

GENERIC SKILLS AT UNIVERSITY. EVALUATION OF A TRAINING PROGRAM

(COMPETENCIAS GENÉRICAS EN LA UNIVERSIDAD. EVALUACIÓN DE UN PROGRAMA FORMATIVO)

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ABSTRACT

Generic competences have gained increasing importance in the business world since 1973, and since the year 2000 in the area of higher education as well. Within this context the EHEA explicitly states that universities must educate both specific and generic competences. The education of specific competences has been well undertaken within the various courses of each degree program. However, the same cannot be said of generic competences. Currently at universities, these competences are developed indirectly through optional courses or complementary education activities (CEA). Thus, although the EHEA recognises the importance of learning these skills, the majority of universities do not offer specific courses for their acquisition.

This study proposes the creation of an obligatory and specific course, transversal to all university degrees, for the development of generic competences. The aim is to demonstrate that a structured and specific course on generic competences can be an important vehicle for their development. A valid and reliable questionnaire on generic competences was designed, administered to 610 students, of whom 387 received specific training in generic competences and 223 of whom did not. The results confirm the hypothesis regarding the effectiveness of a specific course in significantly enhancing the acquisition of generic competences, both intrapersonal, dealing with personal growth and introspection, and interpersonal, dealing with communication and teamwork. Evidence shows that specific courses on generic competences are an effective means of developing these skills. Thus, study programs should be revised to ensure student acquisition of both competences, specific and generic, as recommended by the EHEA and the employment market.

KEY WORDS

Higher education, competences, generic competences, course, intrapersonal competences, interpersonal competences

RESUMEN

Las competencias genéricas han ido ganando relevancia en el entorno empresarial desde 1973, y posteriormente, desde el 2000, en el entorno de la educación superior. En este sentido, el EEES, manifiesta que la universidad ha de formar en competencias específicas y genéricas. La formación en competencias específicas ha sido bien asumida por las distintas asignaturas propias de cada grado. Sin embargo, no ocurre igual con las genéricas. Actualmente, en la universidad, estas competencias son desarrolladas indirectamente a través de asignaturas técnicas, de libre elección o de actividades formativas complementarias (AFC). Así, aunque el EEES reconoce la relevancia de la formación en estas competencias, la mayoría de las universidades no tienen asignaturas específicas para su desarrollo.

Este estudio propone una asignatura obligatoria, específica y transversal a los distintos grados universitarios para desarrollar las competencias genéricas. Se pretende demostrar que la impartición de asignaturas específicas y regladas en materia de competencias genéricas es un método relevante para su desarrollo. Se diseñó un cuestionario sobre competencias genéricas satisfactoriamente válido y fiable. Este cuestionario se pasó a una muestra total de 610 estudiantes, de los cuales: 387 recibieron una formación específica en competencias genéricas y 223 no la recibieron. Los resultados obtenidos confirman las hipótesis planteadas acerca de la validez de la asignatura en la mejora significativa de las competencias genéricas, tanto en las intrapersonales, de superación personal y mirada profunda, como en las interpersonales, de comunicación y trabajo en equipo. Por tanto, se evidencia cómo las asignaturas sobre competencias genéricas se constituyen como un medio de enseñanza aprendizaje muy adecuado para su desarrollo. En este sentido, se sugiere una revisión de los planes de estudio si se quiere garantizar la adquisición y desarrollo de ambas competencias, específicas y genéricas, como aconsejan el EEES y el ámbito laboral.

PALABRAS CLAVE

Educación superior, competencias, competencias genéricas, asignatura, competencias intrapersonales, competencias interpersonales

INTRODUCTION

The EHEA began to take shape in 1999 with the Bologna Declaration. The goal of the EHEA is, firstly, to harmonise European university degrees, making them comparable and therefore having the same validity throughout the European Union; secondly, the aim is to facilitate and assure movement and exchange between students from different member states (*Bologna Declaration*, 1999). In pursuit of the EHEA and to realise the Bologna Declaration,

the *Tuning Educational Structures in Europe* project was launched. Tuning proposes a model for the harmonisation of study plans across Europe while also respecting their differences (Tuning, 2006). This harmonisation process is based on the notion that university study plans are oriented within two broad frames of reference (González & Wagenaar, 2006): 1) The results of learning, understood as what one is able to demonstrate they know or is able to do. 2) Competences, understood as a set of knowledge, skills, capacities and values.

Based on Tuning (2006), Crespi (2019) offers a taxonomy of competences, integrating an educational and employment focus. Thus, one can refer to two types of competences: technical or specific, that is, those proper to a course, degree, field of study or profession; and transversal or generic competencies, those which are common to all courses, degrees or professions and which are considered necessary life skills in general. Examples of these generic competences are leadership, initiative, planning ability, problem solving, communication skills and the capacity for cooperative work, among others.

In his proposal, Tuning affirms that the different degrees must ensure that learning outcomes are oriented both to specific and generic competences as the necessary basis of any university degree. Furthermore, Tuning adds that generic competences are an essential part of the education of university students in terms of their future role in society both as professionals and as citizens (Almerich, Díaz, Cebrián, & Suárez, 2018; European Commission, 2017; González & Wagenaar, 2006; OECD, 2018; Pugh & Lozano, 2019; Sanjurjo, 2012; Villardón, 2015; UNESCO, 2015).

In the workplace, competences also play a decisive role in job performance, especially transversal or generic competences. Since McClelland (1973) proposed testing competences rather than intelligence or knowledge as the key factor in successful performance of a specific task or work position, competences have gradually been introduced into business management, particularly so-called *soft skills*. We see how companies seek to hire, train and promote candidates with sufficiently developed generic competences (*soft skills*), giving lesser importance to technical abilities (*hard skills*), as these are more easily learned through work experience or specific training (Alles, 2008, 2017; Boyatzis, 1982; Bunk, 1994; Carazo, 2012; García, 2018; González, 2017; Jericó, 2011; Olaz, 2018; Ramos, 2015, 2017; Spencer & Spencer, 1993).

Finally, we must not overlook the mission of the university since its very origins, which is the comprehensive education of the individual; that is, a solid human-focused

education centred on the person and their learning process; that is, in teaching students to learn. The purpose of education is to set the student on course for the achievement of fulfilment and excellence, both personal and professional. This implies the development of generic in addition to specific competences (Baeten, Struyven, & Dochy, 2013; Cardona, Barrenetxea, Mijangos & Olaskoaga, 2009; Domínguez, 2018; Esteban & Román, 2016; Gallardo, Pérez, García, Giménez, & Portillo, 2020; Jaspers, 2013; Pérez, 2010).

There is ample evidence of the importance that university students receive an education which includes training in generic competences. But how do current university study plans develop these competences?

Currently, many universities are making great efforts to incorporate competences into their courses and study plans; this is especially true in the case of specific competences. As for generic competences, universities generally adhere to three models (Corominas et al., 2006; Crespí, 2020; Gijón, 2016; Villardón, 2015). One option is that technical courses work to develop generic competences. This implies that professors specialised in imparting technical competences also assume the task of developing generic competences, but in a vehicular manner. That is, generic competences are developed as a means rather than an end in themselves. Another option is for generic competences to be taught through optional courses. In this case, there is no assurance that all students receive this training. A final option is that complementary educational activities (CEA) offer training in generic competences. In this case as well there is no assurance that all students receive adequate training in this area.

Thus, a certain incoherence can be seen between the stated aims of the EHEA and the needs of the employment market and the current reality of university study plans. Tuning maintains that training in generic competences is critically important for university students in assuming their future responsibilities as both professionals and citizens; however, in general, universities do not offer specific obligatory courses for the development of these essential competences.

This paper proposes a fourth option, consisting in the design of an obligatory, transversal course, incorporated into all study plans, in generic competences for all first-year university students. An empirical study will show the notable effectiveness of this curricular course in developing transversal competences compared to the three principal alternatives outlined above.

OBJETIVES AND HYPOTHESES OF THE RESEARCH PROJECT

The principal objective of this study is to determine the effectiveness of a specific course on generic competences as a vehicle for their development. Thus, this study will aim to contrast the following research hypotheses (H):

H1: There are significant differences in the level of generic competences among university students, generally due to training in these competences, that is, between those receiving training and those who do not.

H2: There are significant differences in the level of generic competences among university students of Education who have received training and those who have not.

H3: There are significant differences in the level of generic competences among university students who receive training depending on the faculty in which they study.

H4: There are significant differences in the level of generic competences among university students who receive training depending on gender.

H5: There are significant differences in the level of generic competences among university students who receive training due to the interaction of gender and faculty.

METHODOLOGY

Design of the research and variables

This is a quasi-experimental research project. The receiving of training in generic competences constitutes the principal independent variable (VI). The secondary independent variables are: gender, year of birth, studies and faculty. Dependent variables (VD) are the degree of acquisition of generic competences: personal growth, teamwork, introspection and communication.

Design of the course

The Francisco de Vitoria University proposes a course for the personal development of its students through the acquisition of generic competences. This obligatory course, imparted by experts in the field, is common to all university degree programs and designed *ad hoc* to

develop some of the generic competences identified by Tuning. In acquiring these competences, each student, unique and individual, is providing with the tools to achieve their own personal and professional fulfilment (Crespí 2019).

Tuning identifies up to 30 critical generic competences drawn from a survey of employers, academics and students. There is a limit, however, to the number of competences that should be developed at the same time (Benito & Cruz, 2006; Pugh & Lozano, 2019). This course deals with those considered most essential to be developed and consolidated initially (Table 1).

Table 1
Generic competences within the course and their correspondence with Tuning

Type	Competences in the course	Correspondence to the Tuning classification
Intrapersonal	Introspection, self-awareness	Generic – Interpersonal – individual
	Proactivity	Generic- Systemic – entrepreneurship
	Resilience, personal growth	Generic – Systemic – leadership
Interpersonal	Communication interpersonal	Generic – Instrumental – linguistics
	Teamwork, conflict resolution and negotiation.	Interpersonal – social
	Leadership of service	Systemic – leadership
Cognitive	Decision making, planning, time management	Generic - Instrumental- methodological
	Creativity, motivation	Generic – Systemic – entrepreneurship

It must be understood that there are no pure competences, and so no exact classifications but rather different, complementary approaches. The classification of competences is intended to provide a clearer understanding of the type of competence being referred to.

The main objective of the proposed course is the development of both intrapersonal competences, those oriented principally towards oneself, and interpersonal competences, those oriented towards others. Cognitive competences, those related principally with the capacity for thought, are not directly addressed in the course. That is, these are developed in a vehicular manner as a means for the development of the core generic competences.

Two distinct and differentiated spheres are established in the development of these two broad types of competences, spheres which are appropriate to the nature of the competences in question: mentoring and the classroom.

Mentoring serves to further student acquisition of intrapersonal competences, such as proactivity, the capacity for wonder and personal growth. This is a program of personal and individual development in which an expert mentor accompanies and guides the student through six one-hour personal sessions.

The class environment is for students to acquire interpersonal competences, such as teamwork and communication. In this case, the teacher and fellow students who further the acquisition of these competences through thematic-experiential classes and Project Based Learning (PBL) projects in teams throughout the course.

The course employs active and experiential methodologies focussed on student learning; that is, the student is the principal agent and protagonist of their own learning. It is precisely these methodologies which ensure students acquire and develop the competences that are essential to personal and professional fulfilment.

For a fuller picture of the course, a Course Syllabus outlining the principles, objectives, topics, methodology, work schedules and a reference bibliography is provided below (Annex 1).

Population and Sample

The population consisted of all first-year university students in the Community of Madrid.

The sample was drawn from two universities: students of Education at the Complutense University in Madrid are the control group (CG) since they receive no specific course in generic competences; students from the Francisco de Vitoria University are the experimental group (EG) as they do receive a specific course.

The sample consisted of a total of 610 university students (pre-test), of whom 223 did not receive a specific course and 387 university student who did receive a course in generic competences. The post-test sample is somewhat larger, consisting of 547 students, of whom 193 did not receive the specific and 354 who did. This sample will provide, in both cases, a sample size larger than required, which is 444, of whom 217 are the CG and 227 in the EG. The minimum sample size required was calculated on a finite sample with a precision of .40 and a confidence interval of .95 (ENE 2.2). A summary of the research sample is provided in the table below (Table 2).

Table 2
Research sample by faculty and university

Faculty	Minimum sample	Pre-test sample	Post-test sample
Education UCM	217	223	193
Education UFV	18	58	60
Juridical and Economic Sciences UFV	50	66	60
Health Sciences UFV	77	95	89
Experimental Sciences UFV	25	49	47
Advanced Polytechnic School UFV	12	47	45
Communication Sciences UFV	45	72	53
Total	444	610	547

Instrument

A specific instrument was designed to evaluate the degree of acquisition of the principal competences of the course, consulting a wide range of sources for the evaluation of generic competences (Álvarez et al., 2011; Morales, Benítez, & Agustín, 2013; Morillas, 2012; Muñoz, Crespi, & Angrehs, 2011; Pérez, Bisquerra, Filella, & Soldevila, 2010; Pozo, 2017; Ruiz, García, Biencinto, & Carpintero, 2017).

The resulting questionnaire evaluates the principal dimensions and subdimensions of the generic competences of the course (Table 3):

Table 3
Dimensions, subdimensions and indicators of the questionnaire on generic competences

Dimension	Subdimension	Indicator	Item
Intrapersonal	Introspection	Knowledge, acceptance, personal management	9
	Personal growth	Search for meaning, orientation towards excellence, proactivity	9
Interpersonal	Teamwork	Cooperative work, environment management, results oriented	9
	Communication	Communication, verbal and non-verbal. Communication for engagement (empathy, assertiveness and listening)	9

As can be observed, the intrapersonal dimension refers to two broad competences: introspection, related in turn to knowledge, acceptance and personal management; and personal growth, related to the search for meaning, orientation towards excellence and proactivity. The

interpersonal dimension refers to the competencies of teamwork, related in turn with the competencies of cooperative work, environment management and orientation towards results; and communication, which includes verbal and non-verbal communication and other critical competences for engagement with others such as empathy, assertiveness and listening.

This questionnaire does not reflect cognitive competences directly because these are not the principal subject of the course; however, these are reflected indirectly in some of the items since, as mentioned above, these are considered vehicular competences for those included in the course.

The questionnaire has 41 items, of which the first 4 are for student identification, while the following 36 correspond to the dimensions, 9 for each subdimension and the final criterial item. This questionnaire uses a Likert scale from 1 to 6, where 1 indicates “nothing” or “never” and 6 is “completely” or “always”.

The questionnaire was validated by 18 experts in education research and competences. These experts were chosen for their reputation in education and academia, both public and private, many having experience in the field of psychology and human resources management. The validation by these experts involved an exhaustive analysis of all items in terms of coherence with dimension, clarity of expression and aptness to its audience. A more general analysis was also made of the questionnaire to evaluate the content, number and logical order of the items. The average expert evaluations of all items averaged above 5.17, for dimensions and subdimensions. Additionally, the values for Pearson’s coefficient of variation, always close to zero, indicate the homogeneity of the responses of the expert analysts.

In any case, for both the qualitative and quantitative analysis, observations were used to make certain improvements which were incorporated in developing the final questionnaire. (Anexo 2).

Questionnaire procedure and data analysis

The questionnaire was conducted using the same protocol and instructions for all students and groups (EG and CG) of the sample. The pre-test was conducted at the start of the 16-17 academic year and the post-test at the end of the year. The IBM SPSS program, version 20, was used for the statistical analysis of the results. To validate the questionnaire and its dimensions, the Cronbach’s Alpha reliability coefficient was calculated; for convergent

validity, the Pearson correlation coefficient; for the study of the items the homogeneity index (HI) and content validity index (CVI) were calculated. An exploratory factor analysis was conducted using various factorising procedures such as PCA (Principal Component Analysis), MLE (Maximum Likelihood Estimation) and rotation (Promax and Oblimin). Finally, differential and contrast analyses were conducted using Student's *t*-test, ANOVA F-test, *post hoc* testing (*Scheffé*), and estimations of the Effect Size for both.

RESULTS

Validation of the questionnaire

Cronbach's Alpha indicates the reliability of the instrument in measure and dimensions. The convergent validity test, using the Pearson correlation coefficient showed significant and relevant linear correlations (Table4).

Table 4
Reliability and criterial validity test of the instrument (post-test)

	DIM 1	DIM 2	SUBDIM 1	SUBDIM 2	SUBDIM 3	SUBDIM4
Reliability (rxx)	.90	.90	.83	.83	.83	.86
Validity (rxy)	.64	.65	.60	.59	.54	.63
Nº items	18	18	9	9	9	9

The analyses of the homogeneity and validity of the items were satisfactory, with values above .20 in all cases. To study the relation between the empirical and theoretical structure of the questionnaire, a series of exploratory factorial analyses were conducted; the last conducted by "forcing" a four factor solution, offered results that show a clear relation between the empirical structure of four factors and the theoretical structure of the four subdimensions.

Descriptive and correlational analyses

A descriptive analysis was conducted to observe the behaviour of the variables in the samples for the four subdimensions, the two dimensions and total score, pre-test and post-test, for the two universities, faculties and the gender variable. These analyses show that the averages in the post-test are superior to those of the pre-test in all cases for the different faculties and genders.

Differential analyses

Considering that the principal aim of the research was to demonstrate the educational effectiveness of introducing a specific course for generic competences, the following analyses were made to contrast the hypotheses.

The first hypothesis affirmed the differences in the command of generic competences among students who received a specific training and those who did not (Table 5).

Table 5

Significant differences in favour of students receiving the course

Competences (VD)	Post-test Avg. EG	Post-test Avg. CG	Avg. diff. Post-test EG-CG	<i>Student's t- test</i>	Sig (bilateral)	E.S. partial eta squared
Total	181.98	161.17	20.81	13.64	.000	.25
D. Intrapersonal	91.32	78.59	12.73	15.78	.000	.31
D. Interpersonal	90.66	82.58	8.08	9.56	.000	.14
S. Introspection	45.64	39.72	5.92	13.18	.000	.24
S. P. growth	45.68	38.87	6.81	15.13	.000	.30
S. Teamwork	45.74	42.89	2.85	5.97	.000	.07
S. Communication	44.92	39.69	5.23	10.56	.000	.17

The findings show that all students of the EG improved their level for each competence (VD). The pre-test average of students who took the course was much higher than those who did not. The difference varied from a maximum of 20.81 in total score to a minimum of 2.85 for the VD “teamwork”. Pre-test results were verified to confirm there were no significant differences between the groups (CG and EG).

The post-test results of the Student’s *t*-test and significance level show pronounced differences in the command of all competences (VD), between those who received specific training and those who did not. We also observed that, in all cases, the Effect Size (ES) is significant, showing values between .14 and .31. Thus, we can affirm that students who received specific training in generic competences had a significantly greater command of certain competences such as “introspection”, “personal growth”, “teamwork” and “communication”, compared to those who did not.

The second hypothesis posits there will be significant differences in the level of competences of students of Education between those who received training and those who did not (Table 6).

Table 6

Significant differences in favour of students of Education receiving the course

Competences (VD)	Post-test Avg. EG	Post-test Avg. CG	Avg. diff. Post-test EG-CG	Student's <i>t</i> -test	Sig (bilateral)	E.S. partial eta squared
Total	188.82	161.17	27.65	11.19	.000	.33
D. Intrapersonal	94.83	78.59	16.24	12.67	.000	.39
D. Interpersonal	93.98	82.58	11.40	9.08	.000	.20
S. Introspection	47.55	39.72	7.83	10.37	.000	.30
S. P. growth	47.28	38.87	8.41	11.58	.000	.35
S. Teamwork	47.93	42.89	5.05	7.74	.000	.14
S. Communication	46.05	39.69	6.36	8.52	.000	.18

The analysis shows that all students of the EG improved their development of each competence (VD). The post-test average of students taking the course is significantly higher than those who did not. The difference varies from a maximum of 27.65 for total score to a minimum of 5.05 for “teamwork”. It was verified that in the pre-tests there were no significant differences between the two groups (CG and EG).

In the post-test, the Student's *t*-test shows significant differences in the acquisition of all competences (VD), in favour of students of Education who received training. Findings also show that the ES, for all cases, is relevant, with values varying from .14 to .39. Thus, we can affirm that students of Education who received a specific course in generic competences significantly improved their acquisition of all these skills compared to students who did not receive the course.

The third hypothesis affirms that there will be significant differences between students taking the course depending on the faculty in which they study (Table 7).

Table 7

Significant differences among students receiving the course according to studies

Competences (VD)	ANOVA F-test	Sig. (bilateral)	ES. partial eta squared
Total	4.27	.000	.06
D. Intrapersonal	4.95	.000	.07
D. Interpersonal	2.91	.010	.04
S. Introspection	4.31	.000	.06
S. P. growth	4.30	.000	.06
S. Teamwork	3.53	.000	.05
S. Communication	1.98	.080	-

The findings show differences between average results in all VD among different faculties (Education, Health Sciences, Juridical and Economic Sciences, Experimental

Sciences, Advanced Polytechnic School and Communications). The ANOVA tests conducted verified there were no significant pre-test differences among faculties.

In the post-test analysis, the ANOVA F-test and significance level shows substantial differences among university students who received the course according to their degree. These differences appear in all competences (VD) except “communication”. To determine the faculties between which there are differences a *post hoc* (Scheffé) test was conducted. The results showed the most significant differences between faculties are between the faculty of Health Sciences and the Polytechnic School, compared to Education, highly favourable to the latter. Finally, the ES values were average, moderate and weak, varying between .07 and .04. Lesser differences were found in the interpersonal dimension (ES .04) and the subdimension “teamwork” (ES .05).

The fourth hypothesis maintains there will be significant differences between students who received the course according to gender (Table 8).

Table 8

Significant differences among students receiving the course according to gender

Competences (VD)	Avg. Post-test Women (W)	Avg. Post-test Men (M)	Avg. difference Post-test W-M	ANOVA F-test	Sig. (bilateral)	ES. partial eta squared
Total	184.67	175.85	8.82	21.53	.000	.06
D. Intrapersonal	92.54	88.56	3.97	14.68	.000	.04
D. Interpersonal	92.14	87.29	4.85	23.55	.000	.06
S. Introspection	46.02	44.79	1.23	4.73	.031	.01
S. P. growth	46.52	43.78	2.74	24.10	.000	.06
S. Teamwork	46.62	43.74	2.88	29.73	.000	.08
S. Communication	45.52	43.55	1.97	10.88	.000	.03

The results indicate differences in average results of the post-test between men and women, with women scoring higher in all cases and for all VD (competences). The ANOVA tests conducted verified there were no significant pre-test differences between genders, nor in

the EG nor CG. No significant differences were found between pre-test and post-test results of the CG.

In the post-test, the ANOVA F-test and significance level show that in all VD there are significant differences among students receiving the course according to gender. The ES values were average, moderate and weak, varying from .08 to .01. Thus, we can affirm there are differences among students receiving the course in generic competences between men and women, in favour of the latter. Specifically, there are differences in the competences “introspection”, “personal growth”, “teamwork” and “communication”; in the case of interpersonal dimension (ES .04), the subdimensions “introspection” (ES .01) and “communication” (ES .03), the differences were less pronounced.

The fifth hypothesis affirms that there will be significant differences among students receiving the course due to the interaction of gender and faculty (Table 9).

Table 9

Differences among students receiving the course according to the interaction of gender and faculty

Competences (VD)	F ANOVA	Sig. (bilateral)
Total	1.79	.110
D. Intrapersonal	1.74	.120
D. Interpersonal	1.82	.110
S. Introspection	1.67	.140
S. P. growth	1.33	.250
S. Teamwork	1.11	.350
S. Communication	1.96	.080

In this case, the ANOVA F-test and significance level did not reveal significant differences among students receiving the course due to the interaction of gender and faculty. The level of competences did not vary in any VD between genders from one faculty or another. As seen above, women show better development of all competences and this is the case regardless of the faculty or area of study.

DISCUSSION

The EHEA, through the Tuning project, proposes that study plans work to develop a range of competences, both specific and generic; the latter being considered indispensable for life in general (Almerich et al., 2018; Alonzo, Valencia, Vargas, Bolívar, & García, 2016; González & Wagenaar, 2006; OECD, 2018; Pugh & Lozano, 2019). Furthermore, in terms of

employment, the importance of *soft skills* (generic competences) in employee performance is well established and also important in the choice and advancement in one's professional career (Alles, 2017; García, 2018; González, 2017; Olaz, 2018). Within this academic and professional context, some universities have made significant efforts to incorporate the development of generic competences although with considerably more focus on specific or technical competences. It appears that while the vehicular approach to generic competences within technical courses, or offering optional courses or CEA, may have certain impact in the acquisition of these competences on the part of students (Gijón, 2016; Jauregui, 2018; Villardón, 2015), this is significantly less than that obtained through specific courses designed to impart these generic competences (H1 and H2) (Crespí, 2019, 2020). University students who receive specific training in generic competences show significantly higher levels of competence in "teamwork", "introspection", "personal growth" and "communication", compared to those who did not. We also wanted to determine the existence of significant differences between faculties (H3). Here we found that, of all the faculties imparting the course, students in the faculty of Education scored the highest in all of the competences, except for "communication" in relation to the faculty of Health Sciences and Polytechnic. It would appear that students of Education, with an intrinsic and vocational interest in the education of their future students, are better able to assimilate and engage in a subject which will equip them as future teachers. We also observed a difference in the acquisition of generic competences according to gender (H4); women appear to be more suited to this type of learning, possibly because some of these competences are more associated with right brain functions, for which women appear to have greater innate predisposition. In any case, these two last hypotheses (H3 and H4) identify more minor, although significant, differences given that the ES is weak or moderate, which is reaffirmed by the absence of any significant differences in the interaction of faculty and gender (H5).

In providing this specific training the key lies in having expert professionals teach these generic competences, working on the basis of an experiential methodology (Gómez, 2018; Kolb, 2015). And while it is true that experience is an essential element in learning, this is especially true in the case of generic competences, which can then be applied to real world actions and behaviour leading to stable, healthy and positive lifestyle habits. Another key to this type of course is to put particular emphasis on knowledge and abilities (how to do) with an approach which integrates values and attitudes (how to be). Thus, although this study used as its starting point the definition provided by Tuning for competences, this course is based on

another more integral definition which is a dual approach focussed on academic and employment aspects as put forth by many authors (Gijbels, 2011; Martínez, González, & Rebollo, 2019). Thus, the acquisition of personal competences, understood as “the dynamic set of knowledge, skills or abilities (how to do), attitudes and values (how to be) which, interiorised and manifested in our actions, behaviour or comporment, lead us to maturity, excellence, fulfilment and happiness” (Crespí, 2019, p. 98).

Finally, despite the importance of generic competences in both education and employment, in general terms, universities develop these competences in a collateral, secondary way. Universities generally do not offer specific, curricular courses in generic competences imparted by experts using active methodologies. This reveals the stark contrast between the theory (EHEA framework and employment market) and practice (the reality of university study plans) and highlights the importance of offering a comprehensive education that includes the development of generic competences which are essential for their future pursuits (Martínez & González, 2019, Martínez et al., 2019; Pugh & Lozano, 2019).

CONCLUSIONS

The teaching of generic competences in universities still has a long way to go in providing students with the comprehensive and complete education they will need to pursue their vocation and find personal and professional fulfilment. This study addresses the importance of developing the generic competences which are essential skills both academically and professionally. The research points to various important aspects in the education and development of generic competences; firstly, offering the design of a specific educational model to improve the level of generic, intrapersonal and interpersonal competences. This study also offers a broader, more comprehensive definition of competences with a dual, educational and professional focus. Secondly, the study provides empirical evidence that students who receive specific training in generic competences have a significantly greater command of these skills than those who do not. This leads us to various conclusions. Effective curricular programs can be designed for the development of transversal competences. Specifically, we have validated an effective training program for the acquisition of generic intrapersonal and interpersonal competences. Additionally, findings show that students who have received this specific training course have a significantly greater command of all generic competences included in this study when compared to those not receiving a specific course (H1 and H2).

Among students receiving the course, it appears that students of Education (H3) and women (H4) have a greater aptitude for this type of training.

We consider this to be an innovative proposition; by means of an *ad hoc* course significant results have been achieved with high effects sizes and relevance. The results of this study can help provide the theoretical framework for a course to develop these competences. The present is also a clear proposal for a more complete and comprehensive university education that will help students achieve greater academic, professional and personal fulfilment. This research project aims to serve as a starting point for reflection within the university community on the importance of including this type of training within university study programs. The goal is to educate and develop transversal competences which contribute to providing a comprehensive education, in accordance with the goals of the EHEA and meeting the needs of the business community regarding the importance of acquiring *soft skills*. It is our hope that these recommendations may serve the university in valuing the importance of developing these competences which, beyond specific technical skills, can help provide a comprehensive education to students and better prepare them for future challenges in pursuing their vocation.

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Annex 1. Syllabus of the course on generic competences

IDENTIFICATION

Academic year:	2019-2020		
Degree:	Biotechnology		
Rama de Conocimiento:	Ciencias		
Faculty/School:	Experimental Sciences		
Course:	Personal Competences		
Type:	Obligatory	ECTS:	6
Year:	1	Code:	2016
Duration:	Annual		
Subject:	Social Aspects of Biotechnology		
Module:	Social, Historical and Economic Aspects of Biotechnology		
Type of course:	Classroom		
Language:	Spanish		
Total hours of student dedication:	150		
Teachers	E-mail		

DESCRIPTION OF THE COURSE

The course aims to put students on the path to personal and professional growth, encouraging students to pursue their individual vocation within the university environment, developing the personal, intellectual and social skills that facilitate their progress towards becoming capable and competent Biotechnology professionals able to lead work teams effectively and make a positive contribution to their organisation and society.

This course aims to facilitate the acquisition of core personal competences outlined in the student profile of the Faculty. Different individual and group activities will allow students to evaluate their own strengths and areas for improvement in the pursuit of excellence, building on their strengths and overcoming their weaknesses in community. The curriculum covers a range of personal competencies that are essential for students to achieve excellence and fulfilment in their personal, social, academic and professional lives.

OBJECTIVE

To develop self-awareness, recognising and acquiring the skills and competences necessary for personal and professional growth and fulfilment.

The specific goals of the course are:

That the student acquires the capacity for introspection, self-awareness and orientation towards personal growth.

That the student discovers the importance of teamwork.

That the student acquires and develops effective communication skills.

That the student discovers the importance of commitment to personal growth and fulfilment.

PRIOR KNOWLEDGE

Knowledge complementary with the Applied Philosophy course.

CONTENTS

Topic 1. Introduction.

1.1 Course presentation: Classroom, Mentoring and Transversal Project.

1.2 Presentation of the Course Syllabus.

Topic 2. Personal Competences.

2.1 History of competences.

2.2 Definition of personal competences.

2.3 Foundations of competence.

2.4 Personal competences in the professional context.

2.5 Types of personal competences.

2.6 Process of acquisition of personal competences.

Topic 3. Leadership of service as a competence goal.

3.1 What leadership is and what it is not.

3.2 Functions of a leader.

3.3 Leadership competences. Competences proper to the course.

3.4 Developing leadership skills.

Topic 4. Intrapersonal competences.

4.1 Introspection and proactivity (mentoring 1).

4.2 Self-awareness: personality (mentoring 2), gifts (mentoring 4) and methods of learning.

4.3 Personal growth: the path to personal development (mentoring 3), actions, GROWTH and creative habits.

4.4 Search for meaning: vocation and life project (vision and mission) (mentoring 5 and 6).

- Topic 5. Cognitive competences.
 5.1 Critical and analytical thinking.
 5.2 Creative thinking: creativity.
 5.3 Decision making.
 5.4 Time management and planning.

Topic 6. Interpersonal competences.

- 6.1 Teamwork.
 6.1.1 Differences between a team and a group.
 6.1.2 Aspects of a team.
 6.1.4 Phases in team building.
 6.1.4 Roles in teams.
 6.2 Conflict resolution and negotiation.
 6.3 Communication.
 6.3.1 Communication for engagement: presence - listening, empathy, assertiveness and feedback.
 6.3.2 Speaking: effective presentations, verbal, para-verbal and non-verbal language.

EDUCATIONAL ACTIVITIES

Our teaching methodology aims to develop the skills and competences necessary for personal and professional growth, fulfilment and to make a positive contribution to society.

For this, the course will focus:

- 1.- In the classroom: through individual and group work (transversal project).
- 2.- In mentoring sessions: six individual one-hour sessions and the work derived from each.

DISTRIBUTION OF STUDENT WORK TIME

IN CLASS ACTIVITIES	AUTONOMOUS WORK / NON-CLASSROOM ACTIVITIES
60 hours	90 hours
Lectures. 12h	Work and debates. Individual. 20h
Work (Teamwork). 22h	Work and debates. Teamwork. 40h
Tutored personal learning. 6 Mentoring. 6h	Theoretical study. 20h
Exams. Evaluation- Presentations. 5h	Complementary activities for scientific, intellectual and human learning 10h
Seminars, debates and workshops. 15h	

COMPETENCES

Basic competences

That students demonstrate their knowledge and understanding of an area of study based on their general secondary education and which is generally at the level of standard textbooks and also including some aspects implying a more advanced knowledge of the field of study.

That students are able to apply effectively their knowledge to their work or vocation, possessing the competences generally demonstrated in the making and defence of arguments or problem solving within the area of study.

That students have the capacity to collect and interpret relevant information (normally within their area of study) in order to express opinions or make judgements that include a reflection on relevant social, scientific or ethical issues.

That students can communicate information, ideas, problems and solutions in public, to both specialist and non-specialist audiences.

That students have developed the learning abilities necessary to undertake further study with a high degree of autonomy.

General competences

The ability to work in teams and manage groups.

The capacity for problem solving and decision-making.

The capacity and commitment to independent learning and personal development. To develop effective oral and written communication skills.

Specific competences

To develop attitudes of leadership and social responsibility in personal and professional activities.

To identify the process of personal growth, establishing goals and action plans to achieve them.

The capacity to communicate, orally and in writing, acquired knowledge. The ability to work effectively in teams and in coordination with others.

To develop the ability for problem solving and decision-making both professionally and personally.

RESULTS OF LEARNING

To learn self-discovery and self-awareness in what one does and how one does it. To identify one's own strengths and weaknesses.

To develop a plan for personal growth.

To understand the process of communication and its fundamental elements.

To enhance team or group creativity.

To discover roles within a team.

To distinguish different forms of conflict resolution. To discover the different tools for creative thinking.

To practice effective oral communication.

To distinguish different styles of leadership.

To practice an appropriate methodology in decision-making.

SYSTEM OF EVALUATION OF LEARNING

The system of evaluation is in accordance with the learning goals, principally seeking to incentivise consistent, daily work, participation and teamwork.

A.- Students in first convocation.

The final mark of the course will be based on:

1. Tests on course content and the acquisition of competences: 40% . 2. Transversal project: 30%.

3. Mentoring: 25%.

4. Participation: 5%.

Note: The minimum mark for each section of the different evaluations is, at least, 4 out of 10.

B.- Students with an alternative evaluation for justified reasons, and in second and successive convocations.

The final mark of the course will be based on:

1. Global test on course content and the acquisition of competences: 45%.

2. Presentation of an adapted transversal project: 30%.

3. Mentoring: 25%.

Note: The minimum mark for each section of the different evaluations is, at least, 4 out of 10.

C.- System of evaluation for students in the extraordinary convocation

1. Global test on course content and the acquisition of competences: 45%.

2. Presentation of the transversal project: 30%.

3. Presentation of the mentoring portfolio: 25%.

Note: the minimum mark for each section of the different evaluations is at least 4 out of 10.

Plagiarism of any submissions or work to be performed by the student will result in a failure for the work in question and the opening of a disciplinary procedure which may result in, among other consequences, the failure of the course.

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Basic

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POLAINO, A. Aprender a escuchar, Planeta Testimonio, Barcelona, 2008.

Complementary

EISENBERG, N. Y STRAYER, J. La Empatía y su desarrollo. Desclée de Brouwer, Bilbao, 1992.

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Annex 2. Questionnaire of generic competences

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

3. Age

0 1 2 3 4 5 6 7 8 9
 0 1 2 3 4 5 6 7 8 9

Tens
 Units



2. Sex

Female
 Male

4. Degree

Pre-primary Educ <input type="checkbox"/>	Gastronomy <input type="checkbox"/>	Psychology <input type="checkbox"/>	Computer Engineering <input type="checkbox"/>
Primary Educ <input type="checkbox"/>	Law+BA <input type="checkbox"/>	Biomedicine <input type="checkbox"/>	Journalism <input type="checkbox"/>
Law <input type="checkbox"/>	Medicine <input type="checkbox"/>	Architecture <input type="checkbox"/>	A-V Communication <input type="checkbox"/>

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

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