



## Regular Article

## Design and validation of a graduate profile scale and its relationship with human flourishing

Jorge López González <sup>\*</sup>, Marta Hurtado Martín, Paula Crespi

Center for Virtue and Values Education, Faculty of Education and Psychology, Universidad Francisco de Vitoria, Spain

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## ABSTRACT

Universities play a key role in forming responsible professionals, a mission reflected in their official statements. To align with this mission, they must define a coherent graduate profile. This article proposes a measurement scale for assessing the graduate profile of undergraduate students, based on the mission statements of universities in the International Network of Universities of Regnum Christi (RIU). The scale was applied to students in Mexico ( $n = 1159$ ) and Spain ( $n = 81$ ). An exploratory factor analysis revealed three dimensions: relationships, leadership, and transcendence. The results show that the PERIU scale has strong psychometric qualities and convergent validity with the Secure Flourishing Measurement (SFM). The strongest link appears between PERIU's leadership dimension and SFM's character and virtue dimension, suggesting a shared foundation in virtues. These findings support using such scales for formative assessment and highlight the importance of evaluating graduate profiles to ensure fulfillment of the university mission.

## 1. Introduction

There is increasing concern regarding the graduate attributes and the education provided by universities to future professionals, who are expected to contribute responsibly to the common good—not only in terms of skills, but also values (Mahon, 2022). Many universities address this issue in their mission statements, highlighting their commitment to fostering ethical virtues and personal competencies related to flourishing and social commitment (Arias-Coello et al., 2020; Breznik & Law, 2019; Brooks et al., 2019; Morphew & Hartley, 2006; VanderWeele & Case, 2025). For example, Stanford University states of its mission “preparing students for leadership and engaged citizenship in the world” (Stanford University, 2025). Some studies indicate the importance of person-centered leadership as a key attribute to be developed in students (García-Álvarez et al., 2025). However, these mission statements are often not fully reflected in the actual curriculum or in the assessment systems used to determine whether the university is fulfilling its stated mission (VanderWeele & Case, 2025).

The graduate profile serves as a valuable tool for aligning the educational process with these institutional goals. Typically, the graduate profile is a document that outlines the learning objectives, competencies, and virtues—graduate attributes—that students are expected to develop by the end of their studies. In recent years, there has been a

growing emphasis on the theoretical foundation, implementation, and assessment of graduate profiles and attributes in higher education institutions (Banagan and Cababaro Bueno, 2024; Mahon, 2022; Wong et al., 2022). These attributes include but go beyond the disciplinary expertise or technical knowledge (Bowden et al., 2000; Hill et al., 2016; Hughes & Barrie, 2010). If we examine university mission statements and graduate profiles, some graduate attributes are explicitly related to virtues and values (Hill et al., 2016; López González et al., 2024). This raises the following research question: To what extent can a valid and reliable instrument be developed to assess whether university students are acquiring graduate attributes aligned with institutional missions, particularly those related to values, virtues, and human flourishing?

This question is particularly relevant because, despite the growing emphasis placed by higher education institutions on graduate attributes and the alignment of educational processes with institutional mission statements, a significant gap persists between these aspirational frameworks and their empirical assessment (Hill et al., 2016). The extent to which these attributes are actually developed in students remains difficult to determine, due in part to the limited availability of valid and reliable assessment instruments. Existing approaches to evaluating graduate profiles are often fragmented, insufficiently aligned with institutional missions, or focused primarily on technical competencies rather than integral formation. This lack of robust measurement tools

<sup>\*</sup> Corresponding author.

E-mail address: [jorge.lopezgonzalez@ufv.es](mailto:jorge.lopezgonzalez@ufv.es) (J. López González).

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undermines the credibility of graduate profiles and hinders efforts to ensure meaningful alignment between curriculum, assessment, and educational goals. Consequently, there is a clear need for the development and validation of instruments capable of capturing the multidimensional nature of graduate attributes and providing evidence of their attainment in practice (Mahon, 2022).

This article contributes to bridging this gap by validating a formative assessment instrument for assessing graduate profiles. Specifically, the study aims to develop and psychometrically validate a graduate profile scale, grounded in a university mission statement, to measure relational, leadership, and transcendence competencies in undergraduate students and to examine its convergence with human flourishing.

## 2. Theoretical framework

### 2.1. University graduate profile and related research

The concept of the graduate profile originated in the field of curriculum design (Taba, 1976; Tyler, 1950). In recent years, following the Bologna Declaration and the Tuning Project, many European and Latin American universities have developed competency-based graduate profiles for undergraduate programs, aiming to enhance graduates' employability and integration into the labor market (Carrera et al., 2019; Romadlon & Arifin, 2021).

A graduate profile defines the ultimate objectives of an academic curriculum (Ceballos et al., 2015). By awarding a degree, the institution certifies that the graduate has acquired the competencies necessary for professional practice. This involves outlining the key attributes and competencies students are expected to develop and that the university will assess (Abelha et al., 2020; Brauer, 2021; Mahon, 2022). Serving as a guiding framework, the graduate profile informs curriculum design and assessment (Champin, 2014; Harden & Lilley, 2025). It enables academic authorities, faculty, and students to evaluate the achievement of institutional educational objectives (Pereverzeva et al., 2021).

A wide range of attributes is expected to be developed in university graduates, including leadership, communication, teamwork, problem-solving, and interpersonal relationships (Osmani et al., 2015). Although there is no universally accepted framework for classifying graduate profile attributes, the model proposed by Wong et al. (2022) is particularly relevant, as it organizes graduate attributes in UK universities into four main dimensions: self-awareness and lifelong learning, employability and professional development, global citizenship and engagement and academic and research literacy.

However, having a mission statement or a well-defined graduate profile is not sufficient; it is essential to assess whether these aspirations are being realized. Assessment methods vary: some institutions conduct longitudinal evaluations, measuring students at entry and upon graduation, while others rely on standardized exams or other instruments, often for accreditation purposes (Kuh & Ewell, 2010). Cross-sectional studies may also be used to assess competencies at the end of a program, informing educational improvements. Common tools include self-report questionnaires (typically Likert-type scales), rubrics, teaching evaluations, and employer feedback (Hilario-Flores et al., 2023). Graduate profile assessment is frequently linked to quality accreditation or internal evaluation processes, supporting formative assessment and continuous program improvement (Jiménez Moreno et al., 2024).

A systematic review highlights the need for further research in several areas: (a) empirical studies on graduate profile attainment across programs and contexts; (b) validation of assessment instruments using quantitative and qualitative methods; (c) analysis of trends in thesis-level research on graduate profiles; and (d) development of comprehensive management systems for evaluating competencies and graduate profiles at the institutional level (Huamán Huayta et al., 2020).

Rigorous evaluative research, especially through the development and application of graduate profile measurement scales, can significantly enhance educational processes. While each university defines its

own graduate profile aligned with its mission, it is also possible to create a shared profile for institutions with a common mission. The International Network of Universities of Regnum Christi (In Spanish Red Internacional de Universidades del Regnum Christi, RIU), which includes Universidad Francisco de Vitoria (Spain) and the Anáhuac University Network (Mexico), exemplifies this approach. The following section presents a proposed graduate profile for RIU students.

### 2.2. Graduate profile and the International Network of Regnum Christi Universities

The International Network of Regnum Christi Universities (RIU) is a collaborative network established in 2015, comprising 15 universities across Mexico, the United States, Chile, Spain, and Italy. While these institutions share a common inspiration and educational philosophy, the network does not yet have a unified graduate profile. To develop an initial graduate profile scale applicable to the entire RIU, we drew upon the documented profiles of its two largest members: Universidad Francisco de Vitoria (UFV) and the Anáhuac University Network (in Spanish, Red de Universidades Anáhuac, RUA), which includes nine institutions. These profiles served as the foundation for the initial RIU graduate profile scale.

Universidad Francisco de Vitoria is a private, Catholic-inspired university in Madrid. Its mission is "to build a university community of people who seek truth and goodness and who, through their education and leadership, promote the Christian transformation of society and culture" (Universidad Francisco de Vitoria, n.d.).

This mission reflects an ethical commitment to educating students as responsible professionals. Accordingly, UFV has established a generic graduate profile that defines the core learning outcomes for all undergraduate programs, ensuring alignment with the university's mission and principles. As stated in the institutional document:

"The graduate profile is the goal toward which we direct our efforts, the final objective that must guide and illuminate academic programs, teaching, and the entire formative pathway we offer our students (...). The graduate profile must be concrete and adapted to each degree program so that it can be evaluated to the greatest extent possible (...). In this way, we will be able to determine whether we are adequately fulfilling our task as professors and educators, and whether the curricula and formative activities are appropriate." (Universidad Francisco de Vitoria, 2025, p. 1)

The institutional graduate profile document of the Universidad Francisco de Vitoria is presented below (Table 1).

Based on this graduate profile, we designed a 15-item Likert-type self-perception scale of achievement with respect to the university's graduate profile. Care was taken to ensure that the wording of the items respected the original formulation of the graduate profile.

Additionally, efforts were made to enrich this scale with items inspired by the graduate profile of the RUA. The RUA mission statement is: "To contribute to the integral formation of positive action leaders and institutionally promote the development of the human person and society, always inspired by the values of Christian humanism" (Anáhuac Universities Network, n.d.). As can be observed, this mission statement is similar to that of UFV. This mission implies that students achieve excellent professional and cultural preparation, along with a deep sense of responsibility in the pursuit of solutions to social problems. The full development of individuals, or integral formation, is considered the ultimate goal of education (Maritain, 1962). This objective refers to the full flourishing of the person, including the dimension of transcendence.

The RUA proposes a model of integral or holistic formation, organized around ten core educational objectives that "encourages their development across a range of different dimensions: human, intellectual, professional, social, and spiritual" (Anáhuac Universities Network, n.d.). The objectives include elements that appear in the UFV graduate profile, such as meaning in life, the practice of one's own faith, critical

**Table 1**  
Undergraduate student graduate profile – UFV.

| Dimensions                                                   | Relationship with the levels of encounter | Specific elements                                                                                                                                                                                                                                                                                                                                            |
|--------------------------------------------------------------|-------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Lives in an integrated and mature way across all dimensions. | Encounter with the self                   | <ul style="list-style-type: none"><li>- Knows oneself, including strengths, weaknesses, and limitations. Seeks self-improvement and growth with the help of others.</li><li>- Feels more like a debtor than a creditor toward life.</li><li>- Builds one's life upon principles that guide and inspire, living them with courage and authenticity.</li></ul> |
| Lives one's relationship with others in a fruitful way.      | Encounter with the other                  | <ul style="list-style-type: none"><li>- Welcomes others as they are and seeks their good.</li><li>- Relates to one's own mistakes and those of others with an attitude of forgiveness, viewing them as opportunities to learn and grow within relationships.</li><li>- Knows how to listen and accompany others in an empowering and positive way.</li></ul> |
| Is committed and participates responsibly in society.        | Encounter with the "we"                   | <ul style="list-style-type: none"><li>- Feels affected by the needs of society and is called to respond to them according to one's capacities and oriented toward the common good.</li><li>- Cultivates the value of generosity; gives, and remains open to receiving.</li><li>- Promotes creative and transformative communities.</li></ul>                 |
| Seeks in community truth, goodness, and beauty               | Encounter with the world                  | <ul style="list-style-type: none"><li>- Is able to question of open reason to science, culture, and reality.</li><li>- Is able to transform information into personal knowledge.</li><li>- Is able to engage with new approaches that open up new perspectives and possibilities about the reality in which he lives</li></ul>                               |
| Lives a life of purpose, meaning, and solid foundations.     | Encounter with God.                       | <ul style="list-style-type: none"><li>- Considers it essential to find meaning in life, suffering and love.</li><li>- Considers deeply and radically the question of the meaning of the life and the question of God.</li><li>- Allows himself freely to be challenged by the person of Jesus Christ.</li></ul>                                              |

Source: [Universidad Francisco de Vitoria \(2025\)](#).

thinking, moral virtues and professional competency, as well as leadership. However, the RUA graduate profile highlights the objective of leadership education, which is not very present in the UFV graduate profile, despite being a central element of its mission statement. In view of the above, it has been decided to enhance the graduate profile with three additional items:

1. *When needed, I am willing to undertake projects and guide others toward the common good.*
2. *My leadership helps others achieve shared goals.*
3. *I contribute ethically to the transformation of society.*

By combining the items generated from the UFV graduate profile with these three additional items, was obtained the initial graduate profile scale PERIU (Spanish acronym of Graduate Profile of the Regnum Christi International Network of Universities), consisting of 18 items, which is included in [Appendix 1](#). In summary, we can say that

institutions of RIU share a mission focused on integral formation; RIU view university education as a process that seeks the full development and flourishing of the individual in all dimensions, promoting ethical commitment and virtue-based leadership (i.e. positive action leadership) for the transformation of society ([López González & Landero Gutiérrez, 2023](#)). This institutional orientation is specified in institutional documents, such as the graduate profile, which establish assessable curricular objectives.

**3. Materials and method**

**3.1. Objectives**

This exploratory study pursued four main objectives: (1) to identify the factorial structure of the graduate profile scale through exploratory factor analysis; (2) to examine the psychometric properties of the scale by calculating means, standard deviations, and reliability indices; (3) to validate the resulting factorial model using confirmatory factor analysis; and (4) to assess convergent validity through correlational analysis between the graduate profile scale and the Flourishing Scale (SFM)

**3.2. Participants**

The scale was administered to a sample of 81 students from Universidad Francisco de Vitoria (UFV) and 1159 students from Universidad Anáhuac Mayab (UAM), Mexico, which is part of the Anáhuac University Network (RUA) and shares a similar mission with UFV. A convenience sampling strategy was employed, yielding a sample size sufficient for the study's purposes. Since the PERIU scale was developed from the graduate-profile documents of RIU-affiliated universities, it was considered methodologically appropriate to conduct the initial examination of the instrument's psychometric properties and validity in students from two RIU member institutions in different countries.

The difference in sample size is due to the institutional collaboration available at each site. Although the initial aim was to obtain a sufficiently large sample for a full validation process, at UFV, access was limited to students from the Faculty of Psychology and Education. In contrast, at Anáhuac Mayab, broader institutional involvement enabled data collection across a wider range of degree programs.

Inclusion criteria were current enrollment at one of the two universities and full completion of the questionnaire. As all participants met these criteria, no cases were excluded from the analysis.

The characteristics of the sample are presented in [Table 2](#).

**3.3. Instruments**

The PERIU graduate profile scale, designed for this study, initially consisted of 18 self-perception items measured on a six-point Likert scale (1 = strongly disagree; 6 = strongly agree). Additionally, the Secure Flourish Measure (SFM) developed by [VanderWeele \(2017\)](#) was used to assess students' flourishing and its relationship with the graduate profile scale. The SFM is a 12-item scale grouped into six domains: happiness and life satisfaction; mental and physical health; meaning and purpose; character and virtue; close social relationships; and financial and material stability. All items are rated on an 11-point Likert scale adapted to

**Table 2**  
Sample characteristics.

| Date         | University           | Place          | N    | Mean Age | Sex                    |
|--------------|----------------------|----------------|------|----------|------------------------|
| March 2025   | Francisco de Vitoria | Madrid, España | 81   | 22       | 14% male<br>86% female |
| October 2025 | Anáhuac Mayab        | Mérida, Mexico | 1159 | 19       | 43% male<br>57% female |

each domain. The SFM has demonstrated good psychometric properties and construct validity in various international contexts.

The conceptualization and measurement of happiness and human flourishing have been extensively studied in psychology, typically through constructs such as well-being, happiness, meaning in life, and life satisfaction (Diener et al., 1985; Lyubomirsky and Lepper, 1999; Rule et al., 2024; Steger et al., 2006). However, most instruments do not explicitly include virtues, which represents a limitation, since “flourishing consists of something more than one’s mental state and how one feels about various aspects of life” (VanderWeele, 2017, p. 8149). To address this gap, VanderWeele (2017) developed the Secure Flourish Measure (SFM), a scale comprising 12 items grouped into six domains: “happiness and life satisfaction”, “mental and physical health”, “meaning and purpose”, “character and virtue”, “close social relationships”, and “financial and material stability” (see Appendix 3). Each domain includes two items, rated on an 11-point Likert-type scale tailored to the specific domain. The SFM has been administered in various countries, consistently demonstrating strong psychometric properties and supporting its construct validity (VanderWeele et al., 2025; Węziak-Białowolska et al., 2019, 2021).

3.4. Procedure

The PERIU graduate profile scale and the SFM were administered at UVF in March 2025 and at Anáhuac Mayab in October 2025. Data collection was conducted in accordance with the ethical standards of privacy and voluntary participation established by both universities. The instruments were administered with the support of institutional authorities, and student responses were collected using the Jotform (UFV) and Google Forms platforms (UAM), which allowed participants to complete the survey using their own electronic devices.

All participants provided informed consent prior to participation. Participation was voluntary and anonymous, and no personally identifiable information was collected. The study complied with the ethical standards established by the participating institutions and with applicable data protection regulations.

3.5. Data analysis

Data analyses were performed using SPSS version 30 and R version 4.5.1.

First, an exploratory factor analysis (EFA) was conducted in both samples. As the Spanish sample was small for an EFA, it was used primarily for cross-national comparison purposes. Given the large size of the Mexican sample, it was randomly split into two subsamples to allow for EFA followed by confirmatory factor analysis (CFA). The Kaiser–Meyer–Olkin (KMO) measure and Bartlett’s test of sphericity confirmed the suitability of the data for factor analysis (see Table 3).

Since the data did not meet the assumption of multivariate normality (Mardia, 1970), the Unweighted Least Squares (ULS) extraction method was used (Li, 2016). Parallel analysis, together with theoretical considerations, was employed to determine the optimal number of factors and avoid overestimation (Horn, 1965). Items with factor loadings below .40 or substantial cross-loading across multiple factors were excluded.

Reliability and internal consistency were assessed using McDonald’s Omega and Cronbach’s alpha, and convergent validity was evaluated using the Average Variance Extracted (AVE) index. Reliability values

**Table 3**  
KMO test and Bartlett’s test of sphericity for the initial PERIU graduate profile scale.

| Sample           | KMO  | $\chi^2$ | gl  | p     |
|------------------|------|----------|-----|-------|
| Spain (N = 81)   | .747 | 576.512  | 153 | <.001 |
| México (N = 580) | .954 | 5615.218 | 153 | <.001 |

between .70 and .90 were considered acceptable, and convergent validity was deemed satisfactory when AVE values exceeded .50 (McDonald, 1999).

Confirmatory factor analysis (CFA) was then used to test the fit of the models obtained through EFA. The following goodness-of-fit indices were considered indicative of adequate model fit: RMSEA < .06; SRMR < .08; CFI > .95; and TLI > .95 (Schreiber et al., 2006).

Finally, a correlational analysis was conducted between the PERIU graduate profile scale and the SFM flourishing scale to assess convergent validity between the two instruments.

4. Results

The factorial structure of the initial PERIU scale revealed some differences between countries, tending toward a three-factor solution in Spain and a two-factor solution in Mexico (see Table 4). Overall, the items performed adequately in the Mexican sample, except for Item 2, which showed low explained variance on its factor ( $h^2 = .24$ ), and Item 13, which tended to load on multiple factors. The variance explained by this model was 61% in Mexico and 41% in Spain. Similarly, the model fit

**Table 4**  
Factorial structure of the initial PERIU scale in Spain and Mexico.

| Item                                                                                                                                      | Spain |     |     | Mexico |     |     |
|-------------------------------------------------------------------------------------------------------------------------------------------|-------|-----|-----|--------|-----|-----|
|                                                                                                                                           | 1     | 2   | 3   | 1      | 2   | 3   |
| 1. I know myself, including my strengths, weaknesses, and limits, seeking self-improvement with the help of others.                       | .35   |     |     | .72    |     |     |
| 2. I feel more like a debtor (I owe) than a creditor (I am owed) toward life.                                                             |       |     |     |        |     | .48 |
| 3. I build my life on principles that inspire me and help me live with courage and authenticity.                                          | .57   |     |     | .77    |     |     |
| 4. I welcome others as they are, seeking their good                                                                                       | .72   |     |     | .74    |     |     |
| 5. I accept mistakes—my own and those of others—from an attitude of forgiveness and as an opportunity to learn and grow in relationships. | .88   |     |     | .78    |     |     |
| 6. I listen to and accompany others with an empowering perspective of what they can become.                                               | .62   |     |     | .88    |     |     |
| 7. I place my abilities at the service of the common good and the needs of society.                                                       | .41   | .43 |     | .81    |     |     |
| 8. I cultivate the virtue of gratitude, giving without expecting anything in return.                                                      | .49   |     |     | .82    |     |     |
| 9. I seek to foster creative and transformative communities.                                                                              |       | .38 |     | .66    |     |     |
| 10. I ask questions rooted in open reason, that is, about truth and the good in my academic field and future profession.                  |       | .49 |     | .68    |     |     |
| 11. I transform and internalize the information I receive into personal knowledge.                                                        | .38   | .46 |     | .75    |     |     |
| 12. I seek to contribute new approaches and perspectives to the problems and realities I encounter.                                       | .70   |     |     | .75    |     |     |
| 13. I reflect on the “why” of my life, of suffering, and of love.                                                                         |       | .43 | .31 |        |     | .38 |
| 14. I seriously reflect on the question of God and the transcendent meaning of my existence.                                              |       |     | .95 |        | .71 |     |
| 15. I allow myself to reflect on the person of Jesus Christ, freely.                                                                      |       |     | .92 |        | .78 |     |
| 16. When needed, I am willing to undertake projects and guide others toward the common good.                                              |       | .52 |     | .75    |     |     |
| 17. My leadership helps others achieve shared goals.                                                                                      |       | .55 |     | .75    |     |     |
| 18. I contribute ethically to the transformation of society.                                                                              |       | .86 |     | .75    |     |     |

Note: Unweighted Least Squares with Promax rotation.

indices approached acceptable levels in the Mexican sample (RMSEA = .073; TLI = .933; SRMR = .027), whereas model fit remained weaker and unsatisfactory in the Spanish sample (RMSEA = .17; TLI = .517; SRMR = .10).

Based on these results and considering that the theoretical framework supports a three-factor model, different combinations of items were tested. This made it possible to identify the final PERIU scale, a subset of the initial scale, consisting of nine items distributed across three factors (see Table 5). This structure was similarly replicated in both samples and aligns with the theoretical model proposed for the RIU graduate profile. The variance explained by this model increased to 66% in the Mexican sample and 62% in the Spanish sample. Model fit indices indicated adequate fit in the Mexican sample (RMSEA = .049; TLI = .983; SRMR = .013), while fit remained weaker in the Spanish sample (RMSEA = .111; TLI = .873; SRMR = .039).

Appendix 2 presents the final PERIU graduate scale. Once the structural factors of the final PERIU scale were identified, descriptive statistics and reliability indices were calculated for each factor (see Table 6). Overall, the factors exhibited characteristics similar to those of the initial scale. Factor 1 showed the highest mean in both populations, whereas Factor 2 had the lowest mean in both groups.

Regarding reliability, the analysis indicated that all factors demonstrated good internal consistency, with values above .70, except for Factor 3 in the Spanish sample, which reached a value of .666, likely due to the small sample size. Additionally, the AVE index indicated adequate convergent validity for all factors, with values above .50.

The application of the SFM yielded a mean score of 7.92, with a standard deviation of 1.35. These values are higher than those reported by VanderWeele (2025), who found a mean of 7.64 and a standard deviation of 1.38.

Taking this structure into account, a confirmatory factor analysis (CFA) was conducted on the Mexican sample. CFA was not performed for the Spanish sample due to its insufficient size. As shown in Table 7, the fit indices indicate an adequate model fit.

The relationships between the variables are shown below. Fig. 1 illustrates the path diagram for this model.

Finally, a correlational study between the convergency between PERIU scale and the SFM scale was examined (see Table 8). In the

present study, the SFM dimension showing the strongest convergence with the graduate profile scale was “character and virtue”, which exhibited a moderate-strong correlation with Factors 1 (.462) and 3 (.505), and a weak-moderate correlation of .327 with Factor 2. Additionally, Factor 3 showed highest correlations than other Factors with the SFM dimensions of “happiness and life satisfaction”, “mental and physical health”, “meaning and purpose” and “character and virtue”. These same dimensions also correlated with values above .30 with Factor 1. By contrast, the graduate profile scale showed only a weak relationship with the financial and material stability dimension.

5. Discussion

As we mentioned in the introduction, universities play a crucial role in the education of responsible professionals—a commitment reflected in their official mission statements. However, this commitment is not always translated into the curriculum or assessment practices (Arias-Coello et al., 2020; Breznik & Law, 2019; Brooks et al., 2019; Morphew & Hartley, 2006). The graduate profile defines the main attributes or competencies that students are expected to develop upon completing a specific program and that the university will assess (Abelha et al., 2020; Brauer, 2021; Mahon, 2022).

In the previous section, we presented results regarding the university graduate profile designed for undergraduate students, which we have named PERIU. This scale is based on the mission statements of universities that are members of the International Network of Universities of Regnum Christi (RIU). The results obtained allow us to address the objectives of the study: (1) to identify the factorial structure of the graduate profile scale; (2) to examine its psychometric properties; (3) to determine the factorial model resulting from confirmatory factor analysis; and (4) to analyze the correlation (convergence) between the PERIU graduate profile scale and the SFM human flourishing scale.

5.1. Factorial structure of the PERIU graduate profile scale

The results indicate that the RIU graduate profile scale for students comprises three distinct and interrelated factors. These factors are consistent with the theoretical model that served as the basis for the scale's design. Factor 1 corresponds to the dimension of intrapersonal and interpersonal relationships while Factor 2 corresponds to the dimension of transcendence (relationship with God and meaning). Factor 3 corresponds to the dimension of leadership. Based on their psychometric performance and theoretical grounding, these nine items are appropriate for assessing the graduate profile of RIU university students. PERIU thus aligns with the educational objectives and model set out in institutional documents (Universidad Francisco de Vitoria, 2025; Anahuac Universities Network, n.d.).

The factors included in PERIU do not coincide with the dimensions identified by Wong et al. (2022) in their review of graduate attributes in UK universities: self-awareness & lifelong learning, employability & professional development, global citizenship & engagement and academic & research literacy. However, the dimensions of self-awareness and global citizenship do show theoretical alignment with PERIU: the former is related to personal relationships and even transcendence, while the latter is associated with leadership.

It should be noted that in the final PERIU scale, several dimensions of the UFV graduate profile are excluded—specifically, the dimension of relationship with oneself (Items 1–3), the community dimension (Items 7–9), and the dimension of relationship with the world (Items 10–12). However, as shown in Table 4, these dimensions primarily load on Factor 1. Therefore, they can be considered part of a single relationships factor.

5.2. Psychometric properties of the PERIU scale

Although the scale demonstrates good reliability, there are

Table 5  
Factorial structure of the final PERIU scale in Spain and Mexico.

| Item                                                                                                                                      | Spain |      |     | Mexico |      |     |
|-------------------------------------------------------------------------------------------------------------------------------------------|-------|------|-----|--------|------|-----|
|                                                                                                                                           | 1     | 2    | 3   | 1      | 2    | 3   |
| 4. I welcome others as they are, seeking their good                                                                                       |       |      | .60 | .80    |      |     |
| 5. I accept mistakes—my own and those of others—from an attitude of forgiveness and as an opportunity to learn and grow in relationships. |       |      | .95 | .74    |      |     |
| 6. I listen to and accompany others with an empowering perspective of what they can become.                                               | .32   |      | .70 | .88    |      |     |
| 13. I reflect on the “why” of my life, of suffering, and of love.                                                                         | .45   |      |     |        |      | .36 |
| 14. I seriously reflect on the question of God and the transcendent meaning of my existence.                                              |       | 1.02 |     |        | 1.06 |     |
| 15. I allow myself to reflect on the person of Jesus Christ, freely.                                                                      |       | .91  |     |        |      | .63 |
| 16. When needed, I am willing to undertake projects and guide others toward the common good                                               | .56   |      |     |        | .63  |     |
| 17. My leadership helps others achieve shared goals.                                                                                      | .68   |      |     |        | .98  |     |
| 18. I contribute ethically to the transformation of society.                                                                              | .91   |      |     |        | .63  |     |

Note: Since correlations were estimated using polychoric correlations due to the use of ordinal data, factor loadings may exceed the value of 1.

**Table 6**

Descriptive statistics and reliability of the PERIU final graduate profile scale.

| Factor                 | Spain |      |          |          | Mexico |      |          |          | AVE  |
|------------------------|-------|------|----------|----------|--------|------|----------|----------|------|
|                        | Mean  | SD   | $\alpha$ | $\omega$ | Mean   | SD   | $\alpha$ | $\omega$ |      |
| Factor 1 (4, 5 y 6)    | 5.12  | .63  | .721     | .726     | 4.92   | .89  | .819     | .820     | .695 |
| Factor 2 (13, 14 y 15) | 4.27  | 1.30 | .726     | .869     | 4.54   | 1.11 | .713     | .746     | .579 |
| Factor 3 (16, 17 y 18) | 4.84  | .73  | .661     | .666     | 4.87   | .96  | .845     | .846     | .722 |

Note: AVE was calculated only for the Mexican sample, as it is the sample in which CFA could be conducted.

**Table 7**

Fit index of the confirmatory factor analysis.

| CFI  | TLI  | RMSEA | IC RMSEA |      | SRMR |
|------|------|-------|----------|------|------|
|      |      |       | LOW      | UP   |      |
| .997 | .995 | .064  | .049     | .080 | .038 |

indications that the wording of some items could be improved to enhance students' comprehension, which may have affected their responses. In drafting the items, efforts were made to remain as faithful as possible to the original wording of the graduate profile (see Table 1). Some items are complex or ambiguous. For example, Item 13 ("I reflect on the 'why' of my life, of suffering, and of love") could be simplified to "I reflect on the meaning of my life." In future studies, it will be important to examine whether improved wording enhances the psychometric performance of the scale, especially for the Spanish sample, which remains small. Regarding Item 14 ("I seriously reflect on the question of God and the transcendent meaning of my existence"), it is recommended to simplify it, particularly to avoid redundancy with Item 13, resulting in the following formulation: "I seriously reflect on the question of God."

The items of the graduate profile scale are based on students' self-perception. It would be advisable to administer the scale at both the beginning and end of the academic program to identify potential changes over time. Such variation is expected; however, it would not be surprising for students to report lower post-test scores, as greater self-knowledge and awareness of the virtues required for life may lead them to recognize that they are still far from the stated objective. The years spent at university are expected to foster greater self-criticism. Therefore, it would be beneficial to complement self-perception items regarding achievement of the graduate profile with items in which

students assess the university's contribution to their integral formation. Based on the UFV graduate profile (Universidad Francisco de Vitoria, 2025), the following items are proposed to assess the university's impact on students' integral formation:

- I believe that the university has helped me integrate intelligence, will, and affectivity.
- I believe that the university has helped me develop a fruitful relationship with others.
- I believe that the university has helped me engage more actively with society.
- I believe that the university has helped me value and seek truth, beauty, and goodness in community.
- I believe that the university has helped me reflect on questions related to the transcendent meaning of life.

### 5.3. Confirmatory factor analysis of the PERIU scale

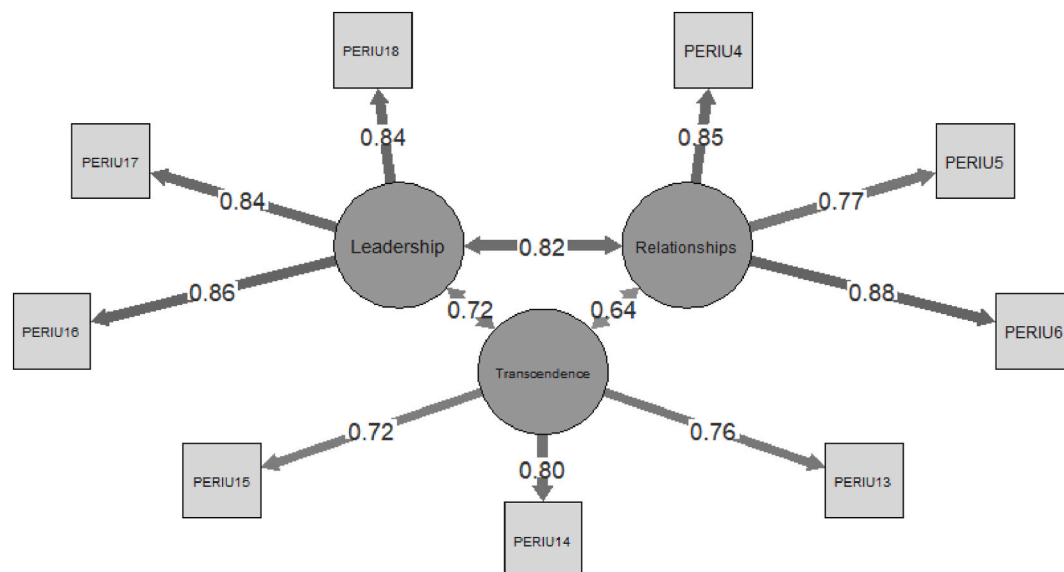
Fig. 1, which presents the diagram of relationships among the factors derived from the confirmatory factor analysis, shows a good model fit. The factors can be labeled as "relationships" (Factor 1), "transcendence"

**Table 8**

Convergence between the final PERIU graduate profile scale and the SFM.

|                                  | 1      | 2      | 3      |
|----------------------------------|--------|--------|--------|
| Happiness and life satisfaction  | .310** | .259** | .356** |
| Mental and physical health       | .303** | .241** | .349** |
| Meaning and purpose              | .353** | .268** | .389** |
| Character and virtue             | .462** | .327** | .505** |
| Close social relationships       | .297** | .172** | .274** |
| Financial and material stability | .138** | .186** | .128** |

Note.

**Fig. 1.** Path diagram of the factors of the final PERIU scale.

(Factor 2) and “leadership” (Factor 3). Factor 1 appears to be more closely related to moral virtues, Factor 2 is more strongly associated with transcendence, meaning and spirituality, whereas Factor 3 is related to social commitment and social responsibility. These three factors, although they do not cover the entirety of a graduate profile, indicate three fundamental aspects of the integral formation. Although the three factors are interrelated, factor 1 relates to encountering oneself and with others, factor 3 relates to social commitment and guiding others towards the common good, and factor 2 relates to encountering God.

During the undergraduate stage of university studies, students must address these three dimensions of integral formation which reflect the university's mission statement and are linked to human flourishing (López González et al., 2026a). The university curriculum should be aligned with these objectives (Gede & Huluka, 2023; Younis et al., 2023). In order for students to get to know themselves and take charge of their own formation, it is advisable to apply scales for measuring leadership education, education in cardinal and transcendent virtues, as well as personal accompaniment, e.g. through mentoring (Crespí et al., 2025a, 2025b; Gambarini & García-Ramos, 2025; López González et al., 2025; López González & Rodríguez Barroso, 2025).

#### 5.4. Convergent validity of the PERIU scale with the Secure Flourishing Measure

As shown above, the graduate profile correlates with the human flourishing scale (SFM). The SFM dimensions that show the strongest correlations with the graduate profile, in descending order, are “character and virtue,” “meaning and purpose,” and “happiness and life satisfaction,” whereas the weakest correlation is observed with “financial and material stability.” These results are consistent with the theoretical model and SFM validation (Weziak-Białowolska et al., 2019) and indicate that the PERIU graduate profile is more closely related to students' virtue and sense of meaning in life than to their financial situation.

It is also worth emphasizing that correlations are observed between all factors and all flourishing dimensions, suggesting that all dimensions are relevant and interrelated. It should be noted that studies on the SFM indicate a network of predominantly positive interrelationships among its components, with the exception of the sixth dimension related to “financial and material stability.” Dimensions 1 (“happiness and life satisfaction”) and 3 (“meaning and purpose”) show the strongest correlations (Höltge et al., 2023).

The highest correlations are observed between Factor 3 (leadership) of PERIU and the “character and virtue” dimension of SFM (.505). It is a relevant finding that the dimension of leadership has such a high correlation with “character and virtue”. It may also indicate that authentic or virtue-based leadership is a predictor of human flourishing (Kleynhans et al., 2022). Consequently, we can assume that the constructs of graduate profile and flourishing have much in common, particularly in terms of character and virtue, but also in terms of leadership. It is to be expected that students who have achieved the PERIU graduate profile will also score highly on flourishing as measured by SFM, particularly in the dimension of “character and virtue”. Conversely, students with higher flourishing as measured by SFM will score highly on the PERIU graduate profile, particularly in the dimension of “leadership”.

The strongest correlations between the ‘leadership’ dimension of graduate profile and the ‘character and virtue’ dimension of human flourishing indicate that both constructs share a common foundation on virtues (Fernández & Dutmer, 2025; López González, 2024; VanderWeele, 2017). Leadership impacts flourishing and that flourishing impacts leadership at all levels (Ritchie-Dunham et al., 2025). The primary role of a leader is to promote the flourishing of their team members through creating a loving environment (Granville-Chapman et al., 2024). Taken together, these findings provide initial evidence

that PERIU can be used as a formative assessment tool for monitoring key dimensions of graduate profiles in RIU universities and potentially in similar institutional contexts, pending further validation in more diverse samples.

#### 5.5. Limitations

This research has several limitations. First, the PERIU scale is a self-report instrument and may therefore be subject to biases associated with participants' subjective perceptions of their university experience and flourishing. Responses may also have been influenced by social desirability bias. Second, the study relied on convenience sampling, which may limit the representativeness of the sample and, consequently, the generalizability of the findings. Third, although data were collected in two countries, the Spanish sample was relatively small compared with the Mexican sample, resulting in an imbalance that may have influenced the robustness and stability of some analyses, specifically those conducted on the Spanish subsample. Furthermore, the study was conducted in only two universities belonging to the RIU network. Given that the PERIU scale was developed from institutional graduate-profile documents within this specific educational context, caution should be exercised when transferring the findings to other higher education settings. The validation of the PERIU scale should therefore be considered preliminary, and further studies are needed to assess its construct, convergent, predictive, and cross-cultural validity in more diverse institutional and cultural contexts. Finally, the methodology employed was exclusively quantitative; incorporating qualitative approaches in future mixed-methods studies could provide a deeper understanding of how students interpret and develop the dimensions assessed by the scale.

#### 5.6. Strengths of the study

This study has several strengths. First, the PERIU scale was theoretically grounded and systematically derived from institutional graduate-profile documents, ensuring strong alignment between the construct measured and the educational mission it was designed to assess. Second, the study included a large Mexican sample complemented by data from a Spanish university, providing a preliminary cross-national perspective on the instrument's performance and offering preliminary evidence of its potential applicability across different higher education contexts. Third, validation against the widely used Secure Flourishing Measure (SFM) provided evidence of convergent validity and strengthened the practical relevance of the scale. Taken together, these features support the psychometric soundness, potential applicability, and educational value of the PERIU scale as a tool for assessing key dimensions of graduate profiles in higher education.

Although the scale was developed within the RIU context, the dimensions it assesses—relationships, leadership, and transcendence—are connected to broader discussions on graduate attributes and holistic student development in higher education. Other universities seeking to develop these attributes in their students may use PERIU as a diagnostic tool for formative assessment. If the dimension of transcendence is not part of the graduate profile, it is still possible to assess the dimensions of relationships with others and leadership.

### 6. Conclusions and prospective

This research presents a new graduate profile scale (PERIU), developed and validated for university students and grounded in the mission statements of the International Network of Universities of Regnum Christi (RIU). The findings indicate that a well-designed graduate profile scale, aligned with the university's mission, can be measured reliably and is meaningfully related to human flourishing.

Exploratory and confirmatory factor analyses identified a robust three-factor structure—relationship with others, leadership, and

transcendence—with strong psychometric properties, particularly in the Mexican sample. The PERIU scale demonstrated good internal consistency and convergent validity with the Secure Flourish Measure (SFM), especially in the domains of “character and virtue”, “meaning and purpose” and “happiness and life satisfaction”.

The convergence between the PERIU scale and the SFM index can be attributed to the similarity of the constructs measured. Our interpretation is that the RIU graduate profile aspires to the full development of the person—or integral formation—closely aligned with the concept of human flourishing (López González et al., 2026a). It is to be expected that students who have achieved the PERIU graduate profile will also score highly on flourishing as measured by SFM, particularly in the dimension of “character and virtue” and “leadership”. Leadership impacts flourishing and that flourishing impacts leadership at all levels (Ritchie-Dunham et al., 2025).

These findings support the use of the PERIU scale for formative assessment and continuous improvement of educational programs, facilitating the alignment of curriculum and evaluation with institutional mission statements. The research also underscores the importance of empirical validation and assessment of graduate profiles to foster responsible professionals and promote integral formation and human flourishing in higher education. Instruments of this kind enable the assessment of competencies and learning objectives established in the curriculum (Crespí & García-Ramos, 2023).

From a prospective standpoint, it would be advisable to apply this scale in other RIU universities, particularly in Italy, the United States, and Chile. Further applications in Spain are also needed, given the small sample size and the limited robustness of the results obtained in this population. It is pertinent to apply PERIU in universities beyond those with a Christian ethos, especially in institutions committed to fostering human flourishing. Considering the convergence between PERIU and the SFM, its use for assessing the graduate profile appears warranted, at least in the dimensions of relationship with other and leadership. The results will provide evidence regarding the transferability of PERIU across these university contexts.

Future studies should further examine the convergent and predictive validity of the graduate profile scale in relation to other instruments measuring virtues and leadership education, such as the QCV scale (Crespí et al., 2021; López González et al., 2025; Rodríguez Barroso et al., 2025), the MHM scale (López González & Rodríguez Barroso, 2025), and the LID scale (López González et al., 2024, 2026b). Such efforts would contribute to the integral formation of university students as responsible professionals.

In any case, it is important to assess graduate attributes. Graduate attributes constitute a powerful statement about the values and aspirations of an institution, but they lack credibility if they are not grounded and assessed (Mahon, 2022).

#### CRedit authorship contribution statement

**Jorge López González:** Writing – original draft, Validation, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Marta Hurtado Martín:** Writing – review & editing, Supervision, Software, Methodology, Investigation, Conceptualization. **Paula Crespí:** Writing – review & editing, Validation, Investigation, Conceptualization.

#### Ethics declaration

Written informed consent to take part in the study and to publish the

#### Appendix 1

PERIU Initial graduate profile scale in Spanish and English.

article has been obtained from all participants or their legal representatives. The privacy rights of participants have been observed.

This study was performed in compliance with relevant laws, regulatory frameworks and guidelines where the research took place. This study was approved by the Comité de ética de investigación de la Universidad Francisco de Vitoria. (Approval No. 38/2026)

#### Ethical approval

This study was approved by the Ethics Committee of the Universidad Francisco de Vitoria (UFV), Approval No. 38/2026, dated 22 June 2026. The research was conducted in accordance with the ethical principles governing research involving human participants. Participation was voluntary, informed consent was obtained from all participants, and the confidentiality and anonymity of the data were ensured throughout the study.

#### Data availability statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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This study was approved by the Ethics Committee of the Universidad Francisco de Vitoria (UFV), Approval No. 38/2026, dated 22 June 2026. The research was conducted in accordance with the ethical principles governing research involving human participants. Participation was voluntary, informed consent was obtained from all participants, and the confidentiality and anonymity of the data were ensured throughout the study.

#### Declaration regarding the use of AI

The authors used generative AI tools exclusively for grammar revision, and translation of the manuscript from Spanish into English. No AI tools were used to generate scientific ideas, conduct analyses, interpret findings, or draw conclusions. The authors accept full responsibility for the content of the manuscript.

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#### Funding statement

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#### Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

| Spanish                                                                                                                       | English                                                                                                                                   |
|-------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Me conozco a mí mismo con mis fortalezas, mis debilidades y mis límites, buscando superarme con la ayuda de los demás.     | 1. I know myself, including my strengths, weaknesses, and limits, seeking self-improvement with the help of others.                       |
| 2. Me siento más deudor que acreedor con la vida.                                                                             | 2. I feel more like a debtor (I owe) than a creditor (I am owed) toward life.                                                             |
| 3. Cimento mi vida sobre principios que me inspiran y me ayudan a vivir con valentía y autenticidad.                          | 3. I build my life on principles that inspire me and help me live with courage and authenticity.                                          |
| 4. Acojo a los demás como son, buscando su bien.                                                                              | 4. I welcome others as they are, seeking their good.                                                                                      |
| 5. Acepto el error, propio y ajeno, desde una actitud de perdón y como una oportunidad para aprender y crecer en la relación. | 5. I accept mistakes—my own and those of others—from an attitude of forgiveness and as an opportunity to learn and grow in relationships. |
| 6. Escucho y acompaño a los demás con una mirada posibilitadora de lo que pueden llegar a ser.                                | 6. I listen to and accompany others with an empowering perspective of what they can become.                                               |
| 7. Pongo mis capacidades al servicio del bien común y de las necesidades de la sociedad.                                      | 7. I place my abilities at the service of the common good and the needs of society.                                                       |
| 8. Cultivo la virtud de la gratuidad, dando sin esperar recibir a cambio.                                                     | 8. I cultivate the virtue of gratitude, giving without expecting anything in return.                                                      |
| 9. Busco generar comunidades creativas y transformadoras.                                                                     | 9. I seek to foster creative and transformative communities.                                                                              |
| 10. Me planteo preguntas de razón abierta, es decir, sobre la verdad y el bien en mi ciencia y futura profesión.              | 10. I ask questions rooted in open reason, that is, about truth and the good in my academic field and future profession.                  |
| 11. Transformo e interiorizo la información recibida en conocimiento propio.                                                  | 11. I transform and internalize the information I receive into personal knowledge.                                                        |
| 12. Busco aportar nuevos planteamientos y perspectivas sobre los problemas y realidad que me toca vivir.                      | 12. I seek to contribute new approaches and perspectives to the problems and realities I encounter.                                       |
| 13. Me planteo el "para qué" de mi vida, del sufrimiento y del amor.                                                          | 13. I reflect on the "why" of my life, of suffering, and of love.                                                                         |
| 14. Me planteo con hondura la cuestión de Dios y el sentido trascendente de mi existencia.                                    | 14. I seriously reflect on the question of God and the transcendent meaning of my existence.                                              |
| 15. Me dejo interpelar por la persona de Jesucristo, en libertad.                                                             | 15. I allow myself to reflect on the person of Jesus Christ, freely.                                                                      |
| 16. Cuando se necesita, estoy dispuesto a emprender proyectos y guiar a otros hacia el bien común.                            | 16. When needed, I am willing to undertake projects and guide others toward the common good.                                              |
| 17. Mi liderazgo sirve de ayuda a los demás en el logro de objetivos comunes.                                                 | 17. My leadership helps others achieve shared goals.                                                                                      |
| 18. Contribuyo éticamente a la transformación de la sociedad.                                                                 | 18. I contribute ethically to the transformation of society.                                                                              |

## Appendix 2

PERIU Final graduate profile scale in Spanish and English.

| Spanish                                                                                                                       | English                                                                                                                                   |
|-------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Acojo a los demás como son, buscando su bien.                                                                              | 1. I welcome others as they are, seeking their good.                                                                                      |
| 2. Acepto el error, propio y ajeno, desde una actitud de perdón y como una oportunidad para aprender y crecer en la relación. | 2. I accept mistakes—my own and those of others—from an attitude of forgiveness and as an opportunity to learn and grow in relationships. |
| 3. Escucho y acompaño a los demás con una mirada posibilitadora de lo que pueden llegar a ser.                                | 3. I listen to and accompany others with an empowering perspective of what they can become.                                               |
| 4. Me planteo el "para qué" de mi vida, del sufrimiento y del amor.                                                           | 4. I reflect on the "why" of my life, of suffering, and of love.                                                                          |
| 5. Me planteo con hondura la cuestión de Dios y el sentido trascendente de mi existencia.                                     | 5. I seriously reflect on the question of God and the transcendent meaning of my existence.                                               |
| 6. Me dejo interpelar por la persona de Jesucristo, en libertad.                                                              | 6. I allow myself to reflect on the person of Jesus Christ, freely.                                                                       |
| 7. Cuando se necesita, estoy dispuesto a emprender proyectos y guiar a otros hacia el bien común.                             | 7. When needed, I am willing to undertake projects and guide others toward the common good.                                               |
| 8. Mi liderazgo sirve de ayuda a los demás en el logro de objetivos comunes.                                                  | 8. My leadership helps others achieve shared goals.                                                                                       |
| 9. Contribuyo éticamente a la transformación de la sociedad.                                                                  | 9. I contribute ethically to the transformation of society.                                                                               |

## Appendix 3

SFM Scale.

Domain 1: Happiness and Life Satisfaction.

1. Overall, how satisfied are you with life as a whole these days?/¿Cómo de satisfecho estás con la vida en general estos días?

0 = Not Satisfied at All, 10 = Completely Satisfied.

2. In general, how happy or unhappy do you usually feel?/En general, ¿cómo de feliz o infeliz te sientes?

0 = Extremely Unhappy, 10 = Extremely Happy.

Domain 2: Mental and Physical Health.

3. In general, how would you rate your physical health?/¿Cómo calificarías tu salud física?

0 = Poor, 10 = Excellent.

#### 4. How would you rate your overall mental health?/¿Cómo calificarías tu salud mental en general?

0 = Poor, 10 = Excellent.

Domain 3: Meaning and Purpose.

#### 5. Overall, to what extent do you feel the things you do in your life are worthwhile?/En general, ¿en qué medida sientes que las cosas que haces en tu vida valen la pena?

0 = Not at All Worthwhile, 10 = Completely Worthwhile.

#### 6. I understand my purpose in life./Entiendo mi propósito en la vida.

0 = Strongly Disagree, 10 = Strongly Agree.

Domain 4: Character and Virtue.

#### 7. I always act to promote good in all circumstances, even in difficult and challenging situations./Busco hacer el bien en todas las circunstancias, aun en situaciones complejas y difíciles.

0 = Not True of Me, 10 = Completely True of Me.

#### 8. I am always able to give up some happiness now for greater happiness later./Siempre soy capaz de renunciar a una parte de la felicidad momentánea por una felicidad futura mayor.

0 = Not True of Me, 10 = Completely True of Me.

Domain 5: Close Social Relationships.

#### 9. I am content with my friendships and relationships./Estoy contento con mis amistades y relaciones

0 = Strongly Disagree, 10 = Strongly Agree.

#### 10. My relationships are as satisfying as I would want them to be./Mis amistades y relaciones me resultan satisfactorias

0 = Strongly Disagree, 10 = Strongly Agree.

Domain 6: Financial and Material Stability.

#### 11. How often do you worry about being able to meet normal monthly living expenses?/¿Con qué frecuencia te preocupa poder contar con suficientes ingresos para satisfacer tus gastos mensuales de subsistencia habituales?

0 = Worry All of the Time, 10 = Do Not Ever Worry.

#### 12. How often do you worry about safety, food, or housing?/¿Con qué frecuencia te preocupas por la seguridad, la comida o la vivienda?

0 = Worry All of the Time, 10 = Do Not Ever Worry.

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