Educación XX1
ISSN: 1139-613X
ISSN: 2174-5374
educacionxx1@edu.uned.es
Universidad Nacional de Educación a Distancia
España

Aperribai, Leire; Morais, María Fátima; Cortabarria, Lorea; Machado, Fátima
Barriers to personal creativity in Spanish and Portuguese university students
Educación XX1, vol. 27, núm. 1, 2024, Enero-Junio, pp. 81-104
Universidad Nacional de Educación a Distancia
Madrid, España

DOI: https://doi.org/10.5944/educxx1.35761

Educación XX1
ISSN: 1139-613X · e-ISSN: 2174-5374

Barriers to personal creativity in Spanish and Portuguese university students

Barreras para la creatividad personal en estudiantes universitarios españoles y portugueses

Leire Aperribai [1*]
María Fátima Morais [2]
Lorea Cortabarria [1]
Fátima Machado [2]

[1] University of the Basque Country UPV/EHU, Spain
[2] University of Minho, Portugal
* Corresponding author. E-mail: leire.aperribai@ehu.eus

How to reference this article:

Aperribai, L., Morais, M. F., Cortabarria, L., & Machado, F. (2024). Barriers to personal creativity in Spanish and Portuguese university students. *Educación XX1*, *27*(1), 81-104. https://doi.org/10.5944/educxx1.35761

Date of received: 11/10/2022
Date of acceptance: 25/06/2023
Published online: 02/01/2024

ABSTRACT

In the 21st century, the university should be an explicit space for developing students' creative skills. The literature on creativity in Higher Education is scarce, particularly on the students' perceptions. Thus, this study aims to analyze barriers perceived by Spanish university students compared to Portuguese students to better understand the obstacles found at this educational level. For this purpose, the Inventory of Barriers to Personal Creativity was adapted to Spanish university students. The adaptation process from the Portuguese to the Spanish version followed a forward-backward procedure, and cross-validation analysis was used to study the factor structure. The four-factor structure was maintained, but only 36 of the 44 items were retained in the Spanish version. All factors

showed good or very good reliability and explained an important amount of the variance. Some cultural differences between the Portuguese and Spanish versions appeared because Spanish university students perceived fewer barriers to develop creativity. In both cultures, gender and curricular areas' differences were found, but with some specificities. The study concluded that the instrument has an adequate structure and refers to a specific construct maintained in different cultures. Also, both versions could be applied for further broader and more representative cross-cultural studies, contributing to developing new studies on creativity in Higher Education.

Keywords: barriers, creativity, Higher Education, students, intercultural

RESUMEN

En el siglo xxi, la universidad debería ser un espacio explícito para el desarrollo de las habilidades creativas del estudiantado. La literatura sobre la creatividad en la Educación Superior es escasa, particularmente sobre las percepciones del estudiantado. Así, este estudio pretende analizar las barreras que percibe el estudiantado universitario español, en comparación con el portugués, para comprender mejor los obstáculos que se encuentran en este nivel educativo. Para ello, se ha adaptado el Inventario de Barreras para la Creatividad Personal a estudiantes universitarios españoles. El proceso de adaptación de la versión portuguesa a la española ha seguido un procedimiento *forward-backward* y se ha realizado un análisis de validación cruzada para estudiar la estructura factorial. Se ha mantenido la estructura de cuatro factores, pero en la versión española, solo se han retenido 36 de los 44 ítems. Todos los factores han mostrado una fiabilidad buena o muy buena y han explicado una parte importante de la varianza. Entre las versiones portuguesa y española han aparecido algunas diferencias culturales debidas a que las y los estudiantes universitarios españoles percibieron menos barreras para desarrollar la creatividad. En ambas culturas se han encontrado diferencias relacionadas con el género y las áreas curriculares, pero con algunas especificidades. El estudio ha concluido que el instrumento tiene una estructura adecuada y se refiere a un constructo específico, que se mantiene en las diferentes culturas. Además, ambas versiones podrían ser aplicadas para posteriores estudios transculturales más amplios y representativos, lo que contribuiría al desarrollo de nuevos estudios sobre la creatividad en la Educación Superior.

Palabras clave: barreras, creatividad, Educación Superior, estudiantes, intercultural

INTRODUCTION

Creativity is a 21st-century condition for personal and social success (Bracci, 2022). The depth of knowledge, expertise in a domain or task, and high effectiveness in algorithmic procedures—essentially logical or routinary—are no longer sufficient. Characteristics such as ambiguity, unpredictability, and an almost permanent adaptation to change are required to face daily challenges (Schwab & Davis, 2018). Skills for creative problem-solving are recognized as essential to the innovation needed and reclaimed at this turn of the century. Promoting individuals' creative potential in all contexts is imperative to manage both contemporaneity and the future (Nakano & Weschler, 2018).

The definition of creativity has not been simple for a century of research, as it is a complex and multifaceted concept (Kaufman & Glăveanu, 2019; Morais, 2013). However, a consensus on a standard definition, initially pointed out by Runco and Jaeger (2012), continues to be accepted by most authors (Romo, 2019). This consensus refers to the concurrency of two criteria: the originality and effectiveness of ideas or products. Originality, difference, and rarity imply creativity, but the reverse is not true; the difference must serve the meaning, usefulness, and adequacy of the idea or product created in each socio-historical moment. This is also true for the conceptualization of creativity assumed in this paper. On the other hand, creativity requires the confluence of cognitive, emotional, motivational, and social dimensions. Multiplicity and confluence are found in the integrative explanatory models of the concept according to Amabile (2018) or Sternberg and Lubart (1995). It is also known that creativity has emerged in research as modifiable and that individuals' creative potential can be promoted (Runco, 2014, 2018).

Higher Education emerges as a fundamental educational stage for the existence of future qualified professionals in all occupational contexts. For most students, this stage corresponds to the last formative level before facing the current world's challenges (Barnett, 2020). Higher Education must, therefore, be able to take advantage of the characteristics offered by Generation Z (individuals born in the 90s) that fill universities daily. The individuals of this generation are motivated to produce an impact, interested in the surrounding and current problems, and dedicated to creative tasks in their leisure time (Seemiller, 2017). The university should be an explicit space that develops and demands students' creative skills (Jahnke & Liebscher, 2020; Vilarinho-Pereira & Fleith, 2021).

A creative climate provides conditions that facilitate the expression of creativity (Craft, 2005). This climate must also be created and managed intentionally in universities so that future professionals learn to be innovative (Matraeva et al., 2020). How could a climate that facilitates creativity in the classroom be operationalized? Several authors have consensually reported a diversity of characteristics. Among

them are emphasized the importance of informative feedback offered to the students about their work, explicit appreciation of creativity, and the relationship between the contents taught and students' experiences and interests. The appeal to interdisciplinarity, reflection, criticism, and associations of inherent information with remote domains has also been underlined. The teacher, in turn, should cultivate student characteristics such as self-confidence, curiosity, persistence, sense of humor, responsibility, or autonomy. The teacher should also help students deconstruct emotional blocks, such as fear of making mistakes, being different, being criticized, or feeling inferior. Thus, the teacher should be more than a collector and transmitter of knowledge, guiding and encouraging students to rebuild their knowledge and generate creative resolutions to problems. Professional competence to manage a creative environment in the classroom should also be added to the diversity of techniques used, the activities and materials that encourage the multiplicity and flexibility of ideas, as well as a passion for what they do as teachers (Beghetto, 2019; Cropley & Cropley, 2009). However, there are still several obstacles in universities to operationalizing and applying creative tools in management tasks, teaching-learning processes, and assessment (Fleith, 2019). The university continues to reproduce traditional teaching models, in which creative problem-solving in everyday life and the perspective of the future are not sufficiently valued. Objectives and methodologies centered on teachers and convergent and immediate resolutions and responses remain predominant (Cropley & Cropley, 2009; Laguía et al., 2019). Also, innovation in pedagogical practices is not always well accepted, making it difficult for teachers to use alternatives that promote creativity. In the university context, there is a fear of being different, innovating, and not meeting traditional expectations (Egan et al., 2017).

Some research has been carried out on teachers and students to study perceptions about creativity in Higher Education. Particularly regarding students, research has been developed for over a decade, some organized in publications of volumes on creativity in higher education, as in the book edited by Jackson and colleagues in 2006. This book mainly addresses studies analyzing qualitative data (from interviews or questionnaires created for this purpose). It also presents students' conceptions, needs, or obstacles to teaching creative learning at the university. Other more recent studies related to university students' and professors' thoughts about Higher Education are emerging, sometimes considering only one course in Higher Education or analyzing various courses and/or curricular areas, as well as different cultures (e.g., Matos et al., 2018; Morais & Almeida, 2019; Pereira-Guizzo et al., 2021).

In these and other investigations, barriers to creativity perceived by students have been highlighted: specifically, traditional and rigid teaching and assessment methodologies; lack of time and opportunities; stress in the academic day-to-day;

conservatism and resistance to students' novelty and lack of motivation; social criticism related to authoritarianism, intolerance of error, undervaluing differences or fantasy; the scarcity of material resources; the high number of students in the classroom (Alencar & Fleith, 2010; Matos et al., 2018). A dichotomy has emerged from these data. On the one hand, more internal barriers to the individual are pointed out, such as shyness, low self-confidence, or difficulty taking risks; on the other hand, the social context is responsible for inhibitors to creative expression. These characteristics are often interdependent and interact across a life path that begins in childhood (Morais & Almeida, 2019).

The perception of barriers to creativity, also in the university, has shown differences related to gender and curriculum areas. Regarding gender, in Brazilian studies, girls claimed their creativity to be more conditioned by social repression (Alencar, 2001), and shyness was mentioned more often (Alencar et al., 2003) compared to boys. As for Brazilian boys, they indicated the lack of motivation as the most significant barrier to creative expression (Alencar, 2001). In Portugal, males also reported more substantial barriers associated with a lack of motivation (Morais & Almeida, 2019). However, contrary to Brazilian data, in this study, boys stated that they were more frequently targets of social repression than girls. It should be noted that these studies, in Portugal and Brazil, referred to the perceptions of obstacles to creativity through the scale that will be the subject of this study. In this same line, Pereira-Guizzo and colleagues (2021) found being female was a predictor of barriers linked to shyness in engineering courses. Also, in the study of Matos and colleagues (2018), girls appeared more sensitive to the quality of the learning climate to promote creativity.

In Spain, although it has been found that creativity correlates positively with academic university performance (Peña, 2019), the study of creativity in this educational stage has been minimal. There is evidence that teachers and students of different Degrees of public universities in Andalusia encountered barriers to promoting entrepreneurship, partly due to the lack of creativity (Ruiz-Ruano et al., 2019). In addition, the lack of development of creativity in the university has been shown to impact the assessment of professional creativity skills received by students participating in training practices in different entities outside the university (Mareque & De Prada, 2018). There is also evidence that students of the Pedagogy Degree perceive teaching practices and methods as unfavorable to developing creative competence in the university (Raso & Santana, 2019). However, due to the limitations of studies, there is no evidence in Spain of student-perceived barriers to developing creativity in different university Degrees. Concerning the curricular area, Cropley and Cropley (2009) found more openness to creativity in Art students. However, Morais and Almeida (2015) reported fewer barriers to creative expression in the Social Sciences/Humanities compared to Arts and Sciences and Technology,

coinciding with the study of Ribeiro and Fleith (2007). Joly and Guerra (2004) also identified differences between Higher Education Degrees, finding more barriers to creativity related to shyness in Psychology than in Administration and Pharmacy. In turn, compared to Computing, the lack of motivation was highlighted as the most significant barrier to creativity in Pharmacy.

However, the literature on creativity in Higher Education has been scarce for the last two decades, particularly on students' perceptions (Egan et al., 2017), indicating the need for more research on this subject. Consequently, there are still few validated instruments to assess the barriers perceived by university students (Alencar & Fleith, 2010; Morais & Almeida, 2019). In this sense, Alencar (1999) created the Inventory of Barriers to Personal Creativity in Brazil. This inventory used the stem phrase "I would be more creative if..." to be completed by university students, resulting in an inventory comprising 66 items structured in four factors: Inhibition and Shyness, Lack of Time and Opportunities, Lack of Motivation, and Social Repression. The instrument presented good psychometric characteristics. In Portugal, Morais and colleagues (2014) adapted the original inventory to Portuguese university students with a similar structure but a shorter version than the Brazilian version. The factors remained the same, but some items were eliminated, leading to a 44-item instrument. The psychometric characteristics were also good, with an adequate level of internal consistency and explained variance. Therefore, the research line on the Inventory of Barriers to Personal Creativity has led to several characterization and differentiating studies on the barriers perceived by university students. This study aims to study barriers to personal creativity in Spanish university students. For this purpose, the inventory had to be adapted to the Spanish population. Understanding Spanish students' opinions of the most favorable and unfavorable conditions for developing and expressing creativity in Higher Education could help reflect and operationalize the gaps and possibilities to promote creativity.

METHODS

Participants and procedure for the scale's adaptation

The adaptation process of the Spanish version of the Inventory of Barriers to Personal Creativity (Inventario de las Barreras para el Desarrollo de la Creatividad Personal – Versión Española, hereinafter IBCP-VE) followed a forward-backward procedure performed by two experts in the field of creativity, both with a background in Portuguese and Spanish languages. The process involved three phases. In the first phase, one expert translated the items from Portuguese to Spanish; in the second phase, the other expert (who was one of the authors of the original version of the scale) translated the items from Spanish to Portuguese; in the third phase, the two experts agreed on the Spanish version. Moreover, a fluent Portuguese/Spanish speaker was asked to compare the two versions to review whether items meant the same in the two scales. After following the experts' and fluent speakers' recommendations, the final version was defined for data collection. The original response format was maintained, so the scale comprised 44 items to be rated on a five-point Likert response format (ranging from 1 = *Totally disagree* to 5 = *Totally agree*). The instructions for participants were the same as for the Portuguese version.

Participants and procedure for the empirical validation of the instrument

The sample consisted of 719 students aged between 17 and 63 years (M = 21.11; SD = 3.98), of whom 484 were women, 226 were men, and 9 did not specify gender. The students were enrolled in various public (n = 201) and private (n = 518) universities of the Basque Country. The majority, 81.5% (n = 586), were studying Social Sciences, but students of Health Sciences (n = 65), Engineering and Architecture (n = 30), Arts and Humanities (n = 26), and Sciences and Technology (n = 12) also participated. Students were invited to participate in the study voluntarily and anonymously. The instrument was sent to them through mailing lists after obtaining institutional permissions. Previously, the research received the university's Ethical Committee's approval (M10_2021_226).

Instrument

The Portuguese version of the Inventory of Barriers to Personal Creativity (Morais et al., 2014) was adapted in this study. The Portuguese version is rated on a five-point Likert scale (1 = *Totally disagree*, 5 = *Totally agree*), composed of 44

items. The scale has a four-factor structure composed of items assessing barriers to developing creativity found by university students. The four factors are: Inhibition/Shyness (α = .91), Lack of Motivation (α = .86), Lack of Time/Opportunities (α = .83), and Social Repression (α = .81).

Data analysis

Firstly, we studied the factors' reliability and the explained variance. We calculated the ORION reliability estimates (Phi-information oblique EAP scores) and the rotated factors' explained variance for the four factors with the Factor Analysis program.

Secondly, we performed a cross-validation study to examine the instrument's factorial structure. The first step involved conducting an exploratory factor analysis (EFA) for categorical variables in a randomly selected subsample of 360 participants. We applied the four-factor model (following the Portuguese version) with the robust unweighted least squares (RULS) estimation method based on polychoric correlations (a technique for estimating the correlation between two hypothesized normally distributed continuous latent variables from two observed ordinal variables) and the robust promin rotation (a method for oblique factor rotation) to determine the factor structure. We used the Factor Analysis software to perform the EFA.

Thirdly, we conducted a confirmatory factor analysis (CFA) for categorical variables based on the polychoric correlation matrix in a subsample that included the remaining participants (*N* = 359). We used the MPlus v8 software for the CFA, as the previous program does not provide this option.

Finally, we compared Spanish and Portuguese versions of the scale by analyzing the items' means and standard deviations and the reliability estimates obtained in both versions. We also compared gender and cultural differences related to curricular areas for all factors. For the Spanish version, except for the reliability estimates, we calculated the statistics with IBM SPSS v26 (whereas for the Portuguese version, the IBM SPSS v22.0 was used).

RESULTS

Reliability and explained variance of factors

All factors showed a good or a very good reliability estimate. They all explained an important amount of the variance (see Table 1).

Table 1
Reliability of Phi-information oblique EAP scores (Orion) and explained variance of rotated factors (N = 719)

Estimate	Factor 1	Factor 2	Factor 3	Factor 4
ORION reliability	.95	.91	.92	.89
Eigenvalue	7.646	4.802	4.181	2.521
Percentage of explained variance	21.24	13.34	11.61	7.00
Factor Determinacy Index	.977	.956	.957	.943

Factor structure

Firstly, an EFA was applied to the first subsample. The first analysis revealed eight items with commonalities lower than .35 and/or with a complex structure (with loadings higher than .30 on two factors). Therefore, those items (7, 10, 13, 16, 29, 33, 36, and 37) were excluded, and the EFA was carried out again with 36 items (see Table 2). In this case, the factor analysis was considered adequate because the determinant of the matrix was lower than .0001, Bartlett's homoscedasticity statistic was significant (χ^2 = 3985.4; *df* = 630; *p* = .00001), and the Kaiser-Meyer-Olkin sample adequacy test score was very good (KMO = .90601). The EFA yielded a four-factor structure with a very good fit (RMSEA = .03; CFI = .99).

The first factor, called Inhibition/Shyness (IS), included 14 items with barriers related to these personality variables (inhibition and shyness). The second factor, Lack of Motivation (LM), included 10 items and referred to motivational variables. The third factor, Lack of Time/Opportunities (LTO), was related to eight items involving environmental variables that hinder developing creativity in practice due to a lack of time or opportunities. The fourth factor, called Social Repression (SR), was composed of four items including the environmental barriers related to social situations that restrict the development of creativity. All the factors explained an important amount of the variance, and all their items presented loadings higher than .30 on a single factor (see Table 2).

Table 2

Exploratory Factor Analysis. Rotated factor structure of the IBCP-VE (N = 360)

	Item	Factor Loadings			
		F1 - IS	F2 – LM	F3 –LTO	F4 – SR
1	I would believe more in myself	.462	.034	.226	-.038
2	I would be less shy about putting forward my ideas	.684	-.057	.023	-.132
3	I would be more spontaneous	.609	.052	-.011	-.037
4	I would not be so insecure	.869	-.038	-.010	-.129
5	I would be prepared to take more risks	.548	.152	.067	-.096
6	I would not be afraid of contradicting people	.789	.042	-.167	.036
8	I would not be so lazy	-.118	.747	-.210	.037
9	I would have more motivation to create	-.018	.573	.072	.026
11	I would not be afraid of confronting the unknown	.624	.081	-.030	.072
12	I would recognize my creative work more	-.029	.045	.619	.019
14	I would not be afraid of facing criticism	.833	-.029	-.021	-.024
15	I would not be afraid to express what I think	.866	.016	-.103	.112
17	I would not be afraid to carry out my ideas	.732	.004	.058	.114
18	I would be more extrovert	.686	.008	.078	-.086
19	I would not feel inferior to others	.792	-.101	.018	.055
20	I would not be afraid of being misunderstood	.745	-.078	.080	.093
21	I would have more time to develop my ideas	-.070	.119	.556	.070
22	I would not be limited by my family	.091	.182	-.191	.633
23	I would have more opportunities to put my ideas into practice	-.074	.083	.515	.252
24	I would not be afraid of what others will think of me	.856	-.037	-.022	.004

	Item	Factor Loadings			
		F1 - IS	F2 – LM	F3 –LTO	F4 – SR
25	I would have more opportunities to explore my potential	.115	.086	.528	.123
26	I would not have received such a strict education	-.017	-.061	.017	.833
27	I would not have been limited by my professors	-.101	-.141	.117	.899
28	I would have had more opportunities to be wrong without being considered stupid or an idiot	.162	.010	.217	.442
30	I would be more persistent	-.068	.687	-.020	.120
31	My ideas would be valued more	.091	.145	.419	.149
32	There would be more cooperation between people	.034	.049	.649	-.039
34	People would value my new ideas more	.006	-.169	.935	-.002
35	There would be more respect for the differences between people	-.078	-.069	.872	-.063
38	I would be more dedicated to what I do	-.078	.756	-.005	.001
39	I would have more energy	.099	.551	-.058	.077
40	I would be richer in ideas	.137	.539	.142	-.118
41	I would concentrate more on what I do	-.118	.901	-.036	-.008
42	I would be more curious	.022	.780	.016	-.016
43	I would be more enthusiastic	-.016	.768	.063	-.039
44	I would have more knowledge	.085	.492	.241	-.182
Eigenvalue		7.615	4.931	4.021	2.487
Percentage of explained variance		21.15	13.70	11.17	6.91
ORION reliability estimate		.95	.92	.91	.88

Comparison with the Portuguese version

Reliability estimates were similar to or better than in the Portuguese version. However, it should be mentioned that robust estimates were used with the Factor Analysis program for the Spanish version. In general, items' means and standard deviations were lower in the Spanish version compared to the Portuguese one. Therefore, Spanish university students perceive fewer barriers than Portuguese university students (see Table 3).

As for the items excluded from the Spanish version, two items were related to a lack of initiative (Items 7 and 13) and did not correlate sufficiently to the LM factor. Another two items were related to a lack of time (Item 10) and the role of professors (Item 16). Neither of them loaded well on the LTO factor. Moreover, the SR factor in IBCP-VE lost 4 items from the Portuguese version related to criticism (Items 29 and 37), acceptance of fantasy (Item 33), and authority (Item 36). Thus, in the Spanish version, the SR factor is more related to external limits (Items 22, 26, and 27) and tolerance of errors (Item 28) and it seems to be more sensitive to cultural differences. Finally, whereas the Portuguese version comprises 44 items, the Spanish one presents 36 items (see Table 3).

Table 3

Compared items' means and standard deviations, and factors' reliability estimates of Portuguese (Morais et al., 2014) and Spanish versions of the IBCP instrument

	Item	Portuguese version (*N* = 582)			Spanish version (*N* = 719)		
		M	SD	Alpha	M	SD	Orion
	Inhibition/Shyness			.91			.95
1	I would believed more in myself	3.61	1.27		3.02	1.08	
2	I would be less timid in putting forward my ideas	3.61	1.32		2.74	1.27	
3	I would be more spontaneous	3.43	1.25		2.52	1.19	
4	I would not be so insecure	3.46	1.32		2.83	1.25	
5	I would be prepared to take more risks	3.71	1.16		2.76	1.10	
6	I would not be afraid of contradicting people	2.86	1.34		2.29	1.32	
11	I would not be afraid of confronting the unknown	3.11	1.28		2.60	1.23	
14	I would not be afraid of facing up to criticism	3.16	1.29		2.66	1.29	
15	I was not afraid to express what I think	3.18	1.29		2.61	1.33	
17	I would not be afraid of carrying out my ideas	3.28	1.21		2.59	1.22	
18	I would be more extroverted	2.92	1.31		2.34	1.26	
19	I would not feel inferior to others	2.56	1.36		2.10	1.42	
20	I would not be afraid of being misunderstood	2.95	1.23		2.15	1.38	
24	I would not be afraid of what others will think about me	2.89	1.33		2.44	1.35	
	Lack of Motivation			.86			.91
7	(I would not be so accommodating)	(3.01)	(1.35)		---	---	

	Item	Portuguese version (*N* = 582)			Spanish version (*N* = 719)		
		M	SD	Alpha	M	SD	Orion
8	I would be less lazy	3.04	1.46		2.64	1.30	
9	I would had more motivation to create	3.46	1.24		3.08	1.03	
13	(I would practice the habit of looking for new ideas more)	(3.64)	(1.12)		---	---	
30	I would be more persistent	3.48	1.17		2.59	1.17	
38	I would be more dedicated in what I do	3.28	2.18		2.59	1.14	
39	I would had more energy	3.30	1.32		2.49	1.24	
40	I would be richer in ideas	3.23	1.29		2.60	1.20	
41	I would be more concentrated on what I do	3.35	1.27		2.80	1.10	
42	I would be more curious	3.16	1.33		2.49	1.28	
43	I would be more enthusiastic	3.27	1.30		2.74	1.13	
44	I would had more knowledge	3.36	1.30		2.71	1.21	
	Lack of Time/Opportunities			.83			.92
10	(I would have more time)	(3.87)	(1.24)		---	---	
12	I would had greater recognition of my creative work	3.55	1.17		2.84	1.14	
16	(I would have been more stimulated by my professors)	(3.45)	(1.22)		---	---	
21	I would had more time to develop my ideas	3.70	1.17		2.72	1.13	
23	I would had more opportunity of putting my ideas into practice	3.48	1.15		2.72	1.10	

	Item	Portuguese version (*N* = 582)			Spanish version (*N* = 719)		
		M	SD	Alpha	M	SD	Orion
25	I would had more opportunity to explore my potential	3.55	1.09		2.96	1.04	
31	My ideas would be valued more	3.39	1.09		2.64	1.12	
32	There would be more co-operation between people	3.60	1.10		2.86	1.09	
34	People would valued my new ideas more	3.65	1.13		2.92	1.06	
35	There would be more respect of the differences between people	---	---		3.11	1.03	
	Social Repression			.81			.89
22	I would had not been limited by my family	1.99	1.20		1.32	1.41	
26	I would not had received such a strict education	1.88	1.13		2.14	1.45	
27	I would not had been limited by my professors	2.36	1.22		2.26	1.38	
28	I would had had more opportunities to be wrong without being considered stupid or an idiot	2.83	1.38		2.75	1.27	
29	(I would be less criticized)	(2.47)	(1.19)		---	---	
33	(I would have had greater acceptance of the fantasy in the way that I live)	(3.08)	(1.27)		---	---	
36	(I would be less authoritarian)	(2.07)	(1.07)		---	---	
37	(I would not be so critical about the ideas of others)	(2.47)	(1.14)		---	---	

Table 4

Means and standard deviations of factors as a function of gender in the Portuguese (Morais & Almeida, 2019) and Spanish versions of the IBCP

Portuguese version (*N* = 582)					Spanish version (*N* = 719)						
Factors	Male		Female		Factors	Male		Female		Unspecified	
	M	SD	M	SD		M	SD	M	SD	M	SD
F1-IS (*n* = 14)	42.83	11.89	46.02	12.05	F1-IS (*n* = 14)	33.12	13.39	36.89	12.12	33.78	15.34
F2-LM (*n* = 12)	40.79	9.95	38.75	1.79	F2-LM (*n* = 10)	26.82	7.76	26.65	8.00	28.44	7.07
F3-LTO (*n* = 10)	34.87	7.23	35.97	7.04	F3-LTO (*n* = 8)	23.87	7.13	25.94	6.88	26.67	2.69
F4-SR (*n* = 8)	19.97	6.05	18.60	6.38	F4-SR (*n* = 4)	9.54	3.90	10.03	3.96	10.11	4.01

Levene's Statistics revealed that the sample was homogeneous (p > .05) in all factors. The ANOVA test yielded statistically significant gender differences (between male and female) in Inhibition/Shyness (F(2, 718) = 7.05; p = .001) and Lack of Time/Opportunities (F(2, 718) = 7.02; p = .001), as revealed by post hoc tests. The effect sizes were medium for both factors, IS (Hedges' g = 0.301) and LTM (Hedges' g = 0.297). Therefore, women perceive more barriers due to personal variables related to inhibition and shyness than men (see Table 4), coinciding with the instrument's Portuguese version (Morais & Almeida, 2019). Also, coinciding with the data of the Portuguese students, in the Spanish version, women perceive more barriers than men for the LTO factor. Finally, results revealed non-significant gender differences in the LM and SR factors in the Spanish version, in contrast to the Portuguese version. Portugal's version shows that men are more "accommodated," "lazier," and less "dedicated to what they do." On the other hand, women have fewer "habits of searching for new ideas" (LM). In Portugal, men refer more significantly to a "rigid education" and higher self-evaluation about being "authoritarian" (SR) (Morais & Almeida, 2019).

Table 5

Means and standard deviations of factors as a function of curricular areas in the Portuguese (Morais & Almeida, 2015) and Spanish versions of the IBCP

Portuguese version (*N* = 582)										
Factors	**AH**		**ST**		**SS**		**HS**		**EA**	
	M	**SD**	**M**	**SD**	**M**	**SD**	**M**	**SD**	**M**	**SD**
IS	46.02	11.92	44.82	11.15	43.71	12.99	---	---	---	---
LM	39.88	11.04	40.68	9.05	38.26	11.29	---	---	---	---
LTO	36.13	7.51	35.49	6.34	35.13	7.57	---	---	---	---
SR	19.95	6.36	19.38	5.67	18.32	6.72	---	---	---	---
Spanish version (*N* = 719)										
Factors	**AH**		**ST**		**SS**		**HS**		**EA**	
	M	**SD**	**M**	**SD**	**M**	**SD**	**M**	**SD**	**M**	**SD**
IS	37.12	11.98	32.67	15.25	35.64	12.59	37.31	12.65	32.67	13.90
LM	27.38	8.99	26.08	5.52	26.89	7.71	25.66	8.71	25.47	9.74
LTO	25.08	7.99	23.92	6.91	25.45	6.89	24.85	7.48	24.00	7.11
SR	10.42	4.02	8.50	3.56	9.84	3.95	10.09	4.19	10.17	3.46

Concerning cultural differences related to curricular areas, the ANOVA test did not reveal statistically significant differences between the five studied areas (Social Sciences or SS, Health Sciences or HS, Engineering and Architecture or EA, Arts and Humanities or AH, and Sciences and Technology or ST). This result differs from that found in Portugal, where students of Arts and Humanities perceived more barriers related to Social Repression and Lack of Opportunities and Time to develop creativity than students of Human and Social Sciences. Students of Sciences and Technology found more barriers than students of Human and Social Sciences (Morais & Almeida, 2015). Regarding the means and standard deviations of the two versions, the Portuguese version obtained higher values than the Spanish version (see Table 5).

DISCUSSION AND CONCLUSIONS

This study aimed to analyze barriers to personal creativity among Spanish university students compared to Portuguese students. For this purpose, the Portuguese version of the IBCP was adapted to the Spanish population. The original four-factor structure of the instrument was maintained and validated. Considering the original Brazilian version (Alencar, 1999), the four factors continued to emerge, although the number of items was reduced from 66 to 36 in the Spanish version. Thus, the same structure of the construct remains intact in different cultures.

Nevertheless, some cultural differences between the Portuguese and the Spanish versions appeared. On the one hand, Spanish university students generally perceived fewer barriers to developing creativity. On the other hand, eight items did not seem adequate in the Spanish version. They were part of the factors LM (Items 7 and 13), LTO (Items 10 and 16), and mainly SR (Items 29, 33, 36, and 37). This was explicitly observed in the factors where gender differences appeared to be culturally different. Thus, regarding the factor Inhibition/Shyness, women in both countries showed higher inhibition, lower self-esteem and self-confidence, less fear of taking risks, and less initiative. Also, in both countries, women have consistently indicated more barriers related to Lack of Opportunity and Time. These results are in accordance with the literature. Since childhood, individuals of both genders shape behaviors and expectations that will produce a greater lack of internal and external opportunities in girls (Alencar & Sobrinho, 2017). There were no significant differences in Lack of Motivation and Social Repression in Spain, although, in Portugal, men expressed more barriers in these two factors. Perhaps in Portugal, the education standards for males are more inflexible, which conditions creative expression. Specifically, Portuguese students reported more barriers when admitting a “rigid education,” and they probably internalized more “authoritarian” behaviors (SR). These students also admitted being more “accommodated,” “lazier,”

and less "dedicated to what they must do" (Morais & Almeida, 2015). These results may be positive for education in Spain (compared to Portugal), although, in both countries, there are still warnings about the need for more incentives for women's self-confidence, initiative, and active participation. Higher Education should be particularly sensitive to this gap and not reinforce possible discriminatory gender patterns acquired in other life contexts. Higher Education can have a very positive influence not only on citizens' professional development but also on their personal and social development.

Concerning students' curricular area, the evidence has shown some courses or domains to be more and less favorable to their creativity development (Cropley & Cropley, 2009; Ribeiro & Fleith, 2007). Specifically in Portugal, country of comparison for the study carried out here students of Humanities and Social Sciences may deal more frequently than their classmates from other areas with aspects such as divergence of opinions, criticism, or perspectives beyond reality and are more involved in reflection and imagination in their academic daily life. Thus, compared to Science and Technology, these dimensions will be more operationalized in work proposals such as essays, debates, theatricalization, or interviews. For their part, Science and Technology students may be more focused on convergent thinking and the need for a single and verifiable response. Surprisingly, in the Portuguese study, there were more barriers in the Arts and Humanities area than in the area of Social and Human Sciences, but the former students may demand more expression of creativity and, thus, point out more obstacles (Morais & Almeida, 2015).

The absence of significant differences in the perception of barriers to creativity in university students found in this validation study may be a positive point for Higher Education in Spain. The average values of the barriers to creativity in Spain may be another positive sign, as Spanish values were almost always lower in all factors than those observed in Portugal with the same instrument. Portugal may have stricter cultural standards for boys (Morais & Almeida, 2019) and in general.

These differences reinforce the need for increasing the cross-cultural focus in research, namely comparative research (Moula, 2021). Specifically, there are cultural influences in creativity (Glaveanu, 2020). According to Shao et al. (2019), the impact of culture on creativity manifests in three ways: through the different conceptions (implicit and/or explicit) of creativity, the use of different creative processes (especially among individualist and collectivist cultures), and the use of different assessment instruments based on culture-related contents.

It should be mentioned that this study has some limitations. On the one hand, reliability estimates used in the two versions were different (Alpha and Orion). However, this should not be considered a substantial limitation because both versions' estimates seemed good or very good. On the other hand, the sample was not equally distributed according to gender, curricular areas, and the type of

university (public or private). This may have affected some results, mainly in which gender and curricular area differences were manifest. Therefore, a larger and more structured sample could improve these aspects of the study. Research should also consider collecting further data to obtain more validity evidence (i.e., external validity). Future research in Spain on the IBCP-VE with a more balanced sample should consider comparing genders and students of different curricular areas, private and public education students, students who start and finish Degree studies, and even undergraduate and graduate students. This instrument may also help to understand barriers to creativity in specific populations such as, for example, migrant students in Spain or people with special educational needs. Furthermore, this research line could help to study the integration or absence of creativity in the curricula of the different Degree studies in Spain. On a more international level, adapting the IBCP-VE to other languages and cultures would help develop intercultural and even cross-cultural research to study barriers to creativity in different educational systems and countries. Such studies would facilitate understanding the main obstacles that prevent university students from developing their creativity worldwide. Fostering creativity among future professionals should be a priority in this world, and understanding these barriers could help overcome this deficit.

Notwithstanding these limitations, the study concludes that the IBCP-VE is an adequate inventory and refers to a specific construct: the barriers university students perceive to developing their creativity. Another conclusion is that, despite some gender and curricular area differences, both the Portuguese and Spanish versions assess the same construct. Therefore, both versions could be applied in further cross-cultural studies. We trust that this research will contribute to curiosity and the development of new studies on creativity in Higher Education.

FUNDS

This work was funded by CIED – Research Centre on Education of the Institute of Education, University of Minho, projects UIDB/01661/2020 and UIDP/01661/2020, through national funds of FCT/MCTES-P CIED. It was also funded by the Education Department of the Basque Government, project IT1450-22, through grants to support the Activities of Research Groups of the Basque University System, 2022-2025.

ACKNOWLEDGMENTS

We would like to thank all participants in the study.

REFERENCES

Alencar, E. M. L. S. (1999). Barreiras à criatividade pessoal: desenvolvimento de um instrumento de medida. *Psicologia Escolar e Educacional, 3*(2), 123-132. https://doi.org/10.1590/S1413-85571999000200002

Alencar, E. M. (2001). Obstacles to personal creativity among university students. *Gifted Education International, 15*(2), 133-140. https://doi.org/10.1177/026142940101500203

Alencar, E. M. L. S., & Fleith, D. S. (2010). Inventário de praticas docentes para a criatividade. En E. M. L. S. Alencar, M. F. Bruno-Faria, & D. S. Fleith (Orgs.), *Medidas de Criatividade* (pp. 71 – 90). Artmed.

Alencar, E. M., Fleith, D. D. S., & Martinez, A. M. (2003). Obstacles to personal creativity between Brazilian and Mexican university students: a comparative study. *Journal of Creative Behavior, 37*(3), 179-92. https://doi.org/10.1002/j.2162-6057.2003.tb00832.x

Alencar, E. M., & Sobrinho, A. B. F. (2017). *A gestão da criatividade: cultivando a criatividade nas organizações.* Editorial Prisma. https://doi.org/10.18800/psico.201801.013

Amabile, T. M. (2018). Creativity in context: update to the social psychology of creativity. Taylor and Francis.

Barnett, R. (2020). Towards the creative university: five forms of creativity and beyond. *Higher Education Quarterly, 74*(5), 5 – 18. https://doi.org/10.1111/hequ.12231

Beghetto, R. A. (2019). Creativity in teaching. En J. C. Kaufman & R. J. Sternberg (Eds.), *The Cambridge handbook of creativity* (2ª ed., pp. 549-564). Cambridge University Press. https://doi.org/10.1017/9781316274385.030

Bracci, F. (2022). Creativity and educational practices. Towards a model of development of critical and creative skills. *Form@re — Open Journal Per La Formazione in Rete, 22*(1), 217-228. https://doi.org/10.36253/form-12955

Craft, A. (2005). Creativity in schools: Tensions and dilemmas. Routledge.

Cropley, A., & Cropley, D. (2009). *Fostering creativity: a diagnostic approach for higher education and organizations.* Hampton Press. https://bit.ly/3qbMPyx

Egan, A., Maguire, R., Christophers, L., & Rooney, B. (2017). Developing creativity in higher education for 21st century learners: a protocol for a scoping review. *International Journal of Educational Research, 82,* 21-27. https://doi.org/10.1016/j.ijer.2016.12.004

Fleith, D. S. (2019). The role of creativity in graduate education according to students and professors. *Estudos de Psicologia (Campinas), 36,* e180045. https://doi.org/10.1590/1982-0275201936e180045

Glaveanu, V. P. (2020). A sociocultural theory of creativity: bridging the social, the material, and the psychological. *Review of General Psychology, 24*(4), 335-354 https://doi.org/10.1177/1089268020961763

Jackson, N., Oliver, M., Shaw, M., & Wisdom, J. (Eds.). (2006). *Developing creativity in higher education: An imaginative curriculum.* Routledge.

Jahnke, I., & Liebscher, J. (2020). Three types of integrated course designs for using mobile technologies to support creativity in higher education. *Computers & Education, 146,* 10378. https://doi.org/10.1016/j.compedu.2019.103782

Joly, M. C. R. A., & Guerra, P. B. C. (2004). Compreensão em leitura e barreiras à criatividade: um estudo com universitários ingressantes. *PSICO, 35,* 151-159.

Kaufman, J. C., & Glăveanu, V. P. (2019). A review of creativity theories: what questions are we trying to answer? En J. C. Kaufman & R. J. Sternberg (Eds.), *The Cambridge handbook of creativity* (pp. 27–43). Cambridge University Press. https://doi.org/10.1017/9781316979839.004

Laguía, A., Moriano, J. A., & Gorgievski, M. J. (2019). A psychosocial study of self-perceived creativity and entrepreneurial intentions in a sample of university students. *Thinking Skills and Creativity, 31*, 44-57. https://doi.org/10.1016/j.tsc.2018.11.004

Mareque, M., & De Prada, E. (2018). Evaluación de las competencias profesionales a través de las prácticas externas: Incidencia de la creatividad. *Revista de Investigación Educativa, 36*(1), 203-219. https://doi.org/10.6018/rie.36.1.275651

Matos, H. T., Ramos, H. R., & Rodrigues, J. B. (2018). Fatores inibidores da criatividade na educação superior: um olhar dos discentes. *Revista de Administração da Universidade Federal de Santa Maria, 11*(5), 1147-1163. https://doi.org/10.5902/1983465921567

Matraeva, A. D., Rybakova, M. V., Vinichenko, M. V., Oseev, A. A., & Ljapunova, N. V. (2020). Development of creativity of students in higher educational institutions: assessment of students and experts. *Universal Journal of Educational Research, 8*(1), 8-16. https://doi.org/10.13189/ujer.2020.080102

Morais, M. F. (2013). Creativity: challenges to a key-concept for the twenty-first century. En A. Antonietti, B. Colombo, & D. Memmert (Eds.), *Psychology of creativity: advances in theory, research and application* (pp. 3-20). Nova Publishing. https://bit.ly/3KOrepd

Morais, M. F., & Almeida, L. S. (2015). Perceções de obstáculos à criatividade em universitários de diferentes áreas curriculares e níveis de graduação. *Revista de Estudios e Investigación en Psicología y Educación, 2*(2), 54-61. https://doi.org/10.17979/reipe.2015.2.2.1358

Morais, M. F., & Almeida, L. (2019). «I would be more creative if...»: are there perceived barriers to college students' creative expression according to

gender? *Estudos de Psicologia (Campinas), 36,* Artículo e180011. http://dx.doi.org/10.1590/1982-0275201936e180011

Morais, M. F., Almeida, L. S., Azevedo, I., Alencar, E., & Fleith, D. (2014). Perceptions of barriers to personal creativity: validation of an inventory involving high education students. *The European Journal of Social & Behavioural Sciences, 10*(3), 281-295. https://doi.org/10.15405/ejsbs.133

Moula, Z. (2021). Academic perceptions of barriers and facilitators of creative pedagogies in higher education: a cross-cultural study between the UK and China. *Thinking Skills and Creativity, 41,* Artículo 100923. https://doi.org/10.1016/j.tsc.2021.100923

Nakano, T. D. C., & Wechsler, S. M. (2018). Creativity and innovation: skills for the 21st century. *Estudos de Psicologia (Campinas), 35,* 237-246. https://doi.org/10.1590/1982-02752018000300002

Peña, C. (2019). Importancia de la creatividad y aprendizaje en futuros maestros. *Electronic Journal of Research in Educational Psychology, 17*(2), 267-294. https://bit.ly/3q9NCA7

Pereira-Guizzo, C., Gomes, M. V., Nogueira, T. B, & Murta, S. G. P. (2021). Preditores de barreiras à criatividade de estudantes de engenharia. *Estudos e Pesquisas em Psicologia, 3*. https://doi.org/10.12957/epp.2021.62708

Raso, F., & Santana, D. (2019). Percepciones del futuro pedagogo sobre la metodología de enseñanza de la creatividad. *Revista Iberoamericana sobre Calidad, Eficacia y Cambio en Educación, 17*(1), 73-89. https://doi.org/10.15366/reice2019.17.1.005

Ribeiro, R. A., & Fleith, D. S. (2007). O estímulo à criatividade em cursos de licenciatura. *Paidéia, 17,* 403-416. https://doi.org/10.1590/S0103-863X2007000300010

Romo, M. (2019). Psicología de la creatividad: Perspectivas contemporáneas. Ediciones Paidós.

Ruiz-Ruano, A. M., Casado, M. P., & López, J. (2019). Análisis bayesiano de barreras al emprendimiento en la universidad. *Revista de Educación, 386,* 63-88. https://doi.org/10.4438/1988-592X-RE-2019-386-427

Runco, M. A. (2014). *Creativity: theories and themes – Research, development and practice.* Academic Press. https://doi.org/10.1016/C2012-0-06920-7

Runco, M. A. (2018). Authentic creativity: Mechanisms, definitions, and empirical efforts. En R. J. Sternberg & J. C. Kaufman (Eds.), *The nature of human creativity* (pp. 246–263). Cambridge University Press. https://doi.org/10.1017/9781108185936.018

Runco, M. A., & Jaeger, G. J. (2012). The standard definition of creativity. *Creativity Research Journal, 24*(1), 92-96. https://doi.org/10.1080/10400419.2012.650092

Schwab, K., & Davis, N. (2018). Shaping the future of the fourth industrial revolution. Currency.

Seemiller, C. (2017). Motivation, learning, and communication preferences of Generation Z students. *eHearsay, 7*(2), 4-8. https://bit.ly/3CVwhm5

Shao, Y., Zhang, C., Zhou, J., Gu, T., & Yuan, Y. (2019). How does culture shape creativity? A mini-review. *Frontiers in Psychology, 10*, 1219. https://doi.org/10.3389/fpsyg.2019.01219

Sternberg, R. J., & Lubart, T. I. (1995). Defying the crowd cultivating creativity in a culture of conformity. The Free Press.

Vilarinho-Pereira, D. R., & Fleith, D. S. (2021). Creative use of information and communication technologies according to university professors and students. *Estudos de Psicologia (Campinas), 38,* e190164. https://doi.org/10.1590/1982-0275202138e190164