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EDITED BY
Wang-Kin Chiu,
The Hong Kong Polytechnic University, China

REVIEWED BY
Anna Cierniak-Emerych,
Wroclaw University of Economics, Poland
Scott King,
Shenandoah University, United States

*CORRESPONDENCE
David Rodríguez-Gómez
david.rodriguez.gomez@uab.cat

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Intergenerational climate at higher education: validity of the Spanish version of the workplace intergenerational climate scale

David Rodríguez-Gómez[1]*, Teresa Gonzalez-Ramirez[2] and Carme Armengol[1]

[1]Center for Research and Studies for Organizational Development, Universitat Autonoma de Barcelona, Barcelona, Spain, [2]Departament of Diagnostic and Research Methods in Education, University of Seville, Seville, Spain

An ageing workforce and the coexistence of different generations in the same work environment has garnered the interest of practitioners and theoreticians with regard to the climate and interactions that occur between these generations. Although there are various instruments that attempt to measure the intergenerational climate in organizations, there are no studies that demonstrate the effectiveness of such instruments in the Spanish university context. This article presents the analysis of the psychometric properties of the Spanish version of the Workplace Intergenerational Climate Scale (WICS) adjusted to the specific context of higher education institutions and administered to a sample of 1,116 university teachers. After the analyses were carried out, an instrument with 16 items was obtained (4 less than the original questionnaire), and we can affirm that the resulting questionnaire is appropriate to measure the intergenerational climate among university teachers in the fields of teaching, research and management in the Spanish university context. However, more detailed, and individual analysis of each of the areas (i.e., teaching, research and management) would likely yield slightly different models but a better fit.

KEYWORDS

reliability analysis, factor analysis, intergenerational climate, intergenerational interaction, generational relay

1 Introduction

The study of the climate in organizations has its beginnings in the first half of the 20th century and arose from the need to understand the influence that the state of mind of workers has on work performance. Numerous researchers have since focused their studies on determining the existing climate in organizations and how it affects the behaviour, productivity, and satisfaction of workers (e.g., Langford, 2009; Grobler and Rensburg, 2019; Loh et al., 2019; Pecino et al., 2019).

Currently, longer life expectancies are driving a change in the policies of European countries, promoting actions to prolong the working life of workers (Scharn et al., 2018). One of the direct consequences of this type of policy is an ageing workforce and the coexistence of different generations in the same work environment, issues that have garnered the interest of practitioners and theorists with regard to the climate and the interactions that occur between

said generations (e.g., Johnson and Johnson, 2010; North and Fiske, 2015; Lloyd-Jones and Worley, 2018; Tang and Martins, 2021).

Despite the existence of studies focused on intergenerational relationships in different work contexts, those that focus on the educational field and, specifically, on higher education are scarce (Castro-Ceacero et al., 2023). In many cases, the analysis of the intergenerational dimension in higher education institutions focuses on the existence of students of different ages in the same classroom (Pstross et al., 2017; Heffernan et al., 2021) or on the importance of intergenerational relationships to combat educational inequity (Hunter et al., 2018).

The few studies that address the analysis of intergenerational relationships in universities as a workplace, associate it, on the one hand, to processes of discrimination, job engagement or professional satisfaction (McConatha et al., 2022) and, on the other hand, to processes of learning, knowledge sharing or the reduction of knowledge loss (Bratianu and Leon, 2015; Dzimińska and Warwas, 2022). Although there is no clear and standardized proposal of nomenclature, characteristics and interval of years in which to place each generation (Mehra and Nickerson, 2019), we agree with several authors that currently, we can find up to 3 different generations living together in the same work environment, sharing workspaces, functions and tasks (e.g., Ropes, 2013; North and Fiske, 2015; Polat and Yılmaz, 2020): Baby Boomers (born between 1946–1964), Generation X (born between 1965–1980), Generation Y and Millennials (born between 1981–2000). These are 3 generations with different experiences, ways of acting, thinking and understanding of working life. Consequently, although we can find employers that avoid the presence of multiple generations in their organizations, with actions and policies against the hiring and retention of older workers (Ghosheh, 2008), the truth is that, as we have already commented, in most organizations, these generations coexist, and the policies to harmonize coexistence are quite varied. In these multigenerational contexts, it is vitally important to understand and promote the relationships that are established between people of different generations to ensure not only a good work environment but also to facilitate the personal and professional development of the members of the organization, taking advantage of the learning and exchange of knowledge that can occur between colleagues of different generations (intergenerational learning IGL) and, ultimately, the processes of cocreation and innovation in the organization (Gerpott et al., 2021; Tang and Martins, 2021).

Many studies point to the physical, cognitive and social benefits of intergenerational contacts, experiences and programmes (Hatton-Yeo and Ohsako, 2000; López et al., 2015, 2017). However, despite the importance of the subject, it must be recognized that many experiences of intergenerational learning are not sufficiently known, analysed and disseminated. The effects of this type of learning have been little explored, and it is necessary that they begin to become an object of study.

Chronological age acts as one of the organizational referents of the society in which we operate, operating as a central referent of the identity of individuals. This age-based vision of intergenerational relationships is giving way to another that aims to address those variables that may have the greatest impact on the climate of an organization. In other words, we have transitioned from focusing analyses fundamentally on the age variable and how it influences the climate of an organization to a multilevel vision in which variables are incorporated that allow studying the climate of an organization by modulating the behaviour and impact of these variables. In this context, the report titled "Building leaders for the next decade" (Bresman and Rao, 2018) is an example of this new stage. Bresman and Rao's (2018) analysis on intergenerational leadership, exploring aspects such as the perception of different generations about leadership, the most important barriers when accessing leadership positions, and the conception of how to exercise leadership based on generations, suggests that the variable generation is a key aspect in team management to achieve a good organizational climate.

Hence, scientific effort should focus on identifying the factors that affect the intergenerational climate in organizations and on building instruments that allow their measurement so that a body of knowledge on the variables that affect the climate of an organization can be built in a valid and reliable way. In this sense, one of the instruments that most comprehensively measures intergenerational relationships in the workplace is the Workplace Intergenerational Climate Scale (WICS) developed by King and Bryant (2017). This instrument, composed of 5 related subscales, allows the intergenerational climate of organizations to be measured more precisely through the eyes of the people who compose an organization and provides a comprehensive image of the intergenerational climate in the workplace as well as a more nuanced examination of the aspects in which the organization excels and in which it needs to improve.

The WICS, when used to evaluate the intergenerational climate of a workplace from this multidimensional approach, provides a means to measure various aspects of moderating variables (absence of age stereotypes, human resources policy favourable to intergenerational communication, frequency of intergenerational contact, etc.).However, at this time, there are no studies that show the effectiveness of the WICS in the Spanish context or in the university context. Thus, after adapting the questionnaire to the specificities of Spanish universities, it is necessary to analyse and contrast the validity of the resulting instrument. In this sense, the fundamental objective of this work was to verify the psychometric properties, in terms of structural validity and internal consistency, of the Spanish version of the Workplace Intergenerational Climate Scale (WICS) when applied in Spanish universities.

The current Spanish Law of Universities (Ley Orgánica, 2023) establishes that full-time faculty at public universities must perform functions related to teaching, research and knowledge transfer, and institutional management. The development of these functions involves interaction with colleagues in clearly different university contexts (e.g., faculties, departments, teaching and research units and groups).

The analyses presented in this article are divided according to the three main functions mentioned above (i.e., teaching, research, and management), thus respecting the specificity of the relationships maintained in each of them.

2 Materials and methods

This research was conducted as part of the project "PRUNAI—University and Intergenerational Learning" (ref. PID2019-107747RB-I00), funded by the Spanish Ministry of Economy and Competitiveness.

2.1 Population and sample

The fieldwork was carried out between February 2021 and July 2021 and consisted of applying a self-administered online questionnaire. During the 2021–2022 academic year, the total number of academics working in the Spanish higher education system reached 133,484 (58,299 women and 75,185 men). The average age of the teaching and research staff was 49.4 years. Almost 7% of these faculty members were older than 67 years, and only 8.6% of the active teaching staff were younger than 35 years (Ministerio de Universidades, 2023).

A simple random sampling was used to select 1,116 university professors employed in public universities (593 men and 508 women), accepting a maximum margin of error of ±3% and a confidence level of 95% ($p = q = 0.50$ and $k = 2$). All participants provided informed consent before beginning to answer the questionnaire. The consent form clearly stated that participation was free and voluntary and that participants could withdraw from the study at any time. Anonymity and data protection were also guaranteed.

The sample only includes university professors with experience in the three areas analysed (i.e., teaching, research and management). Each participant completed the same scale three times, one for each of the three areas analysed, considering, as it was stated above, that the colleagues with whom they interact in each of these areas is different and that according to the role theory in organisations (Turner, 2001; Sluss et al., 2011), the behaviour and roles assumed by each individual in an organization are continuously constructed and reconstructed according to the context and the people with whom we interact.

Table 1 provides information on the sociodemographic characteristics of the participants.

TABLE 1 Demographic characteristics of the participants ($N = 1{,}116$).

Age	$m = 51.21$ (sd = 10.31)
Gender	
Male	53.1%
Female	45.5%
Nonbinary	0.4%
NA	0.7%
Other	0.3%
Generation	
Baby Boomer (older than 57 years)	34.7%
Generation X (56–41 years of age)	48.9%
Millennials (40–21 years of age)	16.4%
Position	
Adjunct lecturer	6.7%
Predoc researcher	3.2%
Postdoc researcher	2.9%
Assistant lecturer	17.5%
Professor	22.2%
University-school professor	0.2%
Associate professor	45.7%
University-school lecturer	0.7%
Visiting lecturer	0.1%
Emeritus lecturer	0.8%
Experience (years)	$m = 21.41$ (sd = 11.45)
Teaching period (6-year-interval)	$m = 3.46$ (sd = 2.17)
Research period (6-year-interval)	$m = 2.22$ (sd = 1.91)
Management positions experience (years)	$m = 0.88$ (sd = 1.46)
Knowledge field	
Arts and humanities	20.7%
Science and bioscience	16.7%
Health science	16.5%
Social sciences and law	34.3%
Engineering and architecture	11.8%

2.2 Instrument

The WICS is a questionnaire that allows measuring the attitudes and perceptions of the members of an organization about other colleagues of different ages in their workplace (King and Bryant, 2017). The questionnaire is originally composed of 20 items grouped into 5 subscales: (a) lack of generational stereotypes (LGS), (b) positive intergenerational affect (PIA), (c) intergenerational contact (IC), (d) workplace generational inclusiveness (WGI) and (e) workplace intergenerational retention (WIR).

In the Spanish version of the questionnaire, the items were translated by the researchers and subsequently revised by a professional translator. Since psychometric literature suggests that accuracy drop when the scale points are below five or above seven (Nunnally and Bernstein, 1994; Johns, 2010) and that reliability is optimized with a seven-point scale (Colman et al., 1997), although the original version of the instrument used a 4-point scale, in this version of the WICS, all items are scored using a 7-point Likert scale of agreement/disagreement, except for the IC scale, which is indicated by frequency. The first draft of the WICS in Spanish was tested with 20 university professors to identify ambiguities or difficult-to-understand constructions.

2.3 Data analysis

IBM SPSS for Windows 26.0 was used to analyse data. Once the data were collected, EFA was carried out to evaluate the measurement model proposed and its adjustment to the research data through different goodness-of-fit indices. There are several authors who recommend the use of EFA when starting, as is our case, from a prior theory and seeking to determine, *a priori*, the number of factors and the relationships among them (Ferrando and Anguiano-Carrasco, 2010; Marsh et al., 2014; Martínez-Clares and González-Lorente, 2019). EFA was performed following the principal components method and a direct oblimin rotation of the factors, without fixing the factors. The responses to the 9 items with negative statements were recoded inversely.

Second, to verify the adequacy of the structure obtained with EFA, confirmatory factor analysis (CFA) was carried out using the maximum likelihood method. To assess the goodness-of-fit of the models, 3 types of measurements were used: absolute [chi-square (χ^2) and root mean square error of approximation (RMSEA)], incremental [comparative fit index (CFI), normed-fit index (NFI), and Tucker–Lewis index (TLI)], and parsimony [parsimony ratio (PRATIO), parsimony comparative fit index (PCFI), and parsimony normed-fit index (PNFI)] fit indices (Kline, 2005; Hooper et al., 2008). Additionally, Akaike information criterion (AIC) was used to compare

the different models. Lower AIC values indicated a better fit (Akaike, 1987). For a better understanding and interpretation of the results, each of these measures is described below:

- Chi-square and degrees of freedom (χ^2/df). The use of degrees of freedom allows the effects of the sample size on the χ^2 value to be minimized. This measure is optimal if χ^2/df is less than or equal to 3, and it is considered acceptable with values equal to or less than 5 (Gupta and Geetika, 2020).
- RMSEA is considered one of the strongest goodness-of-fit indices; a value less than 0.08 is considered acceptable, and a value less than.05 is considered optimal (Gupta and Geetika, 2020). A perfect fit is represented by a null value, which means that there is no difference between the observed variation and the implicit variance in the model.
- The NFI evaluates the decrease in the χ^2 statistic of the adopted model with respect to the base model. However, this value tends to be negatively biased. The nonnormed fit index (NNFI), better known as the Tucker–Lewis index (TLI), corrects these negative bias problems. However, as it is not a normalized index, values can be greater than 1, making it difficult to interpret. Both indices must reach a minimum value of 0.90 (Byrne, 2010).
- The CFI compares the chi-square of the tested model with that of the theoretical model. This value, which is between 0 and 1, is considered acceptable when it exceeds 0.90 (Shi et al., 2018).
- The above indices of absolute and incremental fit often perform better with simple models, with less rigorous models showing a better fit (Mulaik et al., 1989). For this reason, the parsimony ratio (PRatio), the PCFI and the PNFI were calculated. The model with higher parsimony indices is considered better (James et al., 1983).

Finally, Cronbach's alpha values were used to estimate the reliability of each dimension considered. The different analyses (i.e., EFA, CFA and Cronbach's alpha) were carried out taking into account the 3 main areas pertaining to university teachers in the Spanish context: teaching, research and management.

3 Results

Table 2 provides the matrix of rotated components for the items on the scale. In the 3 EFAs performed (i.e., teaching, research and management), the Bartlett test of sphericity and the Kaiser–Meyer–Olkin sampling adequacy measure (KMO = 0.854, KMO = 0.845, KMO = 0.872, respectively) suggested that the results were feasible.

However, the percentage of the variance explained by the factors obtained (55.90, 54.97 and 57.57%) as well as the distribution and factorial load of the items in each factor indicated an inadequacy of the theoretical model with respect to the empirical model and suggested a need to debug various factors to increase the percentage of explained variance.

- Factor A: This first factor retains its link to the dimension of the absence of intergenerational stereotypes.
- Factor B: The second factor obtained considers elements of intergenerational interactions in work contexts.
- Factor C: The third factor addresses aspects related to the degree of intergenerational inclusiveness in the workplace.
- Factor D: This last factor is directly linked to intergenerational retention in the workplace.

Focusing on the last dimension analysed (i.e., IC—Factor E), the Bartlett test of sphericity and the Kaiser–Meyer–Olkin measure of sampling adequacy (KMO = 0.854, KMO = 0.845, KMO = 0.872, respectively) suggested that the EFA results were feasible; however, some KMO values were somewhat lower but acceptable according to the criteria established by Kaiser (1974).

The percentage of the variance explained by the univariate solution obtained for each of the areas was somewhat higher than that indicated in the previous EFA (63.82, 62.91 and 63.40%, respectively). Likewise, the factorial load of the various factors demonstrated the consistency of this last dimension.

Next, CFA was carried out for the 3 areas analysed: teaching, research and management. For each of these areas, 3 different models were generated that were subjected to comparisons. The first model was derived directly from the previous EFA. The second model eliminated those items that had a lower correlation with their respective factors: PIA4, WIR4, LGS4, and PIA3. The third model included the correlations between the errors with modification indices greater than 10 (CE).

Figures 1–3 show the flow diagrams of the final model obtained for teaching, research and management.

The goodness-of-fit of each model was assessed based on absolute, incremental and parsimony fit indices (see Table 3).

As seen in Table 4, in none of the models was the chi-square value acceptable, i.e., less than or equal to 3 (Kline, 2005). Values less than or equal to 5 were considered a reasonable fit (Marsh and Hocevar, 1985). p values less than 0.05 confirmed the inadequacy of the model (Jöreskog and Sörbom, 1996).

Considering, as already mentioned, that χ^2 is sensitive to a large sample such as the one used here, the RMSEA index was used to assess model adjustments. In this case, values ranging from 0.05 to 0.08 were considered acceptable (MacCallum et al., 1996). The results indicated that according to this index, Model 3 had the best fit for all 3 areas.

Regarding the incremental fit index or the baseline comparison results (i.e., CFI, TLI and NFI), for all areas, Model 3 had values closer to 1 and, therefore, a better fit (Bentler and Bonett, 1980; Hu and Bentler, 1998; West et al., 2012).

Regarding the parsimony fit indices or parsimony-adjusted measures (i.e., PRATIO, PCFI and PNFI), considering that the more complex the model is, the lower the fit index, the results indicated a better fit of Model 1 for the 3 areas (i.e., teaching, research and management).

Finally, the Akaike information criterion (Akaike, 1987) indicated that the model with a lower AIC value and, therefore, with a better fit for the dataset was Model 3 in the fields of teaching, research and management.

Despite what is suggested by the parsimony fit index, the calculation of the total variance explained for Model 3 revealed better results than those obtained for original Model 1 for the fields of teaching (64.55%), research (63.45%) and management (63.80%).

To verify the construct and discriminant validity of the instrument, the standardized correlation coefficients between factors

TABLE 2 Matrix of rotated components.

	Teaching	Research	Management
Factor A—Absence of stereotypes			
LGS1. Colleagues from a generation other than mine are not interested in making friends outside of their generation[a]	0.623	0.541	0.641
LGS2. Colleagues from other generations complain more than colleagues my age[a]	0.653	0.652	0.679
LGS3. Colleagues from other generations usually talk about things that do not interest me[a]	0.556	0.572	0.585
LGS4. Colleagues from a generation other than mine tend to work differently from colleagues my age[a]	0.712	0.695	0.769
PIA4. People work better when they work with other people of the same age[a]	0.503	0.479	0.475
Factor B—Intergenerational interactions			
PIA1. I feel comfortable when colleagues from other generations try to talk to me	0.775	0.763	0.774
PIA2. I like to interact with my colleagues from other generations	0.847	0.844	0.864
PIA3. My colleagues from generations other than mine are very interesting people	0.666	0.679	0.657
WGI3. I am able to communicate effectively with colleagues of different generations	0.596	0.586	0.607
WGI4. Working with colleagues of different ages enhances the quality of my professional life	0.677	0.687	0.740
Factor C—Intergenerational inclusiveness			
WGI1. I believe that the environment in my workplace is positive for people of all ages	−0.760	0.724	−0.672
WGI2. Colleagues of all ages are respected in my workplace	−0.743	0.756	−0.690
WIR4. In my workplace, young and competent workers tend to be ignored in promotion processes[a]	−0.643	0.683	−0.530
Factor D—Intergenerational retention			
WIR1. My colleagues make older people feel like they should retire[a]	0.710	0.717	−0.632
WIR2. I feel pressured by younger colleagues to give up my responsibilities[a]	0.913	0.883	−0.922
WIR3. I feel pressured by older colleagues to give up my responsibilities[a]	0.603	0.576	−0.740
Factor E—Intergenerational contact			
IC1. How often do you have conversations with colleagues from other generations?	0.753	0.714	0.703
IC2. How often do you have conversations with colleagues from other generations related to nonwork topics?	0.892	0.884	0.880
IC3. How often do you talk to colleagues from other generations about your personal life?	0.862	0.864	0.874
IC4. How often do you eat during the week with colleagues from other generations (except for periods with restrictions caused by COVID-19)?	0.668	0.692	0.710

The meaning of the acronyms of the original scale is as follows: lack of generational stereotypes (LGS), positive intergenerational affect (PIA), intergenerational contact (IC), workplace generational inclusiveness (WGI); workplace intergenerational retention (WIR).[a]Reverse scored.

and between factors and variables were analysed. In the 3 areas, high correlations were obtained between the factors and their corresponding variables, with values ranging between $r = 0.678$ and $r = 0.912$ for teaching; $r = 0.665$ and $r = 0.908$ for research; and $r = 0.703$ and $r = 0.901$ for management. These results confirmed the five-factor structure proposed for the instrument.

Likewise, the absence of high correlations between the 5 factors allowed ruling out that 2 factors may represent the same dimension. The highest values were found between Factors A (absence of stereotypes) and D (intergenerational retention), with r ranging from $r = 0.441$ for the field of teaching and $r = 0.400$ for the field of management. These data confirmed the discriminant validity of the instrument.

Finally, the analysis of the reliability of the WICS, estimated using Cronbach's α, was good for Factor B (intergenerational interaction) and acceptable for the rest of the factors for the 3 areas analysed, considering the small number of items that composed each dimension (see Table 4) (Cortina, 1993; Schmitt, 1996; Taber, 2018).

4 Discussion

The main aim of the present study was to verify the structural validity and internal consistency of the Spanish version of the WICS when it was applied in working environments in higher education institutions.

As Rodriguez-Santero and Gil-Flores (2019) suggested, in the analysis of the instrument, we opted for an individual analysis of the items, allowing an assessment of the true structure of the set of items that compose the WICS and thus avoid the bias derived from item parcelling.

After the analyses were carried out, an instrument with 16 items grouped into 5 factors was obtained, presenting a better goodness-of-fit measurement for the labour context of Spanish higher education institutions (see Table 5). The original instrument proposed by King and Bryant (2017) had 20 items grouped into 5 factors.

Beyond the IC dimension (Factor E) that, as we have already mentioned, we kept apart from the rest, by using a Likert frequency

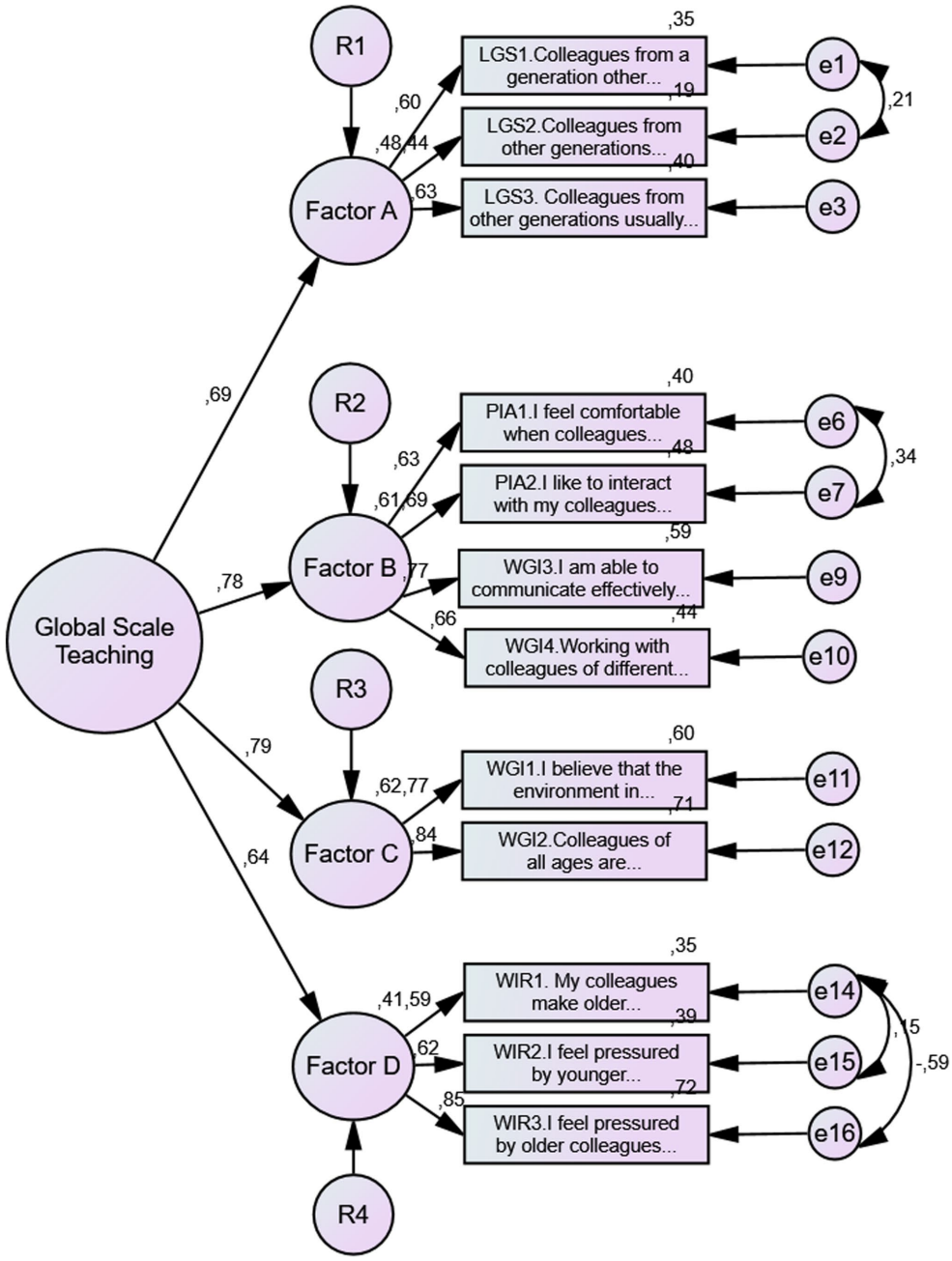

FIGURE 1
Final model for teaching.

scale, the remaining dimensions presented slight variations, even altering the distribution of items with respect to the original proposal.

The dimensions "Absence of Intergenerational Stereotypes" (Factor A) and "Intergenerational Retention" (Factor D) remain fairly stable, with the simple loss of 1 item each (i.e., LGS4 and WIR4, respectively). The dimensions "Positive Intergenerational Affect" and "Intergenerational Inclusiveness" gave rise to 2 new dimensions that, in essence, retained their theoretical basis. The new dimension "Intergenerational Interaction" (Factor B) is composed of 4 items, 2 of each of the original dimensions (i.e., PIA1, PIA2, WGI3, and WGI4). The new dimension "Intergenerational Inclusiveness" (Factor C) is composed of only 2 items (i.e., WGI1 and WGI2).

As already mentioned, in Spain the professional activity of university professors is linked to three main areas: teaching, research and management. Each of these areas has its own operating structure and involves a specific type of relationships. In order to identify whether there were differences in the intergenerational climate in these three areas, they were analysed independently. However, contrary to what might be expected if we take into account that, as indicated by the Role theory in organizations, individuals play different roles in their daily lives depending, among other elements, on the context and the group with which they relate (Anglin et al., 2022), the model was quite similar and stable for the 3 areas analysed (i.e., teaching, research and management),

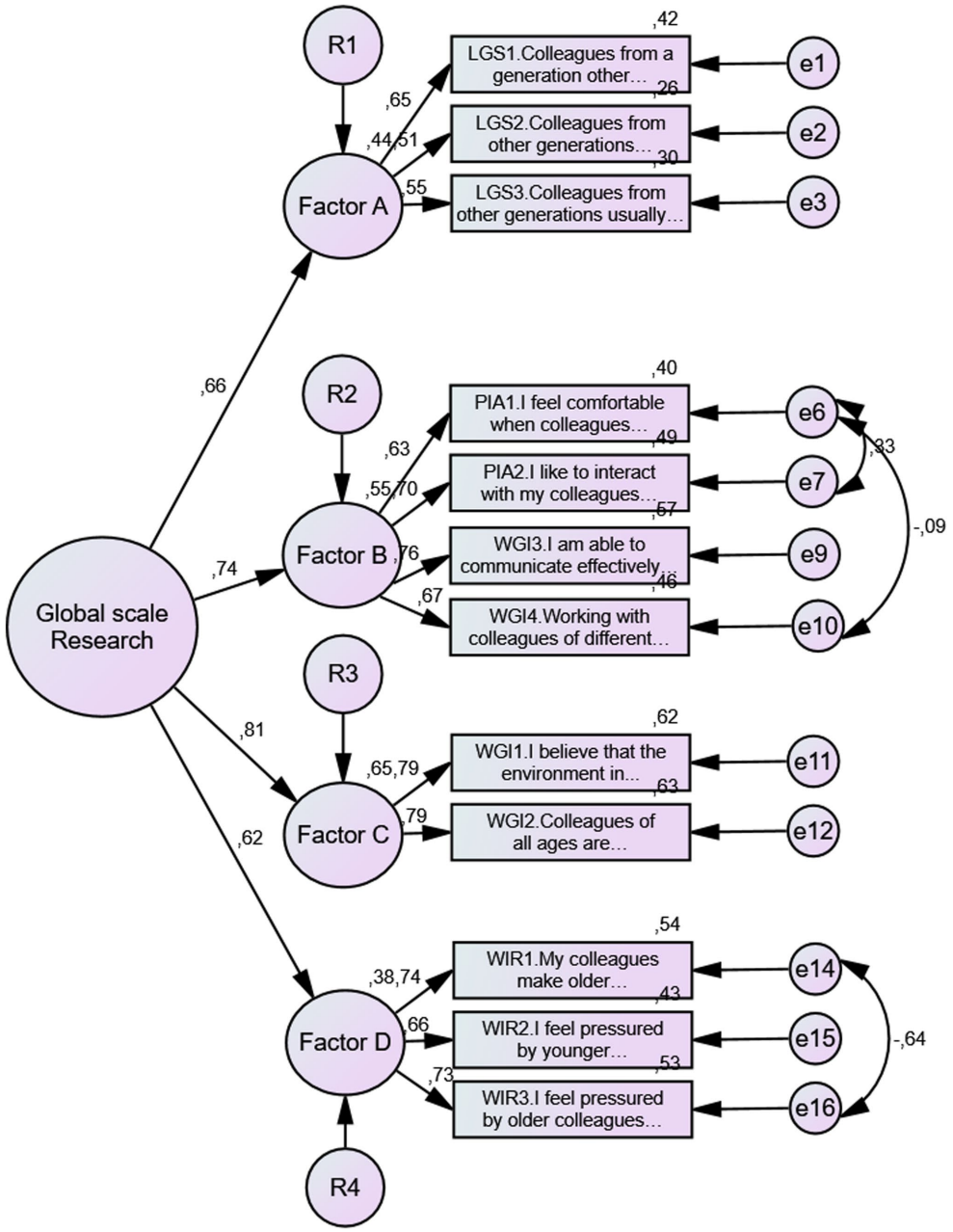

FIGURE 2
Final model for research.

although the adjustment measures for the area of management were more solid. These results only highlight the differential nature of the type of relationships that are maintained when temporarily occupying management positions in Spanish universities. The Spanish university system, unlike other university systems that opt for a professionalization of management (Croucher and Woelert, 2021), promotes the involvement of university professors in management tasks in coordination with administration and services personnel (Sierra-Sánchez et al., 2020; Ley Orgánica, 2023). The management activities are very broad, not very homogeneous (e.g., rector of the university, member of the government team, positions in deanships, and department heads or study heads, among others) and imply temporary professional relationships between academics and administrators with those who do not usually perform teaching and research functions.

Regarding the reliability of the instrument, the values were, in general, acceptable although somewhat low for the dimensions "Absence of Intergenerational Stereotypes" (Factor A) and "Intergenerational Retention" (Factor D).

In summary and based on the psychometric properties of the Spanish adaptation of the WICS to the university work context, the proposed instrument is appropriate to measure the intergenerational climate existing among university Spanish-speaking teachers in the fields of teaching, research and management.

The measurement of the intergenerational climate, beyond offering data on the existing professional relationships in the Spanish

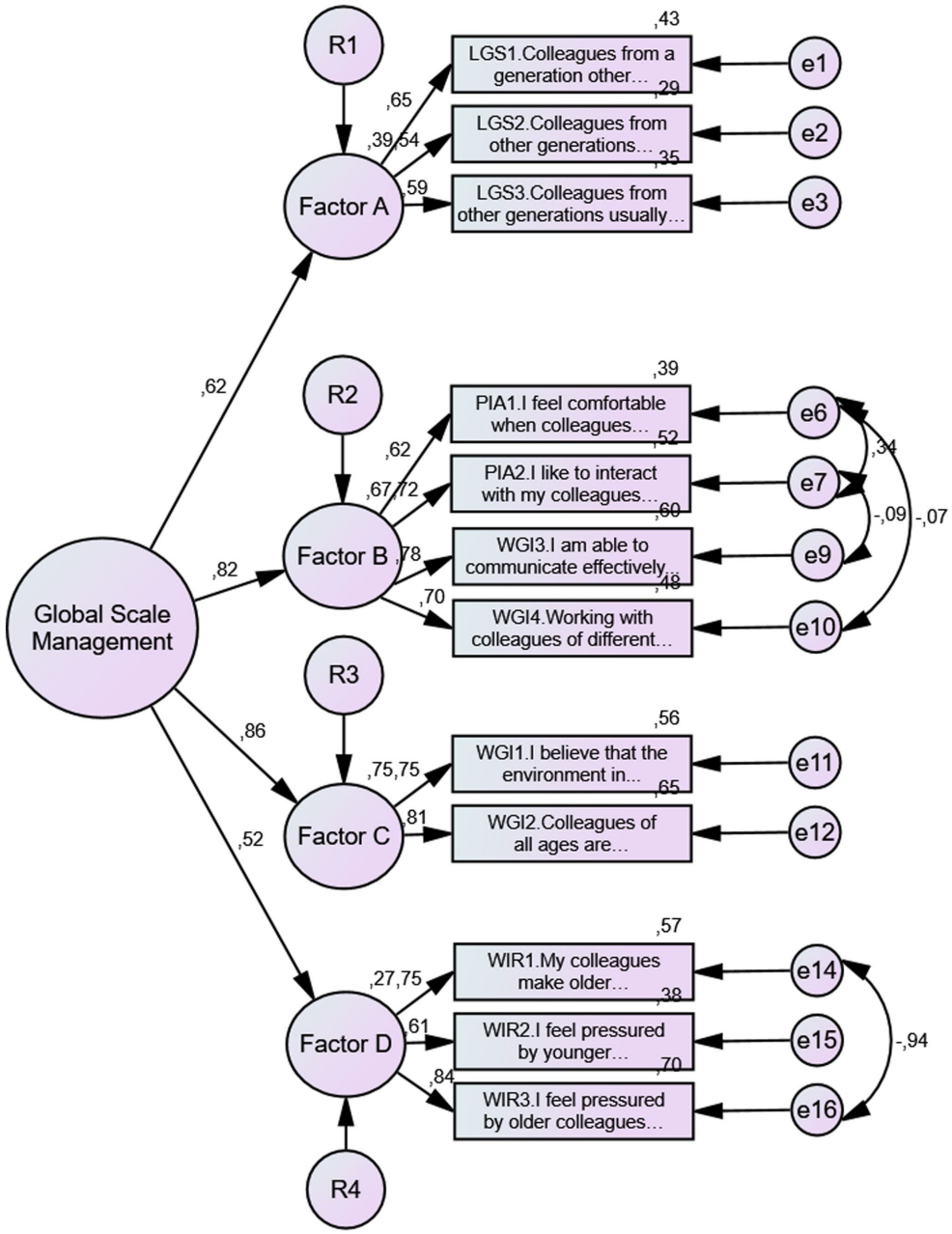

FIGURE 3
Final model for management.

university context, is fundamental for innovation in and improvement of our universities. The existence of an adequate intergenerational climate is a key element for the retention of talent and to avoid the loss of organizational knowledge (Ramsey et al., 2016), as well as to facilitate processes of knowledge sharing and professional development (e.g., Dietz et al., 2022), which are essential to increase the capacity for innovation in and improvement of our universities (e.g., Le and Lei, 2019; Sahibzada et al., 2022). Likewise, there are several studies that link to other key organizational variables, such as communication (Strawser et al., 2021), job satisfaction and job engagement (e.g., McConatha et al., 2022), ageism and negative stereotypes (e.g., Lagacé et al., 2019), and generational identity (Lyons et al., 2019).

There are multiple practical implications of the instrument that has been developed herein for a university context such as that explored in this study; internal adjustment of the instrument was necessary not only because of sociodemographic evolution but also because of ageing and scarce generational turnover of the faculty in most Spanish universities, as indicated in the "Ley Orgánica del Sistema Universitario" ("Organic Law of the University System") (Ley Orgánica, 2023). The results obtained allow conducting a differentiated diagnosis of each area of competence. Thus, for example, if an organization scores low on the intergenerational workplace retention subscale, management can dedicate resources to highlighting how promotions are based on merit rather than seniority and how the contributions of each employee are valued, regardless of how long they

TABLE 3 Goodness-of-fit indices of the factorial models of teaching, research and management.

	χ^2/df (*p*)	RMSEA	CFI	TLI	NFI	PRATIO	PCFI	PNFI	AIC
Teaching model									
Model 1	6.691 (0.000)	0.071	0.889	0.867	0.873	0.833	0.741	0.727	773.139
Model 2 (without PIA4, WIR4, LGS4, and PIA3)	8.898 (0.000)	0.084	0.903	0.872	0.892	0.758	0.684	0.676	524.898
Model 3 (without PIA4, WIR4, LGS4, and PIA3) + CE	5.316 (0.000)	0.062	0.951	0.930	0.941	0.697	0.663	0.656	332.555
Research model									
Model 1	6.669 (0.000)	0.071	0.884	0.861	0.867	0.833	0.737	0.723	770.868
Model 2 (without PIA4, WIR4, LGS4, and PIA3)	8.447 (0.000)	0.082	0.903	0.871	0.891	0.758	0.684	0.675	502.346
Model 3 (without PIA4, WIR4, LGS4, and PIA3) + CE	5.563 (0.000)	0.064	0.944	0.921	0.906	0.712	0.672	0.664	347.442
Management model									
Model 1	6.130 (0.000)	0.068	0.902	0.882	0.886	0.833	0.752	0.738	716.999
Model 2 (without PIA4, WIR4, LGS4, and PIA3)	7.899 (0.000)	0.079	0.914	0.886	0.903	0.758	0.692	0.684	474.956
Model 3 (without PIA4, WIR4, LGS4, and PIA3) + CE	4.627 (0.000)	0.057	0.958	0.940	0.948	0.697	0.668	0.660	300.845

TABLE 4 Analysis of the reliability of the WICS for the 3 dimensions discussed.

Subscales	Teaching (α)	Research (α)	Management (α)
Factor A—Absence of stereotypes	0.622	0.590	0.620
Factor B—Intergenerational interactions	0.804	0.802	0.810
Factor C—Intergenerational inclusiveness	0.789	0.770	0.752
Factor D—Intergenerational retention	0.679	0.668	0.687
Factor E—Intergenerational contact	0.779	0.781	0.795

have been working there or how close they are to retirement. If a workplace earns high scores for generational inclusiveness, the institution can use this potential for senior faculty to effectively mentor new faculty. Conversely, new teachers could provide senior teachers with new trends that they may not be as familiar with. These aspects can be specified in specific policies that attend to emergency situations such as the one Spain is entering due to the lack of generational change and internal adjustment of the Spanish university system.

Future research about intergenerational climate in Higher Education Institutions should consider the role played by the generations that are just now entering the university workforce. While those belonging to the Boomer generation are in the process of retirement, the young people of generation Z (born from 2001), also known as centennials, the crystal generation or new silent generation, among others, are accessing working life, although its presence in university contexts is still very scarce.

Despite the strengths of this study (i.e., having a broad sample of Spanish public university faculty; strong evidence for external validity by using a random sample; more accurate data by using a 7-point Likert scale; addressing an urgent but little explored issue in university work contexts; or contributing to the debate and development of

TABLE 5 Final proposed items for the intergenerational climate scale for university teachers.

	1	2	3	4	5	6	7
Factor A—Absence of stereotypes **Factor A—Ausencia de estereotipos**							
LGS1. Colleagues from a generation other than mine are not interested in making friends outside of their generation.[b] LGS1. Los colegas de una generación distinta a la mía no están interesados en hacer amigos fuera de su generación.[a,b]							
LGS2. Colleagues from other generations complain more than colleagues my age.[b] LGS2. Los compañeros de otras generaciones se quejan más que los compañeros de mi edad.[a,b]							
LGS3. Colleagues from other generations usually talk about things that do not interest me.[b] LGS3. Los compañeros de otras generaciones suelen hablar de cosas que a mí no me interesan.[a,b]							
Factor B—Intergenerational interaction **Factor B—Interacción intergeneracional**							
PIA1. I feel comfortable when colleagues from other generations try to talk to me. PIA1. Me siento cómodo cuando compañeros de otras generaciones intentan hablar conmigo.[a]							
PIA2. I like to interact with my colleagues from other generations PIA2. Me gusta interactuar con mis compañeros de otras generaciones.							
WGI3. I am able to communicate effectively with colleagues of different generations. WGI3. Soy capaz de comunicarme efectivamente con colegas de diferentes generaciones.[a]							
WGI4. Working with colleagues of different ages enhances the quality of my professional life. WGI4. Trabajar con compañeros de diferentes edades mejora la calidad de mi vida profesional.[a]							
Factor C—Intergenerational inclusiveness **Factor C—Inclusión intergeneracional**							
WGI1. I believe that the environment in my workplace is positive for people of all ages. WGI1. Creo que el ambiente en mi lugar de trabajo es positivo para personas de todas las edades.[a]							
WGI2. Colleagues of all ages are respected in my workplace. Los colegas de todas las edades son respetados en mi lugar de trabajo.[a]							
Factor D—Intergenerational retention **Factor D—Retención intergeneracional**							
WIR1. My colleagues make older people feel like they should retire. [b] WIR1. Mis compañeros hacen que las personas mayores sientan que deberían jubilarse.[a,b]							
WIR2. I feel pressured by younger colleagues to give up my responsibilities. [b] WIR2. Me siento presionado por colegas más jóvenes para que renuncie a mis responsabilidades.[a,b]							
WIR3. I feel pressured by older colleagues to give up my responsibilities. [b] WIR3. Me siento presionado por colegas mayores para que renuncie a mis responsabilidades.[a,b]							
Factor E—Intergenerational contact **Factor E—Contacto intergeneracional**							
IC1. How often do you have conversations with colleagues from other generations? IC1. ¿Con qué frecuencia mantienes conversaciones con compañeros de otras generaciones?[a]							
IC2. How often do you have conversations with colleagues from other generations related to nonwork topics? IC2. ¿Con qué frecuencia mantienes conversaciones con compañeros de otras generaciones relacionadas con temas no laborales?[a]							
IC3. How often do you talk to colleagues from other generations about your personal lives? IC3. ¿Con qué frecuencia habla con colegas de otras generaciones sobre su vida personal?[a]							
IC4. How often do you eat during the week with colleagues from other generations (except for periods with restrictions caused by COVID-19)? IC4. ¿Con qué frecuencia comes durante la semana con compañeros de otras generaciones (excepto en periodos de restricciones provocadas por el COVID-19)?[a]							

[a]Spanish translation of the item.
[b]Reverse scored.
The meaning of the acronyms of the original scale is as follows: lack of generational stereotypes (LGS), positive intergenerational affect (PIA), intergenerational contact (IC), workplace generational inclusiveness (WGI); workplace intergenerational retention (WIR).

policies and strategies to foster a good intergenerational climate in higher education institutions), it also has some limitations that must be taken into account. First, the search for a single model for 3 areas studied (i.e., teaching, research and management) meant making some decisions that reduced the goodness-of-fit in some cases. A detailed and individual analysis of each of the areas would likely yield slightly different models but a better fit. Second, the elimination of the 4 items with respect to the original instrument should be the object of a more detailed analysis, with the goal of determining if its formulation was clear and univocal in the Spanish university context and for the 3 work areas studied.

Data availability statement

The datasets presented in this article are not readily available because there is an embargo period of 1 year. Requests to access the datasets should be directed to the corresponding author after this period."

Ethics statement

This study was conducted in accordance with the Academic Integrity Code of the Universitat Autònoma de Barcelona.

Author contributions

DR-G: Conceptualization, Data curation, Formal analysis, Funding acquisition, Investigation, Methodology, Resources, Writing – original draft, Writing – review & editing. TG-R: Conceptualization, Investigation, Methodology, Writing – original draft, Writing – review & editing. CA: Conceptualization, Investigation, Methodology, Writing – original draft, Writing – review & editing.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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