Crespí *et al.*
Journal of New Approaches in Educational Research (2025) 14:15
https://doi.org/10.1007/s44322-025-00035-y

Journal of New Approaches in Educational Research

ORIGINAL RESEARCH Open Access

Effectiveness of soft skills curricular subjects: a case study of two universities, Spain and Mexico

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Abstract

Personal competencies are regarded as essential within the framework of lifelong learning, particularly those that are cross-cutting nature in. Currently, few universities include mandatory courses for the development of these competencies. This research presents two cases of universities in Spain and Mexico that have implemented subjects specifically aimed at promoting the development of these competencies. The aim of this study is to assess the effectiveness of the curricular subjects designed ad hoc for the development of intrapersonal and interpersonal competencies of university students. For this purpose, three studies were carried out: two at a Mexican university and one in a Spanish university. The total sample comprised of 1,353 students, with 675 from Spain and 678 from Mexico. The three studies employed a quasi-experimental pretest/post-test design, without a control group, during the 2022–23 academic year. A reliable and valid instrument, the Basic Generic Competencies Questionnaire (BGCQ), was used to assess transversal competencies. The results show that these programs have a significant impact, especially in the development of intrapersonal competencies. This greater impact on intrapersonal competencies may be related to the methodologies used in the programs, especially the individual mentoring sessions.

Keywords: Generic competencies, Transversal competencies, Higher education, Mentoring, Soft skills, Program development

1 Introduction

The Council of Europe (2018) regards the development of key personal competencies as a fundamental component of lifelong learning. The significance of fostering personal competencies has long been acknowledged (Wang et al., 1993), with personal, cognitive and relational competencies being crucial for students to "collaborate with others in a communicative and constructive manner, oriented towards achieving shared goals and interpersonal understanding" (Hernández Pina et al., 2005, p. 59).

The European Higher Education Area emphasizes the importance of incorporating the development and acquisition of key generic competencies into all degree programs, extending technical skills. These competencies are considered essential for the integral

education of university students (Almerich et al., 2018; European Commission, 2017; OECD, 2018; Pugh & Lozano, 2019, Ruiz-Morales et al., 2017).

The mission statements of many universities include their aspiration to develop, and assess, the personal competencies of students (Rothoff et al., 2012). However, there is a lack of alignment between these official statements of universities and the specific programs offered to develop personal competencies. In recent years, the ability of higher education to train its students in the skills needed for the workplace has been questioned (Igwe et al., 2022). In particular, the development of soft skills or soft competencies, the situation has become an area of increasing concern, as many university curricula fail to incorporate or provide the necessary training to develop this type of competencies in their students (Vera & Tejada, 2020). In response to this problem, different approaches and methods have been proposed, each reflecting a departure from traditional teaching practices in higher education (Mwita et al., 2023). The following are a variety of methods suitable for soft skills development in higher education: 1) specific courses to develop soft skills (Yan et al., 2019), including curricular activities in the form of electives or complementary training actions (Crespí & García-Ramos., 2021); 2) extra-curricular activities (Feraco et al., 2023) such as attending soft skills training courses organized by individuals, university organizations or the company, the latter case of students who are doing the internship program (Tang, 2019); 3) inclusion of innovative methods in the learning process such as hackathons and meetups (Pluzhnirova, 2021), role-playing instructional activities (Tang, 2019), game-based learning (Garcia et al., 2020) as well as all kinds of didactic group work activities (Mwita et al., 2023; Tang, 2019). Among them: Problem Based learning (Deep et al., 2019), Project Based Learning (Crespí et al., 2022a; Fernández de Caleya et al., 2023) or Project Oriented Learning (Crespí et al., 2022b); 4) any coaching or mentoring process (Crespí & López., 2023; Tang, 2019); 5) any students personal initiatives (Succi & Canovi, 2019) such as joining clubs and associations, taking leadership roles, reading self-development books, watching videos or informal meetings and development conversations with lectures (Mwita et al., 2023); 6) compulsory curricular soft skills subjects (Crespí & García-Ramos., 2021). Although this latter method is still rare in higher education.

The existing body of research is strikingly insufficient, especially considering the critical importance of developing and assessing this type of learning (Goldman & Pellegrino, 2015). Recent studies suggest that higher education institutions have not adequately prioritized the development of soft skills or transversal competencies, instead focusing disproportionately on hard skills or technical competencies (Noah & Aziz, 2020; Tang, 2020). Consequently, this imbalance has created a disconnect between the education students receive and the soft skills are increasingly sought after by employers (Chamorro-Premuzic et al., 2010; Elmoutanna & Motii, 2022; Otermans et al., 2023). In this regard, a recent systematic review analyses the soft skills lacking in graduates and demanded by employers (Noah & Aziz, 2020). Soft skills are essential competencies for employability, success and career advancement (Caggiano et al., 2020; Qizi, 2020; Tang, 2019; Tripathy, 2021); as well as for succeeding in life in general (Feraco et al., 2023). Individuals with well-developed soft skills are highly sought after by employers, as they tend to perform better both individually and with teams (Schmutz et al., 2019). In fact, some employers prioritize candidates with stronger soft skills over those with hard skills,

recognizing that soft skills typically require more time and effort to develop than hard skills (Fakhretdinova et al., 2021; Qizi, 2020). On the other hand, employers also value more the development of soft skills over hard or technical skills because these are easily transferable between different jobs and work sectors (Tang, 2019).

This paper presents a case study of two universities where students across all degree programs are required to take courses which are specifically designed to develop transversal personal competencies or soft skills. Furthermore, these courses are compulsory for all students. The paper will also offer an empirical evaluation of the effectiveness of these courses.

1.1 University education in personal competencies

The concept of competencies, rooted in the field of organisational psychology, refers to the traits, characteristics and behaviours of an individual which foster excellence in their performance (McClelland, 1973). Within the European Higher Education Area (EHEA), the Tuning project defines competencies as"a dynamic combination of knowledge, skills, abilities and values"(González & Wagenaar, 2006, p.14) classified as: 1) specific competencies related to a particular area of knowledge; that is, the skills proper to a particular field of study or academic discipline; and 2) generic competencies which are common to different areas of knowledge (González & Wagenaar, 2003, 2006; Poblete & García, 2007). Both sets of competencies can be taught and evaluated, developed over time through practice or exercise (González &Wagenaar, 2003).

The significance of developing these competencies has been widely recognized (Quintans-Júnior et al., 2023) and is currently being promoted in countries across Latin America and Asia at all levels of education (Reimers & Chung, 2021). Transversal personal competencies can be classified into three broad areas: cognitive, interpersonal and intrapersonal (Pellegrino & Hilton, 2012). National and international assessments, such as the NAEP (National Assessment of Educational Progress) and PISA (Programme for International Student Assessment), suggest that many educational systems continue to fall short in equipping graduates with these essential competencies (Goldman & Pellegrino, 2015; Pellegrino, 2014).

From a personalist anthropological perspective, in line with Delors (1996), we may define personal competencies as “dynamic set of knowledge (know), abilities or skills (know-how), attitudes and values (know-how to be) that, internalized and embodied in our actions, behaviours or ways of doing, put us on the road to our own maturity, excellence, fulfilment and happiness” (Crespí, 2019, p. 98). Thus, the development of personal competencies is a key component of a comprehensive education and personal fulfilment, enabling excellence in any area of life. These encompass both technical skills, called ‘specific competencies’ in the Tuning project, and transversal competencies which are relevant across different fields or activities, called ‘generic competencies’ in the Tuning project (Crespí, 2018).

Generic/transversal/soft competencies can be categorized into three types: cognitive (related to human thinking capacity), intrapersonal (related to self-awareness) and interpersonal (related to interaction with others). The correspondence between these competencies and those of the Tuning project is indicated in Table 1.

Table 1 Correspondence between transversal personal competencies and those of the Tuning project

Classification	Definition	*Tuning* Classification	Example
Cognitive	Competencies related principally to the capacity for human thinking	Generic- instrumental- cognitive	Analytical, systemic thinking, etc
		Generic—instrumental-methodological	Decision-making, planning, time management, etc
		Generic—systemic- entrepreneurial ability	Creativity, innovation, etc
Intrapersonal	Competencies related principally to self-awareness	Generic—interpersonal- individual	Introspection-Deep look, etc
		Generic—systemic- entrepreneurial ability	Pro-activity, etc
		Generic—systemic- leadership	Orientation towards excellence, etc
Interpersonal	Competencies related principally to relationships with others	Generic—instrumental- linguistic	Interpersonal communication, etc
		Generic—interpersonal-social	Teamwork, conflict resolution, negotiation, etc
		Generic—systemic- leadership	Leadership, etc

Source: Crespí, 2018 (p.134)

A survey conducted across 86 Spanish universities, including 50 public and 36 private (*Sistema Integrado de Información Universitaria*, 2023), revealed that 30 universities, 18 public and 12 private, offer specific courses in soft skills, transversal or generic competencies. These courses are offered in different modalities: a compulsory degree course, an optional course, an awarded degree or a post-graduate course

In the case of Mexico, the 10 most important universities with the highest enrolment in the city, 5 publics and 5 privates, were analysed. The findings indicated that six of these universities, 3 publics and 3 privates, do offer subjects in soft skills, transversal or generic competencies, highlighting subjects such as High-Performance Teams, Life Project or Critical Thinking and Problem Solving. These subjects are offered within both compulsory and elective blocks.

An analysis of the content of courses in generic/transversal competencies reveals the following conclusions: 1) the majority of these courses primarily focus on the development of intrapersonal and interpersonal competencies; 2) the teaching methodologies employed are predominantly practical and experiential, with programs typically lacking mentoring sessions; 3) these courses are commonly integrated into awarded degree program, incorporated into a master's degree program or offered as optional courses within a degree.

Although the importance of developing theses competencies is widely acknowledged, research on the effectiveness of these courses remains limited. No studies were identified that assess the impact of these courses on the development of the transversal competencies among university students. This project can be considered as an initial and very necessary contribution to the analysis of the degree of acquisition of transversal competencies as a key aspect of university education (Villardón, 2015). A previous study (Crespí & García-Ramos, 2021) analysed the effectiveness of a similar program at a Spanish university, with the goal of expanding the implementation of courses that have

demonstrated effectiveness in fostering these competencies. Such expansion would positively influence the graduate profile, aligning with the university's mission.

1.2 Case study of two universities: Universidad Francisco de Vitoria and Universidad Anáhuac Querétaro

To assess the effectiveness of courses designed to promote the acquisition of transversal/generic competencies, we selected two private universities, one in Spain and one in Mexico.

The Universidad Francisco de Vitoria, located in Madrid, was founded in 1993. During the 2023–24 academic year, the university offered 21 degree programs across seven different faculties with approximately 20,000 students.

The Universidad Anáhuac Querétaro, founded in 2006, is part of the Anáhuac university network, comprising eight institutions in Mexico that share a similar educational model. In the 2023–24 academic year the university offered 34 degree programs to a total of 6,535 students.

The following section provides an outline of the objectives and content of the courses offered by these two universities. It should be noted that all these courses share the experiential learning methodology proposed by Kolb (2015), with continuous evaluation appropriate for this type of methodology. The syllabi outline the course content and the competencies to be developed, as well as the resources to be used and the course schedule.

Universidad Francisco de Vitoria: Personal skills and competencies

In this study, we evaluated the course "Personal Skills and Competencies" (PSC), a mandatory subject included in the first year of all degree programs, although not always under the same name. The course encourages students to engage with the concept of personal fulfilment (personal, social, academic and professional) through the development of cognitive, intrapersonal and interpersonal competencies. The program incorporates both classroom work and mentoring, comprising six one-hour, face-to-face sessions with a mentor (also obligatory). The teaching methodology is experiential, employing project-based learning techniques and the creation of a personal development plan. Table 2 below provides details of the principal characteristics of the course:

Table 2 Description of the course: Personal Skills and Competencies (PSC)

Name	Personal Skills and Competencies (PSC)
Year	First year
Objective	To further personal, social, academic and professional growth through the development of transversal competencies
Content	1. Self-awareness, self-acceptance, self-management 2. Search for meaning in life, orientation to excellence and pro-activity 3. Teamwork: cooperative work, work environment management and orientation towards results 4. Effective communication: verbal communication, paraverbal and non-verbal communication, communication for encounter (empathy, assertiveness and listening)

Universidad Anáhuac Querétaro: University Formation and leadership The first year of all degree programs, students are required to take the course "University Formation A" (FUA), oriented towards providing a humanistic education. Additionally, the course "Leadership and Personal Development" (LPD), part of the so-called "Leadership Path", aims to develop a leadership style centred on positive action, as outlined in the university´s mission statement. In the second year, all degree programs included the course "University Formation B" (FUB) and the course "Leadership and High-performing Teams". Details of each of these courses is provided in the following section.

"University Formation A" (FUA) encourages students to explore their own identity and personality, reflecting on their personal history, their values, beliefs, strengths and areas for improvement. This process of introspection allows students to gain greater insight into their own motivations and sense of self. While the primary focus is on developing intrapersonal competencies, the course also fosters the development of interpersonal communication skills. In addition to the face-to-face classes, there are 5 half-hour individual mentoring sessions, which complement the work in the classroom. The principal characteristics of the course are provided in Table 3, below:

"Leadership and Personal Development" works for students to develop self understanding in order to foster leadership of positive action. The methodology of the course is both theoretical and practical with project-based work and evaluations. The characteristics of the course are provided in Table 4, below:

Table 3 Description of the course: University Formation A (FUA)

Name	University Formation A
Year	First semester
Objective	That the student gains greater self-awareness in relation to others by acquiring the competencies necessary to create a personal development plan and build better interpersonal relationships
Content	Self-awareness Interpersonal dimension and communication competencies Personal development

Table 4 Description of the course: Leadership and Personal Development

Name	Leadership and Personal Development
Year	First semester
Objective	That the student recognises different styles of leadership and discover how justification and reason are used to exercise leadership in society
Content	The need to assume leadership Introduction to leadership Leadership of positive action The human development of a leader Assertive decision-making

"University Formation B" (FUB) is designed to a complementary course to FUA, fostering individual growth, social awareness and community engagement. The course encourages students to explore their identity and their relationship to their community. Additionally, it emphasizes the cultivation of healthy habits that foster the creative expression of personal freedom, guiding students towards a better version of themselves. The aim is to foster greater emotional intelligence to understand and manage their emotions and to improve their interactions with others. In addition to the face-to-face classes, there are 5 half-hour individual mentoring sessions, which complement the work in the classroom. The final project of the course is a personal and professional development plan. The characteristics of the course are provided in Table 5:

"Leadership and High-performing Teams" is a course designed to develop the students' teamworking skills. Table 6, below, provides the details of the course:

1.3 Objectives of the research

The aim of this research was to determine the effectiveness of these courses based on students' self-perceived development of transversal personal competencies, both intrapersonal and interpersonal. For this purpose, three studies were carried out: two at the Universidad Anáhuac Querétaro (one for the first year course and one for the second years course), and one at the Universidad Francisco de Vitoria (for the first year course).

Thus, the research objective was to measure the effectiveness of the courses designed to develop personal competencies by means of the three studies described below:

Table 5 Description of the course: University Formation B (FUB)

Name	University Formation B
Year	Fourth semester
Objective	That the student, through the recognition of themselves in their own actions and that of others, develops the emotional intelligence and creative skills to improve their capacity for discernment and the creation of a personal and professional plan
Content	Personal Growth Community Dimension Personal and Professional planning

Table 6 Description of the course: Leadership and High-performing Teams

Name	Leadership and High-performing Teams
Year	Third semester
Objective	That the student develops and practices their leadership skills within a team, putting into practice strategies and tools to promote high performance
Content	Leaders work in teams Contextual intelligence Relational intelligence Intelligence in action Conflict resolution and negotiation

Study 1: Effectiveness of the PSC course

For this study, the following research hypotheses were proposed:

H1: Students of the PSC program report improved self-perception of their intrapersonal competencies.
H2: Students of the PSC program report improved self-perception of their interpersonal competencies.
H3. There are no significant differences in the development of intrapersonal and interpersonal competencies according to student gender or faculty.

Study 2: Effectiveness of the FUA and leadership and personal development courses

For this study, the following research hypotheses were proposed:

H4: Students of the FUA and Leadership and Personal Development programs report improved self-perception of their intrapersonal competencies
H5: Students of the FUA and Leadership and Personal Development programs report improved self-perception of their interpersonal competencies.
H6. There are no significant differences in the development of intrapersonal and interpersonal competencies according to student gender or faculty

Study 3: Effectiveness of the FUB and leadership and high-performing teams

For this study, the following research hypotheses were proposed:

H7: Students of the FUB and Leadership and High-performing Teams programs report improved self-perception of their intrapersonal competencies.
H8: Students of the FUB and Leadership and High-performing Teams programs report improved self-perception of their interpersonal competencies.
H9. There are no significant differences in the development of intrapersonal and interpersonal competencies according to student gender or faculty

2 Method

2.1 Participants

The sample included of a total of 1,353 students, 675 participants from Spain and 678 from Mexico. The characteristics of the samples for each study are provided in Table 7 below:

Table 7 Sociodemographic variables of the studies

Study (N)	Variable	N (%)	M (SD)
1 (675)	Gender		
	Female	434 (64.3%)	
	Male	241 (35.7%)	
	Age		18.4 (2.0)
	Faculty		
	Experimental Sciences	176 (26.1%)	
	Medicine	106 (15.7%)	
	Health Sciences	95 (14.1%)	
	Law, Business and Government	91 (13.5%)	
	Advanced Polytechnical School	84 (12.4%)	
	Communication Sciences	80 (11.7%)	
	Education and Psychology	44 (6.5%)	
2 (581)	Gender		
	Female	332 (57.1%)	
	Male	249 (42.9%)	
	Age		18.4 (1.1)
	Faculty		
	Business	192 (33%)	
	Communication, Architecture, Art and Design	152 (26.2%)	
	Engineering	120 (20.7%)	
	Social Sciences and Law	61 (10.5%)	
	Health Sciences	56 (9.6%)	
3 (97)	Gender		
	Female	49 (50.5%)	
	Male	48 (49.5%)	
	Age		20.0 (0.9)
	Faculty		
	Business	42 (43.3%)	
	Communication, Architecture, Art and Design	14 (14.4%)	
	Engineering	38 (39.2%)	
	Social Sciences and Law	3 (3.1%)	
	Health Sciences	0(0.0%)	

2.2 Design of the research

In the three studies a quasi-experimental methodology was applied without the inclusion of a control group, for a population of students enrolled in the programs indicated above in the 2022–23 academic year. The students voluntarily participated in the survey of their self-perceived acquisition of transversal competencies.

2.3 Instruments

The BGCQ (Basic Generic Competencies Questionnaire) was used to evaluate the degree of acquisition of transversal competencies. This questionnaire, developed and validated by Crespí and García-Ramos, (2023), in its application in a Spanish university, was chosen for the purposes of the study. The reliability and validity tests of the BGCQ showed an excellent overall internal consistency (0.94) and an acceptable degree of validity (0.69). The homogeneity and validity of the items was above 0.20 in all cases,

indicating satisfactory values. On the other hand, exploratory and confirmatory factor analysis confirm the acceptable dimensional structure of the BGCQ (Crespí & García-Ramos, 2023).

This questionnaire consists of 36 items structured in two dimensions divided into two subdimensions each with three indicators (competencies):

The intrapersonal dimension, consisting of two subdimensions: a) Introspection-Deep look, corresponding to the indicators/competencies: self-awareness, self-acceptance and self-management, and b) Personal development, with the indicators/competencies: search for meaning in life, orientation to excellence and proactivity-self-discipline.

The interpersonal dimension, divided into two subdimensions: a) Teamwork, with the indicators/competencies: cooperative work, work environment management and orientation towards results and b) Effective communication, with the indicators/competencies: verbal communication, paraverbal and non-verbal communication and communication for encounter.

Each indicator is measured using three items on a scale from 1 to 6, with 1 representing the lowest score and 6 the highest. A 6-item scale was used to avoid any central tendency. The complete BGCQ is provided in Annex 1.

The indicators for reliability of the three studies (Table 8) show a very satisfactory internal consistency of the BGCQ in the two measurements.

Table 8 Internal consistency of the BGCQ

Study	Scale	Measurement	Cronbach's α	Total Omega (ω)
1	BGCQ Scale	Pre	0.91	0.92
		Post	0.93	0.93
	Intrapersonal Dimension	Pre	0.83	0.85
		Post	0.88	0.89
	Interpersonal Dimension	Pre	0.88	0.89
		Post	0.90	0.91
2	BGCQ Scale	Pre	0.92	0.93
		Post	0.93	0.94
	Intrapersonal Dimension	Pre	0.85	0.86
		Post	0.89	0.90
	Interpersonal Dimension	Pre	0.90	0.91
		Post	0.91	0.92
3	BGCQ Scale	Pre	0.93	0.94
		Post	0.99	0.99
	Intrapersonal Dimension	Pre	0.90	0.91
		Post	0.98	0.99
	Interpersonal Dimension	Pre	0.88	0.90
		Post	0.98	0.99

2.4 Procedure

For all the studies, the questionnaire was administered online using the Google Forms platform. Adhering to the guidelines of the Ethics Committee, an informed consent section was included in the questionnaire, outlining the research objectives and requesting participants' explicit, voluntary consent.

In Study 1, the BGCQ was administered at the beginning of the academic year (September 2022) and again at the end of the year (April 2023). In Study 2, the BGCQ was administered at the start of the first semester (August 2022) and again at the end of the first semester (November 2022). In Study 3, the BGCQ was first administered at the start of the third semester (August 2022) and again at the end of the fourth semester (May 2023). The pre-test and post-test dates of each study vary depending on when the course was imparted; that is, the questionnaire was conducted immediately at the beginning and at the end of the course.

During data collecting, a significant reduction in the sample size was observed for the second measurement, resulting in limited or no representation form some faculties. Consequently, hypotheses *H9* were abandoned, and the analysis was focused solely on hypotheses *H7* and *H8*.

2.5 Data analysis

For hypotheses *H1*, *H2*, *H4*, *H5*, *H7* and *H8,* a comparative analysis was conducted on the initial and final scores for each course using Student's t-test for related samples. Although the distribution of the scores did not appear to be normal, this test was used due to the large sample size (Lumley et al., 2002).

For hypotheses *H3* and *H6*, Student's t-test for independent samples was employed to compare differences in self-perceived development of personal competencies (difference between pre-test and post-test scores) among men and women. Additionally, a one-way ANOVA was used to compare differences between faculties. As previously noted, hypothesis *H9* could not be analysed due to an insufficient sample size for certain faculties.

Furthermore, the effect size was evaluated using Cohen's *d* to determine the magnitude of the differences observed in the Student0 s t-test for independent samples and the η^2 index was used to evaluate the effect size of differences between faculties. Cohen's *d* values below 0.2 indicate a small effect size, values between 0.2 and 0.5 indicate a medium effect size, and values above 0.8 indicate a large effect size. For η^2, values around 0.01, 0.06 and 0.14 indicate a small, medium and large effect size respectively (Cohen, 2013).

The data was analysed using the R program (version 4.3.1).

3 Results

3.1 Study 1

As presented in Table 9, a perceived improvement was observed in both intrapersonal and interpersonal competencies, with a larger effect size for the former. The results indicate significant improvement in all subdimensions except for "Teamwork" ($p = 0.400$).In terms of competencies for each subdimension, significant improvements were again found in all areas, except for "Teamwork", which even showed a slight decline in the specific competence of "Cooperative work". Regarding the effect size, in 5 cases the effect size was small ($d < 0.2$) while others showed a medium effect size, with the competence "Self-awareness" ($d = 0.580$) and the subdimension "Introspection-Deep look" ($d = 0.417$) being particularly notable.

Table 9 Mean differences in dimensions, subdimensions and competencies

	M (SD) Pre-test	M (SD) Post-test	p-value	Cohen d
Intrapersonal Dimension	85.1 (9.2)	88.6 (9.8)	< 0.01	0.373
Interpersonal Dimension	88.7 (9.5)	90.4 (10.0)	< 0.01	0.176
Introspection-Deep look Subdimension	41.9 (5.2)	44.1 (5.5)	< 0.01	0.417
Personal development Subdimension	43.2 (5.3)	44.5 (5.3)	< 0.01	0.249
Teamwork Subdim	46.1 (4.9)	45.9 (5.5)	0.400	0.031
Effective communication Subdim	42.6 (5.6)	44.5 (5.6)	< 0.01	0.337
Self-awareness competence	13.0 (2.2)	14.3 (2.2)	< 0.01	0.580
Self-acceptance competence	14.3 (2.5)	14.9 (2.4)	< 0.01	0.252
Self-management competence	14.6 (1.9)	14.9 (2.1)	< 0.01	0.177
Search for meaning in life competence	14.7 (2.5)	15.1 (2.3)	< 0.01	0.201
Orientation to excellence competence	14.0 (2.2)	14.5 (2.2)	< 0.01	0.213
Proactivity. Self-discipline competence	14.5 (2.2)	14.9 (2.1)	< 0.01	0.170
Cooperative work competence	15.5 (2.1)	15.3 (2.3)	0.046	− 0.082
Work environment management comp	15.7 (1.8)	15.7 (1.9)	0.700	0.015
Orientation towards results competence	14.9 (2.0)	14.9 (2.2)	0.600	0.020
Verbal communication competence	14.8 (2.0)	15.4 (2.1)	< 0.01	0.283
Paraverbal and non-verbal communication competence	12.8 (3.1)	13.9 (2.9)	< 0.01	0.373
Communication for encounter comp	15.0 (2.1)	15.2 (2.1)	0.024	0.092

Upon evaluating potential gender differences, no significant differences were observed in any levels (cf. Table 10). The intrapersonal exhibited the highest increases around both genders. However, the subdimension "Teamwork" (and associated competencies) showed no changes for men and a negative change for women (except for "Orientation towards results").

Table 10 Comparison of change[a] according to gender in dimensions, subdimensions and competencies

	M (SD) Males	M (SD) Females	p-value
Intrapersonal Dimension	3.5 (8.9)	3.6 (10.0)	0.800
Interpersonal Dimension	1.9 (9.6)	1.6 (9.3)	0.700
Introspection-Deep look Subdimension	1.9 (4.9)	2.4 (5.8)	0.300
Personal development Subdimension	1.5 (5.5)	1.2 (5.5)	0.400
Teamwork Subdim	0.0 (5.2)	− 0.2 (5.1)	0.700
Effective communication Subdim	2.0 (5.7)	1.8 (5.5)	0.800
Self-awareness competence	1.1 (2.5)	1.3 (2.4)	0.300
Self-acceptance competence	0.5 (2.2)	0.7 (2.7)	0.300
Self-management competence	0.3 (2.1)	0.4 (2.4)	0.800
Search for meaning in life competence	0.7 (2.6)	0.4 (2.5)	0.200
Orientation to excellence competence	0.4 (2.7)	0.5 (2.6)	0.800
Proactivity. Self-discipline competence	0.4 (2.2)	0.3 (2.2)	0.600
Cooperative work competence	0.0 (2.3)	− 0.3 (2.3)	0.200
Work environment management comp	0.0 (2.0)	− 0.1 (2.1)	0.500
Orientation towards results competence	0.0 (2.5)	0.1 (2.3)	0.500
Verbal communication competence	0.5 (2.5)	0.6 (2.1)	0.700
Paraverbal and non-verbal communication competence	1.2 (2.8)	1.1 (2.8)	0.800
Communication for encounter comp	0.3 (2.3)	0.2 (2.2)	0.500

[a] A comparison of mean differences before and after the course (post-test/pre-test)

Finally, regarding the influence of faculty (cf. Table 11), significant changes were observed across all dimensions and subdimensions and in most specific competencies. However, the effect sizes suggest that the magnitude of these differences was generally small, ranging between 0.021 and 0.053. The Intrapersonal Dimension exhibited the most substantial increases, especially within the faculties of Experimental Sciences and Health Sciences, while the subdimension "Teamwork" showed only a modest increase. Notably, the Advanced Polytechnical School, experienced a significant decline in both this subdimension and the competencies "Cooperative work" and "Work environment management".

3.2 Study 2

As shown in Table 12, there was a significant increase in both the intrapersonal and the interpersonal dimensions, with similar effect sizes observed for both cases. Examining the subdimensions within each dimension, significant improvements were noted across all cases, with the subdimension "Teamwork" exhibiting the smallest effect size (d = 0.104). Finally, regarding the specific competencies of each subdimension, significant improvements were found in all areas, except for "Cooperative Work" and "Work Environment Management" of the subdimension "Teamwork". Regarding effect size, five cases exhibited a small effect (d < 0.2) while the remaining cases demonstrated medium effects. Notably, the competencies for verbal and non-verbal communication within the subdimension "Effective Communication" (d = 0.380), "Self-awareness" (d = 0.367) and "Orientation to Excellence" (d = 0.343).

In terms of gender, no significant differences were found in any of the results (cf. Table 13). There was a notable increase in the subdimension "Effective Communication" and the competence "Paraverbal and non-verbal communication", compared to the other subdimensions and competencies.

Finally, regarding the potential influence of the faculty (Table 14), no significant differences were observed across the dimensions, subdimensions and competencies, as all faculties show similar results.

3.3 Study 3

As shown in Tables 15 and 16, a significant increase was seen only in the Intrapersonal Dimension ($p = 0.047$). When analysing the subdimensions, significant improvement was found exclusively in the subdimension "Personal Development" ($p = 0.033$). Regarding the competencies in each subdimension, students reported significant improvements in "Self-awareness", "Orientation to Excellence" and "Paraverbal and non-verbal communication". The effect size for all of these competencies was medium, with particularly notable results for "Orientation to Excellence" (d = 0.360) and "Paraverbal and non-verbal communication" (d = 0.351). In terms of gender, no significant differences were found in any of these results (Table 16).

4 Discussion

Transversal competencies are an essential part of the comprehensive education of young people and, when combined with specific technical skills, they enhance performance across all areas of life: personal, social, academic and professional. These *soft*

Table 11 Mean (standard deviation) change according to Faculty in dimension, subdimensions and competencies

	Exp	Med	Sal	DEG	EPS	Com	EDP	p	η^2
Intrapersonal Dimension	6.8 (9.4)*	1.8 (8.9)*	4.4 (9.1)*	3.0 (9.5)*	1.9 (9.3)	1.7 (10.1)	0.6 (9.6)	< 0.01	0.052
Interpersonal Dimension	4.1 (8.7)*	1.2 (8.2)	2.2 (9.7)*	1.0 (8.5)	− 1.5 (10.2)	0.9 (10.6)	1.6 (10.3)	< 0.01	0.033
Introspection-Deep look Subdimension	4.3 (5.4)*	1.3 (5.1)*	2.1 (5.2)*	2.0 (5.1)*	1.3 (5.4)*	1.3 (6.0)*	0.7 (6.0)	< 0.01	0.053
Personal development Subdimension	2.5 (5.4)*	0.5 (5.3)	2.4 (5.5)*	1.0 (5.8)	0.6 (5.6)	0.4 (5.3)	− 0.1 (5.3)	< 0.01	0.032
Teamwork Subdim	0.8 (4.9)*	− 0.4 (4.4)	0.5 (5.3)	− 0.4 (4.9)	− 1.9 (5.5)*	− 0.5 (5.8)	− 0.7 (5.3)	< 0.01	0.026
Effective communication Subdim	3.3 (5.2)*	1.6 (5.2)*	1.7 (5.3)*	1.4 (5.2)*	0.3 (6.2)	1.4 (6.0)*	2.3 (5.9)*	< 0.01	0.028
Self-awareness competence	1.9 (2.3)*	1.0 (2.3)*	1.3 (2.4)*	1.2 (2.5)*	1.1 (2.6)*	0.7 (2.5)*	0.6 (2.6)	< 0.01	0.033
Self-acceptance competence	1.4 (2.6)*	0.3 (2.3)	0.4 (2.3)	0.7 (2.4)*	0.1 (2.4)	0.4 (2.9)	0.1 (2.6)	< 0.01	0.039
Self-management competence	0.9 (2.0)*	0.0 (2.1)	0.4 (2.3)	0.1 (2.3)	0.1 (2.2)	0.2 (2.7)	0.0 (2.3)	< 0.01	0.026
Search for meaning in life competence	1.1 (2.4)*	0.0 (2.5)	0.7 (2.6)*	0.5 (3.0)	0.3 (2.2)	− 0.1 (2.2)	0.3 (2.3)	< 0.01	0.030
Orientation to excellence competence	0.9 (2.5)*	0.2 (2.6)	0.9 (2.7)*	0.3 (2.7)	0.1 (2.8)	0.2 (2.6)	0.0 (2.3)	0.029	0.021
Proactivity. Self-discipline competence	0.6 (2.2)*	0.3 (1.8)	0.7 (2.3)*	0.2 (1.9)	0.2 (2.5)	0.3 (2.4)	− 0.4 (2.3)	0.120	
Cooperative work competence	0.1 (2.3)	− 0.3 (2.1)	0.0 (2.2)	0.0 (2.4)	− 0.7 (2.5)*	− 0.3 (2.3)	− 0.4 (2.4)	0.200	
Work environment management comp	0.6 (2.0)*	0.0 (1.7)	0.0 (2.0)	− 0.3 (1.9)	− 0.6 (2.0)*	− 0.5 (2.4)	− 0.4 (2.0)	< 0.01	0.049

Table 11 (continued)

	Exp	Med	Sal	DEG	EPS	Com	EDP	p	η^2
Orientation towards results competence	0.1 (2.2)	− 0.1 (2.1)	0.4 (2.5)	0.0 (2.6)	− 0.5 (2.5)	0.2 (2.4)	0.1 (2.2)	0.200	
Verbal communication competence	0.9 (2.0)*	0.7 ± (2.2)*	0.9 (2.3)*	0.3 (2.1)	0.0 (2.6)	0.1 (2.5)	0.7 (1.9)*	< 0.01	0.025
Paraverbal and non-verbal communication competence	1.5 (2.8)*	0.8 ± (2.5)*	1.0 (2.6)*	1.1 (2.7)*	0.4 (3.3)	1.4 (3.2)*	1.6 (2.7)*	0.054	
Communication for encounter comp	0.8 (2.1)*	0.1 ± (1.9)	− 0.2 (2.1)	− 0.1 (2.4)	0.0 (2.2)	− 0.1 (2.6)	0.0 (2.4)	< 0.01	0.030

Significant changes in each faculty are marked with an asterisk (*). *Exp* Experimental Sciences; *Med* Medicine; *Sal* Health Sciences; *DEG* Faculty of Law, Business and Government; *EPS* Advanced Polytechnical School; *Com* Communication Sciences; *EDP* Education and Psychology

Table 12 Mean differences in dimensions, subdimensions and competencies

	M (SD) Pre-test	M (SD) Post-test	p-value	Cohen d
Intrapersonal Dimension	90.2 (9.0)	93.1 (9.4)	< 0.01	0.310
Interpersonal Dimension	92.1 (9.9)	94.8 (9.5)	< 0.01	0.279
Introspection-Deep look Subdimension	45.4 (5.0)	46.6 (5.1)	< 0.01	0.251
Personal development Subdimension	44.8 (5.3)	46.4 (5.2)	< 0.01	0.300
Teamwork Subdim	47.6 (5.0)	48.1 (5.0)	0.011	0.104
Effective communication Subdim	44.5 (5.9)	46.7 (5.5)	< 0.01	0.380
Self-awareness competence	14.3 (2.2)	15.1 (2.1)	< 0.01	0.367
Self-acceptance competence	15.6 (2.2)	15.8 (2.1)	0.008	0.107
Self-management competence	15.5 (1.8)	15.7 (1.9)	0.002	0.140
Search for meaning in life competence	14.9 (2.6)	15.5 (2.3)	< 0.01	0.228
Orientation to excellence competence	14.6 (2.3)	15.4 (2.1)	< 0.01	0.343
Proactivity. Self-discipline competence	15.3 (2.1)	15.6 (2.1)	0.002	0.123
Cooperative work competence	15.9 (2.1)	16.0 (2.1)	0.300	0.040
Work environment management comp	16.3 (1.7)	16.3 (1.8)	0.600	− 0.022
Orientation towards results competence	15.4 (2.1)	15.8 (2.0)	< 0.01	0.234
Verbal communication competence	15.4 (2.2)	16.0 (1.9)	< 0.01	0.331
Paraverbal and non-verbal communication competence	13.8 (3.1)	15.0 (2.7)	< 0.01	0.383
Communication for encounter comp	15.3 (2.1)	15.7 (2.1)	< 0.01	0.181

Table 13 Comparison of change[a] according to gender in dimensions, subdimensions and competencies

	M (SD) Males	M (SD) Females	p-value
Intrapersonal Dimension	2.8 (8.4)	2.9 (8.8)	0.900
Interpersonal Dimension	3.1 (8.9)	2.4 (9.2)	0.400
Introspection-Deep look Subdimension	1.3 (4.5)	1.3 (4.8)	> 0.900
Personal development Subdimension	1.5 (5.1)	1.6 (5.2)	0.800
Teamwork Subdim	0.7 (5.0)	0.4 (4.8)	0.400
Effective communication Subdim	2.4 (5.4)	2.0 (5.7)	0.500
Self-awareness competence	0.9 (2.2)	0.7 (2.1)	0.500
Self-acceptance competence	0.1 (2.1)	0.3 (2.1)	0.120
Self-management competence	0.3 (1.9)	0.2 (2.0)	0.400
Search for meaning in life competence	0.6 (2.6)	0.6 (2.6)	> 0.900
Orientation to excellence competence	0.6 (2.5)	0.9 (2.4)	0.200
Proactivity. Self-discipline competence	0.3 (2.0)	0.2 (2.1)	0.400
Cooperative work competence	0.2 (2.1)	0.0 (2.0)	0.300
Work environment management comp	0.0 (1.8)	− 0.1 (1.9)	0.600
Orientation towards results competence	0.5 (2.4)	0.4 (2.2)	0.700
Verbal communication competence	0.7 (2.1)	0.6 (2.2)	0.600
Paraverbal and non-verbal communication competence	1.1 (2.7)	1.1 (2.8)	0.800
Communication for encounter comp	0.5 (2.4)	0.3 (2.3)	0.200

[a] A comparison of mean differences before and after the course (post-test/pre-test)

Table 14 Mean (standard deviation) change according to Faculty in dimension, subdimensions and competencies

	Business	CAAD	Engineering	Law	Health	p
Intrapersonal Dimension	3.4 (8.2)*	2.6 (9.9)*	2.3 (7.4)*	3.2 (8.5)*	2.5 (9.0)*	0.800
Interpersonal Dimension	3.0 (10.1)*	2.8 (9.8)*	2.7 (8.2)*	2.5 (5.5)*	1.7 (8.6)	> 0.900
Introspection-Deep look Subdimension	1.5 (4.5)*	1.1 (5.2)*	0.9 (4.0)*	1.8 (4.7)*	1.2 (5.4)	0.700
Personal development Subdimension	1.9 (5.0)*	1.5 (5.8)*	1.4 (4.7)*	1.4 (5.0)	1.4 (5.0)*	> 0.900
Teamwork Subdim	0.6 (5.2)	0.5 (5.3)	0.5 (4.7)	0.2 (3.5)	0.5 (4.7)	> 0.900
Effective communication Subdim	2.3 (6.1)*	2.3 (6.0)*	2.2 (5.4)*	2.3 (3.7)*	1.1 (4.7)	0.700
Self-awareness competence	1.0 (2.2)*	0.6 (2.2)*	0.6 (1.9)*	0.8 (2.1)*	0.9 (2.3)*	0.500
Self-acceptance competence	0.3 (1.9)	0.4 (2.4)	0.0 (1.9)	0.5 (2.1)	− 0.1 (2.1)	0.400
Self-management competence	0.2 (1.8)	0.2 (2.2)	0.2 (1.8)	0.5 (2.0)	0.4 (2.1)	0.900
Search for meaning in life competence	0.8 (2.6)*	0.5 (2.8)*	0.5 (2.5)*	0.2 (2.4)	0.4 (2.5)	0.400
Orientation to excellence competence	0.6 (2.5)*	0.9 (2.7)*	0.7 (2.4)*	1.1 (2.2)*	0.7 (2.2)*	0.700
Proactivity. Self-discipline competence	0.4 (1.9)*	0.1 (2.1)	0.2 (2.2)	0.1 (2.2)	0.3 (2.0)	0.700
Cooperative work competence	0.1 (2.2)	0.3 (2.1)	− 0.1 (2.1)	− 0.2 (1.5)	0.4 (1.7)	0.400
Work environment management comp	− 0.1 (1.9)	− 0.1 (2.0)	0.0 (1.8)	0.0 (1.7)	0.0 (1.8)	> 0.900
Orientation towards results competence	0.7 (2.3)*	0.3 (2.4)	0.6 (2.1)*	0.4 (2.0)*	0.1 (2.3)	0.400
Verbal communication competence	0.7 (2.4)*	0.7 (2.2)*	0.9 (2.2)*	0.4 (1.9)*	0.4 (1.8)	0.600
Paraverbal and non-verbal communication competence	0.9 (2.9)*	1.3 (3.1)*	1.1 (2.5)*	1.6 (2.0)*	0.7 (2.2)	0.300
Communication for encounter comp	0.7 (2.5)*	0.2 (2.4)	0.2 (2.3)	0.4 (1.7)	0.1 (2.3)	0.200

Significant changes in each faculty are marked with an asterisk (*). CAAD = Communication, Architecture, Art and Design

Table 15 Mean differences in dimensions, subdimensions and competencies

	M (SD) Pre-test	M (SD) Post-test	p-value	Cohen d
Intrapersonal Dimension	88.6 (10.5)	92.0 (17.8)	0.047	0.229
Interpersonal Dimension	89.6 (9.4)	90.2 (19.2)	0.700	0.044
Introspection-Deep look Subdimension	44.6 (5.8)	46.0 (9.0)	0.100	0.180
Personal development Subdimension	44.0 (5.8)	46.0 (9.2)	0.033	0.258
Teamwork Subdim	45.9 (4.9)	45.1 (10.0)	0.500	0.091
Effective communication Subdim	43.7 (5.5)	45.1 (9.7)	0.140	0.177
Self-awareness competence	14.2 (2.4)	15.0 (3.0)	0.006	0.295
Self-acceptance competence	15.5 (2.3)	15.6 (3.2)	0.800	0.033
Self-management competence	14.9 (2.2)	15.4 (3.1)	0.200	0.169
Search for meaning in life competence	15.1 (2.3)	15.5 (3.3)	0.200	0.150
Orientation to excellence competence	14.2 (2.4)	15.2 (3.1)	0.004	0.360
Proactivity. Self-discipline competence	14.7 (2.2)	15.3 (3.2)	0.093	0.200
Cooperative work competence	15.1 (2.2)	14.8 (3.7)	0.400	− 0.096
Work environment management comp	15.9 (1.8)	15.3 (3.4)	0.150	− 0.198
Orientation towards results competence	14.9 (1.9)	15.0 (3.3)	0.700	0.042
Verbal communication competence	15.2 (1.8)	15.3 (3.2)	0.700	0.043
Paraverbal and non-verbal communication competence	13.6 (2.9)	14.8 (3.6)	0.002	0.351
Communication for encounter comp	14.9 (2.5)	15.0 (3.3)	0.700	0.042

Table 16 Comparison of change[a] according to gender in dimensions, subdimensions and competencies

	M (SD) Males	M (SD) Females	p-value
Intrapersonal Dimension	2.7 (16.6)	4.0 (16.2)	0.700
Interpersonal Dimension	− 0.6 (18.5)	2.1 (17.7)	0.500
Introspection-Deep look Subdimension	1.4 (8.2)	1.4 (8.1)	> 0.900
Personal development Subdimension	1.4 (9.2)	2.7 (8.9)	0.500
Teamwork Subdim	− 1.0 (10.2)	− 0.5 (9.5)	0.800
Effective communication Subdim	0.4 (9.4)	2.5 (8.9)	0.300
Self-awareness competence	0.8 (3.1)	0.8 (2.6)	> 0.900
Self-acceptance competence	0.1 (3.0)	0.1 (3.0)	> 0.900
Self-management competence	0.5 (3.1)	0.4 (3.4)	> 0.900
Search for meaning in life competence	0.1 (3.4)	0.8 (3.8)	0.400
Orientation to excellence competence	0.8 (3.4)	1.2 (3.2)	0.500
Proactivity. Self-discipline competence	0.4 (3.4)	0.7 (2.9)	0.700
Cooperative work competence	− 0.3 (3.6)	− 0.3 (3.6)	> 0.900
Work environment management comp	− 0.7 (3.8)	− 0.4 (3.5)	0.700
Orientation towards results competence	0.0 (3.4)	0.3 (3.3)	0.600
Verbal communication competence	0.0 (3.3)	0.2 (3.2)	0.700
Paraverbal and non-verbal communication competence	0.8 (3.7)	1.6 (3.6)	0.300
Communication for encounter comp	− 0.4 (3.5)	0.7 (3.1)	0.100

[a] A comparison of mean differences before and after the course (post-test/pre-test)

skills are fundamental, as they contribute not only to professional excellence but also to success and fulfilment in life (Feraco et al., 2023).

This underscore two key points: 1) the importance of generic competencies as an essential component of a comprehensive education of university students; 2) the need to develop innovative methodologies and tools that support their acquisition and development, as well as new approaches for evaluation in higher education (Ruiz-Morales et al., 2017).

Soft skills or transversal competencies, are critical to professional excellence, influencing not only the effective execution of tasks and responsibilities but for career advancement and the identification of emerging talent (Mwita et al., 2023; Olaz, 2018; Tripathy, 2021).

Given these realities, the development of generic competencies is an essential part of a comprehensive and complete education (Martínez & González, 2019; Martínez et al., 2019; Pugh & Lozano, 2019). In recent years, an increasing number of universities have introduced programs aimed at developing transversal competencies; however, few institutions have incorporated specific, evaluated courses into their curricula. Despite this, the focus on fostering these core competencies remains limited compared to the emphasis placed on technical skills and competencies (Mwita et al., 2023; Tang, 2020).

This study provides an evaluation of five distinct courses designed to further the development of generic intrapersonal and interpersonal competencies among university students. The main research hypotheses of the study refer to the self-perceived impact of these courses on the development of generic competencies on the part of university students.

A summary of the findings in terms of the proposed research hypotheses is provided in Table 17, below:

The results of Study 1 confirmed hypothesis *H1*, and partially confirmed hypotheses *H2* and *H3*. The program evaluated demonstrated a greater impact on perceived intrapersonal competencies compared to interpersonal competencies. Within the interpersonal dimension, "Teamwork" showed, as none of the associated competencies exhibited any improvement after the application of the program (there was even a slight decline in the competence

Table 17 Results of the proposed research hypotheses

Study	Hypothesis	Result
1 PSC	*H1*	Confirmed
	H2	Partially confirmed
	H3	Partially confirmed
2 FUA + Leadership and Personal Development	*H4*	Confirmed
	H5	Confirmed
	H6	Confirmed
3 FUB + Leadership and High-performing Teams	*H7*	Confirmed
	H8	Refuted
	H9	Partially confirmed

"Cooperative Work"). One possible explanation for the greater impact on intrapersonal competencies is the inclusion of individual mentoring sessions, which complemented classroom work focused on the development of these competencies. Furthermore, student perceptions may help explain the lower scores in the "Teamwork" dimension. The course may have raised students' awareness of their own limitations, and the challenges associated with effective teamwork. Qualitative feedback from both professors and students supports this suggestion: first year students appeared to believe that groupwork is the equivalent of teamwork and were thus confident in their own ability. This may explain why the subdimension "Teamwork" scored highest in the initial perception of students, and as they became aware of the true meaning of this competence their self-perceptions became more realistic and thus declined. To clarify this point, it is necessary to contrast changes in perception with changes in execution.

Certain findings in terms of faculty and gender should be noted. Firstly, the Advanced Polytechnical School (encompassing engineering and other highly technical degree programs) scored negatively for "Teamwork". In contrast, the Faculty of Experimental Sciences (encompassing Pharmacy, Biomedicine, Biotechnology and Biomedical Engineering) exhibited the most significant improvements in both intrapersonal and interpersonal dimensions. This discrepancy may be attributed to the differences in student profiles, as well as their perception and willingness to acquire these types of competencies.

The results of Study 2 confirmed hypotheses *H4*, *H5* and *H6*. It is important to note that while the FUA + Leadership and Personal Development programs demonstrated effectiveness in enhancing intrapersonal competencies, they did not yield significant changes in the interpersonal competencies of "Cooperative Work" and "Work Environment Management". These results are, to a certain degree, to be expected, given that these competencies are not the specific focus of either of these programs. By contrast, competencies of the subdimension "Effective Communication" do show significant development, in line with the content of the programs.

Finally, Study 3 validated the effectiveness of the FUB + High-performing Teams programs in the development of intrapersonal competencies (*H7*), while the hypothesis on interpersonal competence "Teamwork" (*H8*) was not confirmed. This lack of confirmation may be attributed to the unusual high initial student self-perception of the competence "Teamwork". This inflated perception likely stemmed from a misunderstanding, with students equating teamwork to the mere distribution of tasks; a misperception that was subsequently addressed and corrected through the program. Finally, the limited sample size made it impossible to analyse the influence of faculty (*H9*), and it was only possible to corroborate that gender had no significant influence on the effectiveness of the program.

Overall, the findings indicate that courses designed to develop personal transversal/generic competencies, when incorporated into degree programs, are effective. This conclusion aligns with previous research (Crespí & García-Ramos., 2021). One key factor contributing to the success of these programs is the use of active teaching methodologies which permit the student to be the protagonist of their own learning (Ruiz-Morales et al., 2017). Additionally, individual mentoring sessions also appear to be an important element in enhancing the effectiveness of programs aiming to develop personal competencies (Brown et al., 2023; Crespí & López., 2023; Johnson et al., 2022). Regarding the influence of gender

and faculty, the results of our research are inconclusive, making it impossible to confirm whether these factors significantly impact the effectiveness of these programs.

5 Conclusions, limitations and future research

There are a few curricular modalities available to develop transversal competencies, ranging from optional or extracurricular courses with diverse objectives to compulsory courses specifically designed to cultivate these skills. The present study focussed on this final modality and courses designed exclusively to develop intrapersonal and interpersonal competencies.

The principal conclusion derived from the three studies presented is that courses explicitly designed for this purpose are most effective in developing transversal/generic competencies.

A second conclusion is that courses tend to have a greater impact on intrapersonal competencies than interpersonal skills. This discrepancy may be attributed to the effectiveness of mentoring programs in enhancing these specific competencies.

A third conclusion is that the dimension "Teamwork" shows the least overall improvement. This may be due to the initially high-self perception of students regarding their teamwork skills, leaving less margin for perceived improvement. It is also important to note that students associate the notion of groupwork with teamwork, concepts which are in fact quite different. In focussing on the development of this competence, the result may be limited perceived improvement or even a decline in perceived competence.

The present study has several limitations, including: 1) the use of a quantitative methodology for the study of students'perception of their own development of competencies limits the interpretation of the results; 2) the use of a quasi-experimental design, without a control group, limits the causal inferences of the study. There may be student variables (such as previous experiences or personal motivation) that affect the results. In addition, the generalization of these results to other universities with curricula where these competencies are worked on or are intended to be worked on is limited; 3) evaluation through self-reporting and self-perception has an inherent risk of bias and it is therefore recommended to triangulate the students 'self-perceived development with input from professors and mentors and even through specific tasks; 4) the reported self-perception of acquired competencies should be contrasted with an evaluation of performed tasks using an appropriate methodology. Self-perception is associated with self-efficacy (Bandura, 1986) and can only be considered an indirect indicator of excellence in execution.

For the future, for the implementation of these type of courses in other universities the following action are recommended: 1) to determine the soft skills or transversal competencies to be developed; 2) to determine the year or years in which the courses should be imparted; 3) to determine the most appropriate teaching methodologies to be used. The experiential learning methodology proposed by Kolb (2015) is particularly appropriate for this type of competencies; 4) to determine the ideal spaces for the courses to be imparted; 5) to recruit a faculty of professors with expertise in developing these competencies; 6) to design an appropriate assessment methodology; 7) to create reliable questionnaires and instruments to evaluate the effectiveness of the programs.

As a prospective direction for future research, several approaches are considered valuable: 1) employing a mixed methodology (qualitative and quantitative) to study student's

perception of their own competencies development, would help to overcome the biases associated with self-perception questionnaires; 2) the use of longitudinal designs to assess the long-term retention of competencies acquired throughout the academic career; 3) incorporating control groups to obtain more robust results on the efficacy of this type of curricular design in the development of transversal competencies; 4) the inclusion of performance-based assessments or observable behaviours to more accurately measure the competencies.

In any case, it is essential that institutions of higher learning rigorously consider how these transversal competencies can be developed effectively and to evaluate the results to improve educational outcomes.

Supplementary Information

The online version contains supplementary material available at https://doi.org/10.1007/s44322-025-00035-y.

Supplementary Material 1.

Acknowledgements
This research is part of the research project"La formación integral. Estudio del impacto de las mentorías y la educación en virtudes y competencias"of the Call for Research Projects of the year 2024 financed by Universidad Anáhuac de Querétaro.
We would like to thank the Universidad Francisco de Vitoria (Instituto de Acompañamiento and Facultad de Educación) and the Universidad Anáhuac de Querétaro (Vicerrectoría de Formación Integral) for their commitment to contribute to the development of this type of research project that fosters research and training in transversal competencies from its ideology and pedagogical model that advocate for an integral formation.

Non-financial interests statements
The authors have no relevant financial or non-financial interests to disclose.
The authors have no competing interests to declare that are relevant to the content of this article.All authors certify that they have no affiliations with or involvement in any organization or entity with any financial interest or non-financial interest in the subject matter or materials discussed in this manuscript.

Authors'contributions
All the authors participated in the elaboration of the research and the elaboration of the article. PC directed the research and the article. PC, JL and RV mainly carried out the introduction of the article and explanation of programs together with the objectives and hypotheses of the research. They also carried out the sample collection. PC was in charge of the questionnaire. JRB led the analysis of results and main conclusions. All authors elaborated the discussion and main conclusions.

Funding
This research has received funding of 4,000 € by Universidad Anáhuac de Querétaro.

Data availability
All research data will be provided upon request.

Declarations

Ethics approval and consent to participate
Informed consent was obtained from all individual participants included in the study.
Adhering to the guidelines of the Ethics Committee, an informed consent section was included in the questionnaire, indicating to students the objectives of the research and requesting their express, voluntary consent to participate.

Consent for publication
Not applicable this section.

Received: 27 June 2024 Accepted: 27 March 2025
Published online: 26 May 2025

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