medir o nível de desenvolvimento de competências genéricas básicas e avaliar a formação ministrada nesta disciplina.

Palavras-chave: competências, desenvolvimento de habilidades, ensino superior

I. Introduction

In our everchanging and complex society generic or transversal competences play an increasingly important role in the personal, social, educational or professional advancement and fulfilment of individuals. It is increasingly critical to develop, and to evaluate, generic competences as part of the basic education of young people and an essential aspect of the mission of universities. These competences encompass a wide range of valuable personal skills and abilities such as proactivity, self-awareness, innovation, creativity, entrepreneurship, empathy, effective communication, active listening, resilience, teamwork, leadership, decision-making, conflict resolution, etc. (Crespí & García-Ramos, 2021; European Commission, 2017; Domínguez, 2018; García, 2017; Ruiz et al., 2017; Unesco, 2015).

The European Union has repeatedly emphasised the need for citizens to acquire and develop key competences, both specific and generic, throughout their lives (*lifelong learning*) leading to personal growth and fulfilment. The PISA Program (1997) and the Lisbon European Council (2000) expressly refer to the need for education to promote the acquisition of key competences, understood as those required by everyone for their own personal, social and professional fulfilment and advancement (European Commission, 2018; Lundgren, 2013; OECD, 2018; Order ECD/65/2015; Pugh & Lozano-Rodríguez, 2019; Recomendation 2006/962/EC).

Through the Bologna Declaration (1999) and the Tuning Project of 2000, the EU has laid the foundation for the creation of the European Higher Education Area (EHEA) which incorporates the learning and evaluation of specific and generic competences as essential elements of all university study programs (González & Wagenaar, 2006). Tuning (2006) defines specific competences as those "proper to or specific to a field of study" while generic competences are those which "are common to any education program" (p. 3). Thus, the acquisition of both specific and generic competences is considered a prerequisite for obtaining a university degree, with particular emphasis on the latter, referred to as transversal or "21st century competences" that must be incorporated into study programs (Aguado et al., 2017; Almerich et al., 2018).

The importance of generic or transversal competences in the business world was first raised in the pioneering work of McClelland (1973) who proposed evaluating competence was more important than evaluating intelligence and regarded the possession of certain competences as the key to personal and professional excellence. And so began the *Competences Movement*, the increasing orientation of businesses towards managing, selecting, training and evaluating competences as essential to effective business management, especially in boosting productivity and profitability. Hence the importance of generic

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professional competences, so-called *soft skills*, common to all professions or productive environments (Alles, 2017; Cardona & García-Lombardía, 2007; García, 2018; González, 2017; Gutiérrez, 2010; Mertens, 1996; Olaz, 2018; Pozo, 2017; Spencer & Spencer, 1993).

Thus, generic competences play a critical role in the development and advancement of an individual and it is therefore essential these competences be taught and evaluated at university.

Generic competences are rarely taught in a subject of their own but are most commonly incorporated into the curriculum through other specific or technical courses within the degree program. Another method is through complementary activities, workshops, preliminary or optional courses, coaching sessions, etc. imparted by specialised teachers (Bécart, 2015; Crespí & García-Ramos, 2021; Gijón, 2016; Pugh & Lozano-Rodríguez, 2019; Villa & Poblete, 2011; Villardón-Gallego, 2015).

These competences are generally evaluated using specific rubrics or scales designed to measure each competence, their level of development or acquisition, using key indicators and descriptors (Gimeno et al., 2011; Herrero et al., 2014; López, 2017; Villa & Poblete, 2007).

A number of questionnaire have been developed which measure these competences or specific indicators (Arias et al., 2011; Clemente-Ricolfe & Escribá-Pérez, 2013; Gargallo et al., 2018; Lazo et al., 2009; Martínez-Clares & González-Lorente, 2019; Ruiz, 2010). However, there is a lack of questionnaires specifically designed to evaluate basic generic competences in university and business in a comprehensive person-centred manner.

Thus, with the aim of meeting the need for an effective, reliable and valid questionnaire to evaluate generic competences, this research project has two objectives: 1) to present the design and construction of the measurement instrument; and 2) to determine the reliability and validity of the questionnaire results.

This article presents the Basic Generic Competences Questionnaire (BGCQ), which may serve as a valuable tool in the measurement of the degree of acquisition of the generic competences considered most elemental in all areas of life: academic, social, personal and professional. This tool was developed with the context of university education but is equally applicable in personal or professional contexts. Furthermore, the self-report format of the BGCQ is especially effective in evaluating students' self-perception of their skills (Ruiz et al., 2017; Villa & Poblete, 2011).

II. Method

2.1 Participants

The target population of the study was first-year university students in the Community of Madrid. To ensure a sufficiently representative sample, the population was defined to include students at both a private and public university: the Universidad Francisco de Vitoria (UFV) and the Universidad Complutense de Madrid (UCM). Incidental convenience sampling method was used and the sample size was calculated using the Ene 3.0 statistics program with a confidence interval of 95%, a standard deviation of 3 and a precision level of 0.40. Taking the number of enrolled students as a reference, the program estimated a minium sample size of 444 first-year students, identified by faculty at the UFV (all faculties) and the UCM (the faculty of Education).

The sample used in this research is therefore considered appropriate both in terms of size and representativeness (see Table 1).

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Table 1. Participants by faculty and university. Response percentage

Faculty	Degree	Enrolled students	Minimum sample	Final sample	Response percentage
Education	Pre-primary and Primary Education UCM	670	217	193	28.8
	Pre-primary and Primary Education UFV	75	18	60	80.0
Law and Business	Law UFV Gastronomy UFV Law + BA UFV	137	50	60	43.8
Health Sciences	Medicine UFV Psychology UFV	217	77	89	41.0
Experimental Sciences	Biomedicine UFV	95	25	47	49.5
Advanced Polytechnical School	Computer Engineering UFV Architecture UFV	64	12	45	70.3
Communication Sciences	Journalism UFV Audio-visual Communication UFV	126	45	53	42.1
	Total	1384	444	**547**	39.5

2.2 Design of the instrument

The first step was to define the construct "generic competence". For this, a number of leading authors were consulted in the fields of both education and business. In education, generic competences generally refer to those which are common to various subjects or degrees; in business, they are those which are considered common to various different professions (Belzunce et al., 2011; González, 2017; González & Wagenaar, 2006; Gutiérrez, 2010; Poblete & García, 2007).

We proposed a definition of competence and generic competence. Competence is defined as "a dynamic set of knowledge (know), abilities (know how to do), attitudes and values (Know how to be) that, internalised and manifested in our actions, attitudes and behaviours, put us on the path towards maturity, excellence, personal fulfilment and happiness" (Crespí, 2019, p. 98). Generic competences are defined as "those which can be associated with excellence in any circumstances of life, be they personal, social, academic or professional" (Crespí, 2019, p. 100).

On this basis, we compiled a list of basic generic competences which may be considered necessary regardless of one's chosen field of study or profession. We also drew on studies from business and universities which differentiate between intrapersonal and interpersonal competences (Aguado et al., 2017; Beneitone et al., 2007; Benito & Cruz, 2006; Felce et al., 2016; González & Wagenaar, 2006; Palmer et al., 2009; Paul et al., 2000; Pugh & Lozano-Rodríguez, 2019).

The Basic Generic Competences Questionnaire (BGCQ) (*Cuestionario de Competencias Genéricas Básicas (CCGB)*) also considers these two dimensions. The intrapersonal dimension refers to competences which facilitate knowledge, acceptance and personal responsibility (introspection: subdimension 1), as well as those which enable reflection on one's own life, the ability to set objectives and the proactivity to achieve them (personal development: subdimension 2). The interpersonal dimension refers to competences which facilitate social interaction and cooperation with others (teamwork: subdimension 3), and those which facilitate interaction and communication (effective communication: subdimension 4). The BGCQ is structured into two dimensions and four subdimensions and 36 sub-indicators (see Table 2). The initial design of the instrument consisted of 45 items: 9 referring to identification and the remaining 36 referring to the 36 different sub-indicators. The questionnaire uses a Likert-type response scale from one to six, thus avoiding a middling trend in the answers.

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Table 2. Dimensional structure of the Basic Generic Competences Questionnaire

Dimension (D)	Subdimension (S)	Indicators (I)	Sub-indicators (SI)
Intrapersonal	Introspection. Deep look	Self-awareness	Strengths Areas for improvement Distinctive personal characteristics
		Self-acceptance	Strengths and areas for improvement Unique and irreplaceable Being in constant development
		Self-management	Self-reliance Attribution of causality Responsibility
	Personal development	Search for meaning in life	Meaning of life Vocation Life project
		Orientation to excellence	Objectives of development Objectives involving a challenge Mentor or tutor
		Proactivity. Self-discipline	Action Overcoming obstacles Initiative
Interpersonal	Teamwork	Cooperative work	Involvement and engagement Attitude of service and support Integration into the team
		Work environment management	Politeness and respect Attitude Motivation
		Orientation towards results	Planning and organisation Assuming tasks Compliance with obligations
	Effective communication	Verbal communication	Key ideas Structure Clarity
		Paraverbal and non-verbal communication	Visual contact Body and hands Rhythm and tone
		Communication for encounter	Empathy Assertiveness Active listening

2.3 Validation by experts

Once an initial version of the BGCQ was completed the validity of the contents was analysed by a panel of 18 experts in research, education and academic and business competences. For this, a Likert-type evaluation scale was created (1 to 6) with three sections.

The first section was designed to validate the presentation and instructions of the questionnaire, and the identification data based on four criteria: clarity, length, quality and aptness. The resulting scores were between 5.17 and 5.56. The homogeneity of the responses was evaluated using the Pearson variation coefficient, with results between 0.11 and 0.20, indicating the homogeneity of the evaluations.

The second section was to validate the aptness of the items for the dimensions and participants as well as the clarity of the questions. The tool scored 5.62 for coherence, 5.33 for clarity and 5.73 for aptness for participants. The scores for the dimensions and subdimensions were above 5.18 in all cases with the

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Pearson variation coefficient indicating the homogeneity of the responses (see Table 3).

Table 3. Descriptive statistics of the Items of the Basic Generic Competences Questionnaire

Evaluation criteria		Coherence			Clarity			Aptness for participants		
		Mean	Stan.. Dev	Variation Coef.	Mean	Stan.. Dev	Variation Coef.	Mean	Stan.. Dev	Variation Coef.
Global Questionnaire	36	5.62	0.29	0.05	5.33	0.32	0.06	5.73	0.17	0.03
D. Intrapersonal	18	5.52	0.34	0.06	5.21	0.34	0.07	5.68	0.21	0.04
D. Interpersonal	18	5.73	0.19	0.03	5.45	0.25	0.05	5.77	0.10	0.02
S. Introspection	9	5.48	0.35	0.06	5.24	0.42	0.08	5.67	0.27	0.05
S. Personal development	9	5.55	0.38	0.07	5.18	0.31	0.06	5.69	0.18	0.03
S. Teamwork	9	5.74	0.24	0.04	5.29	0.18	0.03	5.77	0.12	0.02
S. Communication	9	5.72	0.17	0.03	5.61	0.22	0.04	5.78	0.09	0.02

The third section provided a general evaluation of the questionnaire in terms of the number of items, their logical order and the validity of the content. The mean scores in this section were above 5 in all cases and the variation coefficient was near zero (see Table 4) indicating a positive and homogeneous evaluation of the scale.

Table 4. Descriptive statistics of the evaluation criteria of the Basic Generic Competences Questionnaire

Evaluation criteria	Mean	Stan.. Dev	Variation Coef.
Logical order of presentation	5.44	0.70	0.13
Number of items	5.06	1.16	0.23
Validity of content	5.11	0.76	0.15

Based on this expert evaluation the questionnaire was considered to be sufficiently valid. However, in light of the qualitative and quantitative evaluations by the panel of experts, a number of items were reformulated, the clarity of the entire scale was reviewed and recommended changes were made to the instructions and identification data. Thus, the final version of the BGCQ was obtained (Annex 1).

2.4 Data collection and analysis

The Universidad Francisco de Vitoria and the Universidad Complutense de Madrid were contacted to arrange the survey of students. The resulting data was analysed using the IBM SPSS statistics program version 21. To estimate the validity of the tool the mean scores, standard deviation and Pearson variation coefficient were calculated. To confirm the reliability of the instrument the Cronbach's Alpha was calculated and the Homogeneity Index (HI) and Validity Index (VI) were also analysed. To verify the criterion validity the Pearson correlation coefficient was calculated. Finally, a number of Exploratory Factor Analyses (EFA) and Confirmatory Factor Analyses (AFC) were carried out, the latter using the AMOS subprogram of the SPSS.

III. Results

A reliability test was conducted to evaluate the internal consistency of the scale; that is, to determine if all items measure the construct with sufficient precision. For this, the Cronbach's Alpha was calculated, taking the references of George and Mallery (2003), whereby scores equal to or above 0.9 are considered excellent and scores between 0.8 to 0.89 are good. The analysis confirmed the excellent internal consistency of the complete questionnaire and its two dimensions, and the good consistency of its subdimensions (see Table 5). The questionnaire can therefore be considered highly reliable.

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Table 5. Reliability of the Basic Generic Competences Questionnaire

Degree of reliability	Items	Cronbach's Alpha
Global Questionnaire	36	0.94
D. Intrapersonal	18	0.90
D. Interpersonal	18	0.90
S. Introspection	9	0.83
S. Personal development	9	0.83
S. Teamwork	9	0.83
S. Effective communication	9	0.86

The results of the analyses of homogeneity and validity were satisfactory for all items, with scores above 0.20.

The convergent criterion validity was analysed to verify that the global instrument, its dimensions and subdimensions in fact measure the variables for which it was designed: generic, interpersonal and intrapersonal competences, introspection, effective communication, personal development and teamwork. The Pearson correlation coefficient was calculated, using the benchmarks recommended by García (2012), where scores between 0.60 and 0.69 are considered good and scores from 0.50 to 0.59 are considered acceptable-minimum.

The instrument showed a good degree of validity for the global questionnaire and the intra and interpersonal dimensions; the results were acceptable in the case of introspection and effective communication and minimally acceptable for personal development and teamwork (see Table 6).

Table 6. Convergent criterion validity

Degree of validity	Items	Pearson's Correlation
Global Questionnaire	36	0.69
D. Intrapersonal	18	0.64
D. Interpersonal	18	0.65
S. Introspection	9	0.60
S. Personal development	9	0.59
S. Teamwork	9	0.55
S. Effective communication	9	0.63

3.1 Exploratory Factor Analysis

Exploratory factor analysis permits a comparison between the theoretical structure of the BGCQ and its empirical structure; that is, to demonstrate the validity of the construct of generic competences. First, a Bartlett's sphericity test was carried out, showing a significance of 0.00 and the Kaiser-Meyer-Olkin (KMO) index was calculated as 0.94. These results indicate that the correlation matrix has sufficient variance to merit continuing with the analysis.

Three complete exploratory factor analyses were carried out. The first used principal component analysis (PCA), with 7 significant factors. The oblique rotation matrix (PCA+Oblimin) was that which best fit the criteria of the Thurstone simple structure. Vernon's criterion was used to analyse the results, where values equal to or above 0.50 show a high weighting in the definition of the factor and significant with regard to the variables. Thus, it can be affirmed that the intrapersonal dimension is clearly shown in factors 1, 4 and 7 and the interpersonal dimension in factors 2, 3, 5 and 6.

The second EFA used maximum likelihood factoring (MLF) technique, showing 7 significant factors. The

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oblique rotation matrix (MLF+Oblimin) also proved to be that which best fit the Thurstone simple structure criteria. Here again, the results showed that the important variables (with saturation equal to or above 0.50) in the intrapersonal dimension were in factors 1, 4 and 5; and factors 2, 3, 6 and 7 for the interpersonal dimension.

Finally, a third EFA was carried out to contrast the results of the first two, using a principal component analysis (PCA). In this case, the solutions are forced to 4 significant factors in order to compare the theoretical structure of the four subdimensions. The oblique rotation matrix (PCA+Oblimin) also offered the best fit. The results show that introspection is clearly identified with factor 1, personal development with factor 4, teamwork with factor 2, and effective communication with factor 3 (see Table 7). Furthermore, the correlation matrix shows significant correlations between all factors, indicating significant correspondence between the empirical and theoretical structure of the BGCQ.

Table 7. Third Factor Analysis. Oblique rotation matrix

Dimension	Subdimension	Item	F1	F2	F3	F4
Intrapersonal	Introspection	5	0.76			
		6	0.55			
		7	0.66			
		8	0.75			
		9	0.67			
		10				0.44
		11	0.54			
		12	0.43			
		13				
	Personal development	14				0.67
		15				0.63
		16				0.73
		17				0.53
		18				0.53
		19				0.38
		20	0.44			
		21	0.53			
		22	0.48			
Interpersonal	Teamwork	23		0.64		
		24		0.73		
		25		0.7		
		26		0.63		
		27		0.75		
		28		0.53		
		29				
		30		0.67		
		31		0.56		
	Effective communication	32			-0.4	
		33			-0.4	
		34			-0.6	
		35			-0.8	
		36			-0.7	
		37			-0.7	
		38				
		39				
		40		0.39		0.36

Note: Values equal to or above 0.50 indicate a high weighting factor.

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3.2 Confirmatory Factor Analysis

A confirmatory factor analysis can best reveal the dimensional structure of the questionnaire and thus the measurement of the construct "generic competences". A CFA was carried out using structural equations modelling (see Figure 1).

Figure 1. Model of structural equations of the Basic Generic Competences Questionnaire

F1	Introspection
F2	Personal development
F3	Teamwork
F4	Effective communication
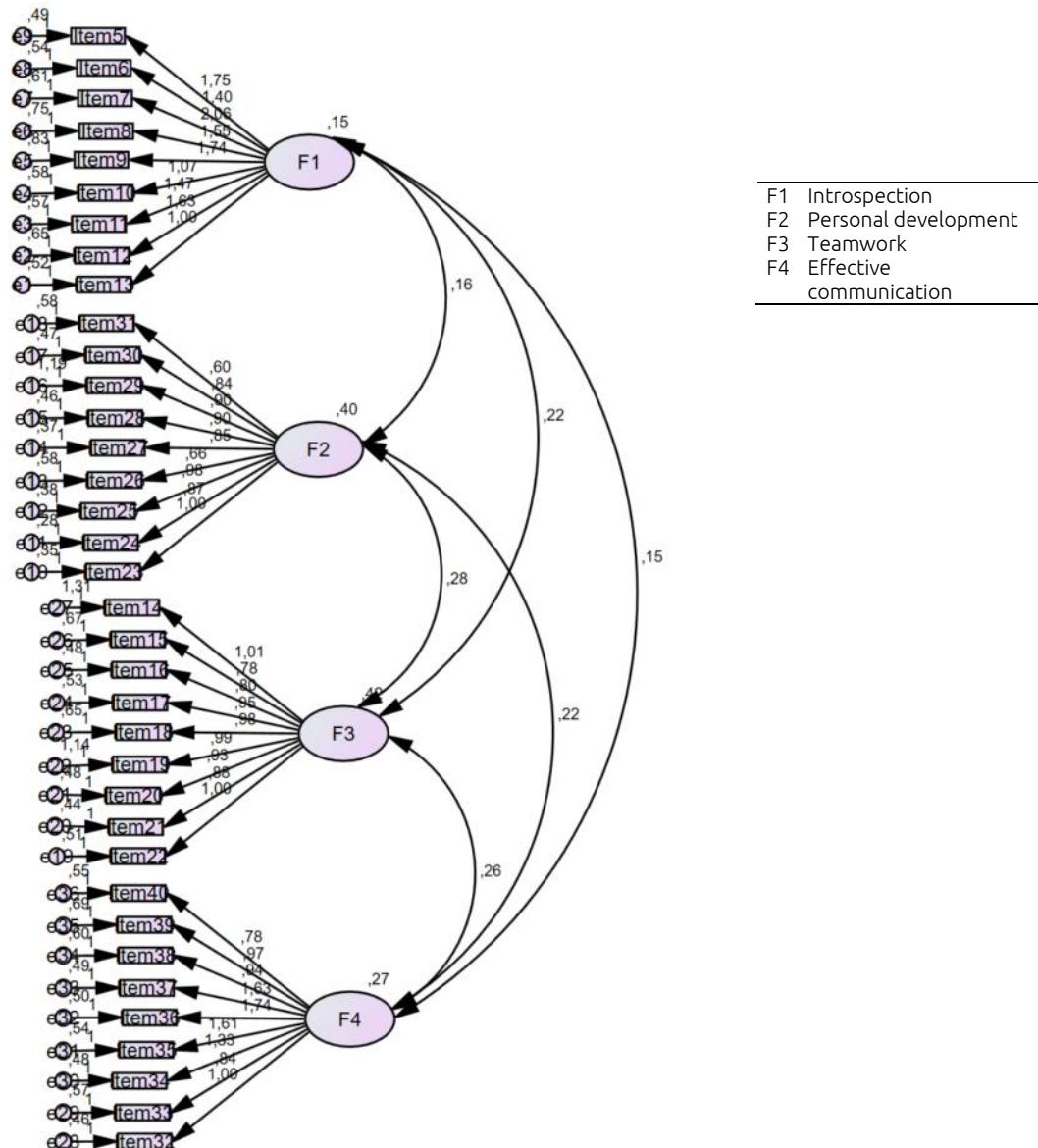
The most habitual goodness of fit statistics are provided below along with the acceptable criteria for aa positive evaluation allowing the results to be compared (see Table 8). In general, the degree of fit is low for the majority of indicators. The chi-squared values are significant, probably due to the large sample size. Almost all other values are lower than desired (PNFI, NFI, IFI, TLI and CFI). However, the RMSEA is below 0.08, suggesting an adequate fit and the values for this index are very close to a good fit between the data and the theoretical model (Hu & Bentler, 1999).

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Table 8. Goodness of fit statistics

Statistics	Abrev.	Criterion	Values
Absolute fit			
Chi-squared	x^2		2052.701
Degrees of freedom	df	Sig. > .05	588
Level of probability	p		.000
Comparative fit			
Comparative goodness of fit index	CFI	> 0.9	0.816
Tucker-Lewis index	TLI	> 0.9	0.803
Incremental fit index	IFI	> 0.9	0.817
Normalised fit index	NFI	Close to 1	0.761
Parsimonious fit			
Corrected parsimony	PNFI	Close to 1	0.701
Others			
Root mean square error of approximation	RMSEA	< 0.08	0.068

Additionally, the regression weight with the parameters is also shown; SE (standard error), estimation, CR (critical ratio) and a probability score for each parameter. It can be seen that the regression weight between variables are all significant, without excessive saturation but satisfactory in the majority of cases (see Table 9).

Table 9. Regression weights

			Estimation	SE	CR	p	Label
Item13	<---	Introspection	1				
Item12	<---	Introspection	1.634	0.17	9.62	***	par_1
Item11	<---	Introspection	1.465	0.154	9.49	***	par_2
Item10	<---	Introspection	1.075	0.129	8.333	***	par_3
Item9	<---	Introspection	1.74	0.185	9.419	***	par_4
Item8	<---	Introspection	1.555	0.169	9.221	***	par_5
Item7	<---	Introspection	2.063	0.2	10.304	***	par_6
Item6	<---	Introspection	1.397	0.149	9.405	***	par_7
Item5	<---	Introspection	1.746	0.172	10.173	***	par_8
Item24	<---	Personal development	0.874	0.055	15.903	***	par_9
Item25	<---	Personal development	0.978	0.063	15.561	***	par_10
Item26	<---	Personal development	0.66	0.063	10.533	***	par_11
Item27	<---	Personal development	0.854	0.058	14.607	***	par_12
Item28	<---	Personal development	0.903	0.064	14.11	***	par_13
Item29	<---	Personal development	0.9	0.089	10.15	***	par_14
Item30	<---	Personal development	0.843	0.062	13.503	***	par_15
Item31	<---	Personal development	0.6	0.062	9.737	***	par_16
Item22	<---	Teamwork	1				
Item21	<---	Teamwork	0.875	0.064	13.593	***	par_17
Item20	<---	Teamwork	0.931	0.068	13.745	***	par_18
Item19	<---	Teamwork	0.987	0.09	10.958	***	par_19
Item18	<---	Teamwork	0.979	0.075	12.995	***	par_20
Item17	<---	Teamwork	0.949	0.07	13.522	***	par_21
Item16	<---	Teamwork	0.798	0.063	12.601	***	par_22
Item15	<---	Teamwork	0.777	0.069	11.181	***	par_23
Item14	<---	Teamwork	1.012	0.095	10.634	***	par_24
Item32	<---	Effective communication	1				

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			Estimation	SE	CR	p	Label
Item33	<---	Effective communication	0.844	0.082	10.25	***	par_25
Item34	<---	Effective communication	1.332	0.1	13.354	***	par_26
Item35	<---	Effective communication	1.606	0.115	13.961	***	par_27
Item36	<---	Effective communication	1.74	0.121	14.405	***	par_28
Item37	<---	Effective communication	1.632	0.115	14.224	***	par_29
Item38	<---	Effective communication	0.938	0.087	10.734	***	par_30
Item39	<---	Effective communication	0.973	0.092	10.547	***	par_31
Item40	<---	Effective communication	0.778	0.079	9.836	***	par_32
Item23	<---	Personal development	1				

Note: SE. = Standard error; CR =Critical ratio; p = *** = .000

Finally, the regression wights between subdimensions and their associated probability values show that all relations are statistically significant although not high (see Table 10).

Table 10. Weights. Covariances between factor, by default

			Estimation	SE	CR	p	Label
Introspection	<-->	Personal development	0.157	0.02	7.807	***	par_33
Teamwork	<-->	Effective communication	0.264	0.028	9.423	***	par_34
Introspection	<-->	Teamwork	0.219	0.026	8.361	***	par_35
Personal development	<-->	Teamwork	0.284	0.03	9.6	***	par_36
Introspection	<-->	Effective communication	0.146	0.019	7.75	***	par_37
Personal development	<-->	Effective communication	0.216	0.024	9.041	***	par_38

IV. Discussion and conclusions

Generic or transversal competences play a critical role in personal, academic and professional excellence (Juárez & González, 2018; Lundgren, 2013; Mederos-Piñeiro, 2016; Pugh & Lozano-Rodríguez, 2019; Unesco, 2015).

This project for the design and validation of the BGCQ aims to respond to the need for the effective evaluation of these competences in higher education. The results show that the BGCQ is a reliable and valid instrument to measure the degree of acquisition of basic generic competences, defined using an integral, person-centred approach incorporating different dimensions (personal, social, academic and professional). It is offered a universally acceptable definition of competence that can be used in any context and that can be recognised both in the field of business and education; something which has been called for by many authors in order to create better synergies and point of encounter between education and employment (Gijbels, 2011; Martínez et al., 2019; Ruiz et al., 2017).

The instrument incorporates the basic generic competences to be taught and evaluated in higher education, especially in the first year of degree programs. Authors have signalled the importance of focussing on a limited number of competences (Pugh & Lozano-Rodríguez, 2019), and the BGCQ proposes four broad categories of basic competence: introspection (self-awareness, self-acceptance and self-management), personal development (search for meaning in life, orientation towards excellence and proactivity), teamwork (cooperative work, work environment management and orientation towards results) and effective communication (verbal, paraverbal and non-verbal communication and communication for encounter).

These competences are very similar or complementary to those considered critical for any area of study or profession and for life in general (Beneitone et al., 2007; Benito & Cruz, 2006; González & Wagenaar, 2006; Palmer et al., 2009; Paul et al., 2000; Pugh & Lozano-Rodríguez, 2019). For each of the four competences

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(subdimensions) 3 specific competences are identified (indicators) and 3 key elements (sub-indicators), corresponding to each of the items of the instrument. This dimensional structure and their associated items were analysed for validity by a panel of 18 experts. The resulting scores for the dimensions, subdimensions and the global questionnaire (above 5 out of 6) and the consistency of the scores indicate the questionnaire is a sufficiently valid tool.

The tool shows excellent internal consistency, both in global scores and in each dimension. An analysis of the homogeneity and validity of the items provided satisfactory values, showing an adequate contribution to their respective dimensions and subdimensions. The results of the convergent criterion analysis were also satisfactory, both for the global scale and the dimensions. The EFA confirms in part the dimensional structure of the instrument with an adequate general correspondence between the theoretical and empirical structures of the BGCQ. Finally, the CFA indicated a more than acceptable fit for some indicators and less so with others.

Thus, it can be affirmed that the BGCQ is a valid tool to evaluate the acquisition of basic generic competences and the degree of progress in their development. This is important given that the competence level is determined by both professors and students based on self-reported perceptions (Gimeno et al., 2011; Hierro et al., 2016). Given that both teachers and students play an important role in the evaluation of these competences, a wide variety of valid and reliable measurement tools is required (García et al., 2010; Hierro et al., 2016; Ibarra et al., 2010; Pugh & Lozano-Rodríguez, 2019).

There are a number of questionnaires which use self-reporting to evaluate student competences and there are a range of tools available to measure transversal, professional, specific or a mixed variety of competences, some evaluating competences and others measuring competence indicators (Arias et al., 2011; Clemente-Ricolfe & Escribá-Pérez, 2013; Gargallo et al., 2018; Lazo et al., 2009; Martínez-Clares & González-Lorente, 2019; Ruiz, 2010). Given that no specific instruments are aimed at the measurement of basic generic competences at universities and in business using an integral, person-centred approach, the BGCQ can be considered a significant contribution to the field.

This questionnaire responds to the need for quality evaluation scales that incorporate levels of acquisition, indicators and descriptors for each competence (Gimeno et al., 2011; Herrero et al., 2014; Villa & Poblete, 2007). Thus, the BGCQ constitutes an effective self-report evaluation tool for students and aims to serve as a useful complement in the development of learning/teaching methodologies and evaluation techniques such as mind maps, conceptual maps, portfolios, interviews, collaborative learning (CL) case studies, problem-based and project-based learning (PBL) simulations or *learning by doing* (Cáceres-Lorenzo & Salas-Pascual, 2012; Gallardo-López et al., 2017; García & Gairín, 2011; Jauregui, 2018; Pozo, 2017; Pugh & Lozano-Rodríguez, 2019; Villa & Poblete, 2011).

The BGCQ can also serve to determine the effectiveness of education programs for generic competences by evaluating the competence levels of students before and after courses or programs, identifying competences which are more or less acquired, for the reorientation, readjustment or redesign of programs. It can also be useful in a complementary tool in the recruitment or evaluation of personnel. Human resources departments, well aware of the difficulty and cost of developing essential generic competences compared to more technical skills, can conduct more rigorous selection processes using these types of tools (Alles, 2017; García, 2018).

It can therefore be concluded that the BGCQ is a reliable and valid instrument to measure the degree of acquisition of basic general competences based on the results of exhaustive research into these competences and a rigorous validation process. The tool has a comprehensive, integrated design appropriate for addressing generic competences in any field. Thus, although the origins of the BGCQ are in higher learning and academia it is an instrument that can be applied in other areas, both personal and professional. Nevertheless, it is important for researchers to continue designing and proposing new evaluation instruments and programs to measure these essential competences.

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Conflict of interest

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ANNEX 1. BGCQ (Basic Generic Competences Questionnaire)

This questionnaire is anonymous. Its purpose is to determine your level of certain transversal competences which are important to university education: self-awareness and personal growth, teamwork and communication. Please select the option which best reflects your opinion for each item.
The scale of evaluation is as follows:

1 Not at all	2 A little	3 Average	4 Somewhat	5 A lot	6 Completely

We thank you for your time and the veracity of your answers. It is important to respond according to how you are in general, not how you feel at this moment or how you would like to feel or be. If you do not understand a question, ask the teacher administering the test. All answers are absolutely confidential.

1. University
UCM ____
UFV ____

2. Sex
Female ____ ◯
Male ____ ◯

3. Age
Tens: 0 1 2 3 4 5 6 7 8 9
Units: 0 1 2 3 4 5 6 7 8 9

ANSWERING INSTRUCTIONS
Mark the circle
Do not mark:

4. Degree

Pre-primary Educ ___ ◯	Gastronomy ___ ◯	Psychology ___ ◯	Computer Engineering ___ ◯
Primary Educ ___ ◯	Law+BA ___ ◯	Biomedicine ◯	Journalism ___ ◯
Law ___ ◯	Medicine ___ ◯	Architecture ◯	A-V Communication ◯

	1 2 3 4 5 6
5. I recognise my strengths, that is, my qualities or talents	1 2 3 4 5 6
6. I recognise my weaknesses, that is, my defects or areas for improvement	1 2 3 4 5 6
7. I realise what makes me unique and special	1 2 3 4 5 6
8. I accept how I am with my strengths and weaknesses	1 2 3 4 5 6
9. I recognise myself as a unique irreplaceable individual	1 2 3 4 5 6
10. I understand my life as a continuous journey of learning and growth	1 2 3 4 5 6
11. I am the protagonist of my own life, that is, my circumstances condition me but don't determine me	1 2 3 4 5 6
12. When things don't work out as I hoped, I analyse the possible causes and reasons	1 2 3 4 5 6
13. I take responsibility for my actions and decisions	1 2 3 4 5 6
14. I wonder about the meaning of my life and the reasons for existence	1 2 3 4 5 6
15. I wonder about my professional, personal vocation, or both	1 2 3 4 5 6
16. I think about my goals and objectives in life	1 2 3 4 5 6
17. I set myself goals to improve, either academically, personally or professionally	1 2 3 4 5 6
18. The goals I set for myself are a challenge	1 2 3 4 5 6
19. Having a mentor or tutor helps me to establish goals for improvement	1 2 3 4 5 6
20. I take action to reach my goals or achieve my objectives	1 2 3 4 5 6
21. When I encounter obstacles I look for solutions	1 2 3 4 5 6
22. I take the initiative; I do what I can to make things happen	1 2 3 4 5 6
23. When I work in a team I share my ideas, initiatives or knowledge	1 2 3 4 5 6
24. When I work in a team I offer my help, advice and support	1 2 3 4 5 6
25. When I work in a team I encourage integration, participation and listening among team members	1 2 3 4 5 6
26. I treat the members of the team with respect, without judging	1 2 3 4 5 6
27. When I work in a team I have a positive, willing attitude towards the task at hand	1 2 3 4 5 6
28. When I work in a team I focus on the positive aspects, achievements and opportunities for learning	1 2 3 4 5 6
29. When I work in a team I propose using planning or management tools (organisational minutes, chronograms, schedules, etc.)	1 2 3 4 5 6
30. When I work in a team I accept the established roles and functions	1 2 3 4 5 6
31. When I work in a team I complete my tasks on time and as decided	1 2 3 4 5 6
32. I can express the main ideas of a subject in my academic written work or oral presentations	1 2 3 4 5 6
33. My academic written work and oral presentations follow a structure: introduction, development, conclusion	1 2 3 4 5 6
34. I can express myself clearly in my academic written work or oral presentations	1 2 3 4 5 6
35. I make visual contact with the audience when making academic oral presentations	1 2 3 4 5 6
36. My hand and body movements are appropriate to my discourse in my academic oral presentations	1 2 3 4 5 6
37. My voice intonation and speed of speaking favour understanding in my academic oral presentations	1 2 3 4 5 6
38. I put myself in the place of others and so can understand how they think, feel or their actions	1 2 3 4 5 6
39. I express my thoughts and feelings without offending others	1 2 3 4 5 6
40. I pay careful attention to understand the message being communicated to me	1 2 3 4 5 6
41. On a general scale, I feel my level of development of these transversal competences is:	1 2 3 4 5 6