

Development and validation of the Relaxation-Mindfulness Scale for Adolescents (EREMIND-A)

Luis López-González¹, Alberto Amutio², Xavier Oriol³, José Jesús Gázquez⁴, M^a del Carmen Pérez-Fuentes⁵
and M^a del Mar Molero⁵

¹ University of Barcelona, ² University of the Basque Country (UPV/EHU), ³ Universidad Andres Bello (Chile),

⁴ Universidad Autónoma de Chile (Chile) and ⁵ University of Almería

Abstract

Background: The aim of this investigation was to validate the Relaxation-Mindfulness Scale for Adolescents (EREMIND-A), consisting of 18 items and three factors (Attention-Concentration in the present moment; Relaxation (abilities and attitudes); and Sensory awareness/Contemplation/Interiority). **Method:** The validation was done with a sample of Secondary Education and Baccalaureate students from four different centres in Spain (n = 1.120). EFA and CFA of the EREMIND-A were performed and construct and incremental validities calculated. **Results:** Initial results confirm the validity and reliability of the scale. **Conclusions:** There is a need for a broader conceptualization of mindfulness, as well as the inclusion and analysis of other related and cross-cutting concepts. The research in this sense will propitiate the adaptation of the Mindfulness-Based Interventions to the reality of the adolescents in the educational centers, where relaxation and the interiority are aspects to be taken into consideration.

Keywords: Relaxation, mindfulness, secondary education, learning, interiority.

Resumen

Desarrollo y validación de la Escala de Relajación-Mindfulness para Adolescentes (EREMIND-A). **Antecedentes:** el objetivo de esta investigación fue validar la Escala de relajación-Mindfulness para Adolescentes (EREMIND-A), que contiene 18 ítems y tres factores (Atención-Concentración en el momento presente; Relajación (habilidades y actitudes); Consciencia Sensorial/Contemplación/Interioridad. **Método:** la validación se realizó con una muestra de estudiantes de Educación Secundaria y Bachillerato de cuatro centros diferentes en España (n = 1.120). Se realizaron análisis factoriales exploratorios y confirmatorios de la escala y se calcularon la validez de constructo e incremental. **Resultados:** los resultados iniciales confirman la fiabilidad y validez de la escala. **Conclusiones:** es necesaria una conceptualización más amplia de la atención plena, así como la inclusión y análisis de otros conceptos relacionados y transversales. La investigación en este sentido propiciará la adaptación de las intervenciones basadas en mindfulness a la realidad de los adolescentes en los centros educativos, donde la relajación y la interioridad son aspectos a tener en consideración.

Palabras clave: relajación, atención plena, educación secundaria, aprendizaje, interioridad.

Research on mindfulness in adolescents in the education field is growing. Some researchers indicate that adolescence is the best time to learn about Relaxation-Mindfulness (REMIND). There is a consensus about how REMIND practice provides multiple benefits to adolescents (Amutio, Franco, Gázquez, & Mañas, 2015; Felver Celis de Hoyos, Tezanos, & Singh, 2016; Franco, De la Fuente, & Salvador, 2011; Franco, Amutio, López-González, Oriol, & Martínez-Taboada, 2016; Zenner, Herrnleben-Kurz, & Walach, 2014; Zoogman, Goldberg, Hoyt, & Miller, 2015). However, the research on evaluation tools of mindfulness for adolescents is scarce compared to the number of studies on its effects on wellbeing and its educational possibilities (Pallozzi,

Wertheim, Paxton, & Ong, 2016; Shoshani & Slone, 2013), and current research is oriented towards studying the role of positive emotions in well-being (Zumeta, Basabe, Telletxea, Amutio, & Bobowik, 2016; del Pino, Peñate, Fumero, Bethencourt, & Zambrano, 2016). Some of these few instruments include scales such as *The Mindful Student Questionnaire* (Renshaw, 2016), the *Comprehensive Inventory of Mindfulness Experiences-Adolescent* (CHIME-A; Johnson, Burke, Brinkman, & Wade, 2016), and the *Escala de Habilidades y Estados de Relajación-Mindfulness para Adolescentes* (EHERMA; López-González, Amutio, Herrero-Fernández, & Bisquerra, 2016). Another instrument in Spanish is the *Escala de Atención Plena en el Ámbito Escolar* (León, 2008), where three dimensions of attention are assessed (*inner, outer and kinesthetic*). Other self-reporting instruments that measure abilities related to *mindfulness* in adolescence include: *Cuestionario Breve de Hábitos de Relajación y Meditación Escolar* (CBHRME; López-González, Amutio, Oriol, & Bisquerra, 2016), the *Mindful Thinking and Action Scale for Adolescents* (MTASA; West,

Received: June 19, 2017 • Accepted: December 19, 2017

Corresponding author: M^a del Carmen Pérez-Fuentes

Facultad de Psicología

University of Almería

04120 Almería (Spain)

e-mail: mpf421@ual.es

Penix-Sbraga, & Pool, 2007), the *Personal Values questionnaire* (PVQ; Blackledge, Spencer, & Ciarrochi, 2007), and the *Social Values Survey* (SVS; Blackledge, Ciarrochi, Bilich, & Heaven, 2007).

When reviewing the existing literature on measuring REMIND in adolescents several controversies are apparent. First, the predominance of self-reporting compared to other behavioural, observational and indirect measures (Eklund et al., 2017), the majority of which are adaptations of others designed for adults, including: The *Five Facets Mindfulness Questionnaire* (FFMQ-A; Royuela-Colomer & Calvete, 2016) and an adaptation of the *Mindful Attention Awareness Scale* for adolescents (MAAS-A; Brown, West, Loverich, & Biegel, 2011) with a Spanish version (Calvete, Sampedro, & Orue, 2014), and the *Child and Adolescent Mindfulness Measure* (CAMM; Greco, Baer, & Smith, 2011). Secondly, the majority of instruments are not necessarily suited to the psychophysical development specific to early adolescence (López-González et al., 2016a; Semple, Droutman, & Reid, 2017). Thirdly, there is a lack of multifactorial instruments (Sauer et al., 2013) that integrate state and mindfulness traits (Pallozzi, Wertheim, Paxton, & Ong, 2016), and few existing instruments that measure *mindfulness-state* (López-González et al., 2016a), except for the *State Mindfulness Scale* (Tanay & Bernstein, 2013). A fourth problem is the insufficient methodological rigor in the design and validation of some of the instruments (Pallozzi et al., 2016). In the fifth place, instruments don't reflect the fact that programs with greater rigour frequently include practices that are not specific to meditation or mindfulness, such as relaxation, or yoga stretching (Noggle, Steiner, Minami, & Khalsa, 2012; Semple, Droutman, & Reid, 2017). However, for pedagogical and adaptive reasons regarding the adolescent developmental period (Olivier, Navarro, Menacho, López, & García, 2016; Rodríguez-Fernández, Ramos-Díaz, Madariaga, Arrivillaga, & Galende, 2016), an increasing number of authors recommend including the aforementioned practices and exercises within mindfulness training for adolescents (López-González, Amutio, & Herrero-Fernández, in press; Schonert-Reichl & Roeser, 2016), such as the *Attention Academy Programme* (Napoli, Krech, & Holley, 2005) and the *TREVA Program* (López-González, Alvarez, & Bisquerra, 2016). The *TREVA Program* is based on working with basic and special psycho-corporeal abilities in relaxation, meditation and mindfulness of the REMIND Model: *attention, breathing, letting go, visualization, senso-perception, voice-speech, posture, movement and energy*, highlighting the fact that *relaxation and meditation-mindfulness* involve three fundamental cognitive abilities: *focusing, passivity and receptivity* (Amutio, 2006; López-González, 2010; López-González, Alvarez, & Bisquerra, 2016).

The aim of this study was to validate the *Relaxation and Mindfulness Scale for Adolescents* (EREMIND-A). This aim is justified by the lack of mindfulness evaluation instruments with sufficient reliability and validity that comply with the requirements to be multidimensional (measure cognitive-affective and somatic dimensions of adolescents and integrate trait and state), include relaxation, and be useful in a polyvalent way for other programs. We hypothesized that the *Relaxation and Mindfulness Scale for adolescents* (EREMIND-A) would be a reliable, valid multifactorial instrument for evaluating the levels of relaxation and mindfulness of adolescents at school.

Method

Participants

The sample consisted of 1120 students in compulsory secondary education (ESO) and Baccalaureate between 12 and 18 years old from four different centres in Spain: Two public institutes and two private schools in Madrid and Barcelona. The sample was distributed in different levels of education: first, second, third and fourth year of ESO, and first and second year of Baccalaureate (Table 1). Participants were volunteers. Informed consent was obtained from the parents of under 18s, who signed the corresponding authorization.

Instruments

Relaxation and Mindfulness Scale for Adolescents (EREMIND-A). This is a Likert-type scale of 18 items (Table 2) that measures three factors: *Attention and Concentration in the present moment; Relaxation (skills and attitudes); Sensory-Awareness, Contemplation and Interiority* (Table 3), whose psychometric properties are presented in this paper. There are four possible answers (1= never; 2= occasionally; 3= often; 4= always).

School Relaxation and Mindfulness Habits Brief Questionnaire (CBHRME; López-González et al., 2016b). It is a Likert-type of scale made up of 11 items that measures three factors: *personal habits, familiar-domestic habits and academic habits*. Cronbach alpha for the scale was .72.

Skills and Relaxation-Mindfulness States Inventory for Adolescents (EHERMA; López-González et al., 2016a). It is a Likert-type questionnaire composed of 19 items (1= nothing at all; 2= a little; 3= quite; 4= much) in which three factors are measured: *focusing, passivity-receptivity and REMIND states*. Reliability, according to Cronbach's alpha was .90.

Postural observation. The level of attention to our own posture and its adequacy to the task at hand was evaluated through a template with five levels: 1= very incorrect; 2= incorrect; 3= neither incorrect nor correct; 4= correct; 5= very correct.

Eyes-closed test. The time students have their eyes shut, whilst doing a five-minute relaxation, was measured with a timer.

Table 1
Sample of students by academic level and gender

Academic level	Male	Female	Global	%
	M (14.38)	M (14.41)	M (14.27)	
	DT (1.67)	DT (1.67)	DT (1.64)	
1º ESO	89	77	166	14.8
2º ESO	97	86	183	16.3
3º ESO	164	210	374	33.4
4º ESO	117	149	266	23.8
1º Bacc.	56	47	103	9.2
2º Bacc.	15	13	28	2.5
Total	538	582	1120	100

Note: ESO = Compulsory Secondary Education; Bacc = Baccalaureate

Table 2
Relaxation and Mindfulness Scale for Adolescents [Escala de Relajación-Mindfulness-Adolescentes] (EREMIND-A)

	Never [Nunca]	Occasion- ally [A veces]	Often [con frecuencia]	Always [Siempre]
1. I think that learning how to relax is difficult and takes a lot of time [Creo que aprender a relajarse es muy difícil y se tarda mucho tiempo]	1	2	3	4
2. I notice small details when I go to the countryside [Me fijo en pequeños detalles cuando voy al campo]	1	2	3	4
3. My mind is fresh and clear [Mi cabeza está fresca y mi mente clara]	1	2	3	4
4. I find it difficult to pay attention to one thing at a time [Me cuesta mantener la atención solo en una cosa]	1	2	3	4
5. I am scared of relaxing totally [Me da miedo relajarme del todo]	1	2	3	4
6. My arm and wrist are stiff when I write [Escribo con tensión en el brazo o en la muñeca]	1	2	3	4
7. I relax listening to the sound of rain [Me relaja escuchar el sonido de la lluvia]	1	2	3	4
8. I seek sensations of peace, calm and tranquility [Busco sensaciones de paz, calma y tranquilidad]	1	2	3	4
9. I know how to enjoy what I have to do at every moment [Sé gozar de lo que toca hacer en cada momento]	1	2	3	4
10. In the classroom my mind is unoccupied [En clase tengo la mente desocupada]	1	2	3	4
11. I feel like I have a lot of energy [Me siento una persona con mucha energía]	1	2	3	4
12. I like to feel how different things are to the touch [Me gusta sentir los diferentes tactos que tienen las cosas]	1	2	3	4
13. I like to pay attention to doing simple things and fully feeling them [Me gusta poner toda la atención en hacer cosas sencillas y sentirlo con plenitud]	1	2	3	4
14. I like listening to pure silence [Me gusta escuchar el puro silencio]	1	2	3	4
15. I sense everything I do and I concentrate on it [Siento cada cosa que hago y me concentro en ello]	1	2	3	4
16. During the day I am aware of my breathing [Durante el día toma conciencia de mi respiración]	1	2	3	4
17. I am enthralled looking at nature [Me quedo totalmente embobado mirando la naturaleza]	1	2	3	4
18. Usually I do things without pressure and without getting nervous [Acostumbro a hacer las cosas sin tensiones y sin ponerme nervioso/a]	1	2	3	4

Anxiety-State Inventory (STAIC; Spielberger, Gorsuch, & Lushene, 1982). The STAIC measures trait and state anxiety of children between 9 and 15. It has two subscales, each with 20 items. There are three possible answers: 1= Nearly never; 2= Sometimes and 3= Frequently. Cronbach alpha =.81.

Disciplinary sanctions. Obtained from the school record of disciplinary actions.

Procedure

Firstly, all the self-report instruments of mindfulness for children and adolescents that were available to the researchers were analysed with the aim of designing a 15-20 item scale with Likert-type answers. The following assumptions were used: a) The possibility of using it in *mindfulness-based programs*, although not exclusively; b) Meeting the needs of the REMIND model of the TREVA Program (López-González Alvarez, & Bisquerra, 2016), and using three of the basic psycho-corporeal abilities as factors: *Attention-Concentration, Relaxation, and Sensory-Awareness*; c) Relating attentional and concentration skills of adolescents to their everyday activities; d) Taking into account the holistic experience of the students and involving their affective dimension. This why the dimension of *Sensory-Awareness* includes items related to contemplation, wonder and interiority, and contact with nature; e) Integrating the three dimensions in adolescent development: cognitive, affective and somatic; f) Seeking a broader conceptualization of mindfulness that integrates trait and state, and including relaxation; and g) Finding a unifactorial adjustment

model and another with three factors. The idea was to build a scale that could work with a global indicator and also with its three dimensions separately. Discriminatory work was done on the three dimensions to be chosen, considering the conceptualizations of some other relevant authors (Bishop et al., 2004). The search process led to the definition of the three factors that make up the scale: F1: Attention and Concentration in the present; F2: Relaxation (skills and abilities); F3: Sensory-Awareness/Contemplation/Interiority.

Data analysis

We used SPSS 19.0 statistical package to calculate the descriptive statistics, correlations and exploratory factor analysis (EFA) that were developed with the method with the highest degree of verisimilitude by applying varimax rotation. The suitability of the matrix to achieve AFE was tested with Kaiser-Meyer-Olkin's test (KMO) and Bartlett's Spherical test.

To verify adequate fit of the model, the following robustness indices were used: χ^2 —which should not be significant, despite its dependence on the sample size and subsequent difficulty for adjustment, the ratio χ^2/df is considered acceptable when its values are below 5 (Byrne, 2001), Comparative Fit Index (CFI) and Tucker-Lewis Index (TLI)—for which values above 0.95 indicate a good fit and, and above 0.90 an acceptable fit (Medsker, Williams, & Holahan, 1994), and the Root Mean Square Error of Approximation (RMSEA)— for which it has been suggested that values below 0.05 are a good fit, while values between 0.05 and 0.08 indicate an acceptable fit (Browne & Cudeck, 1992).

Reliabilities were obtained through Cronbach alpha, and a test-retest with a sub-sample $n = 60$ within four months of the initial test was performed.

To calculate convergent validity, a sub-sample of $n=420$ students was used in relation to the following measures: *postural observation, eyes-closed test, the CBHRME* (López-González et al., 2016b) and the *EHERMA* (López-Gonzalez et al., 2016a). These scales were administered after a 15-minute guided practice of REMIND following the TREVA program (López-González, Álvarez, & Bisquerra, 2016) structured in three parts without interruption: 5 minutes of conscious self-observation (posture, corporal sensations and breathing), 5 minutes visualizing a pleasant scene, and 5 minutes of self-observation of the inner state without judgment or desire to change anything. The postural observation took place whilst the students were assigned a task involving writing, and the closed-eyes test was done as an independent relaxation exercise within seven days. Divergent validity was calculated in two ways: first, with a sub-sample $n=180$, comparing the results of the scale with the *STAIC questionnaire* (Spielberger, Gorsuch, & Lushene, 1989), and second, with another sub-sample $n = 335$, comparing the mean of the scale with the number of disciplinary sanctions.

Incremental validity was calculated through multiple regression with a hierarchical approximation and with partial and semi-partial zero correlations, controlling for gender and age, and using CHRME and EHERMA. As the change in R^2 was statistically significant, as seen in the *F-test*, we analysed the pragmatic use interpreting the semi partial correlation as the single absolute increase of the variable concerned, with a minimal value between .15 and .20 (Hunsley & Meyer, 2003).

Confirmatory factor analysis (CFA) was performed with AMOS 22.0. To see if there were differences due to gender in the CFA, a multigroup analysis was performed to calculate the invariance.

Results

The resulting KMO of .78 and the Bartlett's Test of Sphericity ($X^2 = 2.560$; $p < .001$) were highly significant, so we proceeded to do the EFA.

Exploratory Factor Analysis

An initial version of the questionnaire consisting of 36 items was developed based on the aforementioned theoretical framework (López-González, 2010). These were administered to a first sub-sample of 420 students. The EFA with a varimax rotation shed factor loadings of some items under .40, so consequently those items were eliminated, resulting in a total of 18 items presenting adequate factor weight. The EFA was performed again with the remaining items to obtain a three-dimension solution representing a 42% of the total explained variance (Table 3).

Correlations

Correlation analyses were carried out between the different dimensions and the global factor of relaxation and mindfulness for the whole sample. The results showed significant correlations (between $r = .12$ and $r = .35$) between the three dimensions, and above $r = .65$ in the correlations between the dimensions and the global factor (Table 4).

Reliability and validity of EREMIND-A

Given the small number of items in each of the scales, the results showed an adequate internal consistency of the three-factor solution (*Attention-concentration*: $\alpha = .70$; *Relaxation*: $\alpha = .60$ and *Sensory-Awareness/ Contemplation/ Interiority*: $\alpha = .65$) and total score ($\alpha = .72$). The test test-retest showed good stability ($r = .512$, $p < .000$).

As for convergent validity, significant statistic correlations with the other planned measurements were found: CBHRME ($r = .537$; $p < .000$; $n = 370$), EHERMA ($r = .288$; $p < .000$; $n = 277$), postural observation ($r = .288$; $p = .014$; $n = 72$), and the Eyes Closed Test ($r = .176$; $p = .001$; $n = 376$).

Regarding divergent validity, significant negative statistic correlations were found between the state of anxiety (STAIC) and EREMIND-A ($r = -.165$; $p = .027$), and with the factors *Attention-Concentration* ($r = -.464$; $p = .000$) and *Relaxation* ($r = -.315$; $p = .000$) and the global mean of STAIC. Likewise, significant negative correlations were found between the global mean of the scales and the number of disciplinary sanctions ($r = -.152$; $p < .005$; $n = 335$).

EREMIND-A presents an incremental predictive value regarding the other two scales, CBHRE and the EHERMA, with

Table 3
Factors with their correspondent items and factor weight

Factor	Items	Factor weight
Sensory-Awareness, Contemplation, Interiority	17. I am enthralled looking at nature	.728
	2. I notice small details when I go to the countryside	.680
	14. I like listening to pure silence	.638
	8. I seek sensations of peace, calm and tranquillity	.582
	13. I like to pay attention to doing simple things and fully feeling them	.587
	7. I relax listening to the sound of rain	.558
	12. I like to feel how different things are to the touch	.521
Relaxation	16. During the day I am aware of my breathing	.495
	5. I am scared of relaxing totally	.780
	6. My arm and wrist are stiff when I write	.684
	1. I think that learning how to relax is difficult and takes a lot of time	.681
	4. I find it difficult to pay attention to one thing at a time	.583
Attention and Concentration (in the present)	3. My mind is fresh clear	.678
	15. I sense everything I do and I concentrate on it	.652
	9. I know how to enjoy what I have to do at every moment	.638
	10. In the classroom my mind is unoccupied	.631
	11. I feel like I have a lot of energy	.613
	18. Usually I do things without pressure and without getting nervous	.497

Table 4
Correlations between variables

		REMIND	SA (F1)	R(F2)	AC(F3)	EC	AP
REMIND-A	r	1					
	n	1032					
Sensory Awareness (F1)	r	.694**	1				
	n	1032	1032				
Relaxation (F2)	r	.670**	.123**	1			
	n	1029	1029	1029			
Attention-Concentration (F3)	r	.667**	.315**	.122**	1		
	n	1027	1027	1024	1027		
Emotional Competence	r	.559**	.332**	.282**	.584**	1	
	n	368	368	366	364	368	
Academic Performance	r	.278**	.148**	.163**	.270**	.211**	1
	n	351	351	348	346	349	394

Note: SA = Sensory Awareness; R = Relaxation; AC = Attention-Concentration; EC = Emotional Competence; AP = Academic Performance. **Correlation was significant at 0.01 level (2 tails)

a change of ΔR^2 (.109), statistically significant [$F(5,286)=6.86; p=.000$], and a considerable effect $\beta= .28; t(297)=4.24; p<.000$ on the relaxation-mindfulness construct. Analysing which of the scale factors has the highest incremental value, we saw how introducing *Sensory-Awareness (F3)*, which shared a minor variability with the other instruments [$\Delta R^2= .11; \beta= .242; t(285)=3.50; F=6.83; p=.000; r_{sp}=.17$], increases its predictive value.

Confirmatory Factor Analysis

A CFA was performed with the items from the three factor-solution EFA using the whole sample. Some of the adjustment indices were not adequate, so another model was produced after covarying the errors of two items, and adjustment model indices improved at a general level (Figure 1). Additionally, a third model was constructed considering a second order global factor of relaxation and mindfulness (Figure 2) and the adjustment statistics were acceptable (see table 5). Finally, analysis of multi-group measurement invariance was performed to observe differences by gender, but no differences were found.

Discussion

This study responds to the demand for instruments to clearly evaluate different facets of mindfulness, satisfying the need to validate specific instruments of appropriate constructs in the preadolescent development phase, specific to the educational field.

The results confirm the validity and reliability of the *Relaxation and Mindfulness Scale for Adolescents (EREMIND-A)* as a reliable multifactor instrument to measure relaxation and mindfulness in adolescents in schools. There is a shortage of instruments that measure *mindfulness* in adolescents as a natural phenomenon that can also take place in this stage of psychological development. During adolescence there are experiences of sensibility, absorption, contemplation and spirituality that are very much related to *mindfulness* and need to be evaluated (Cobb, Kor, & Miller, 2015; Good & Willoughby, 2008; King & Roeser, 2009; Miller, 2014). Consequently, some emerging concepts should

be included when designing instruments to evaluate REMIND, such as *wonder* and *interiority*. *Wonder* implies *astonishment*

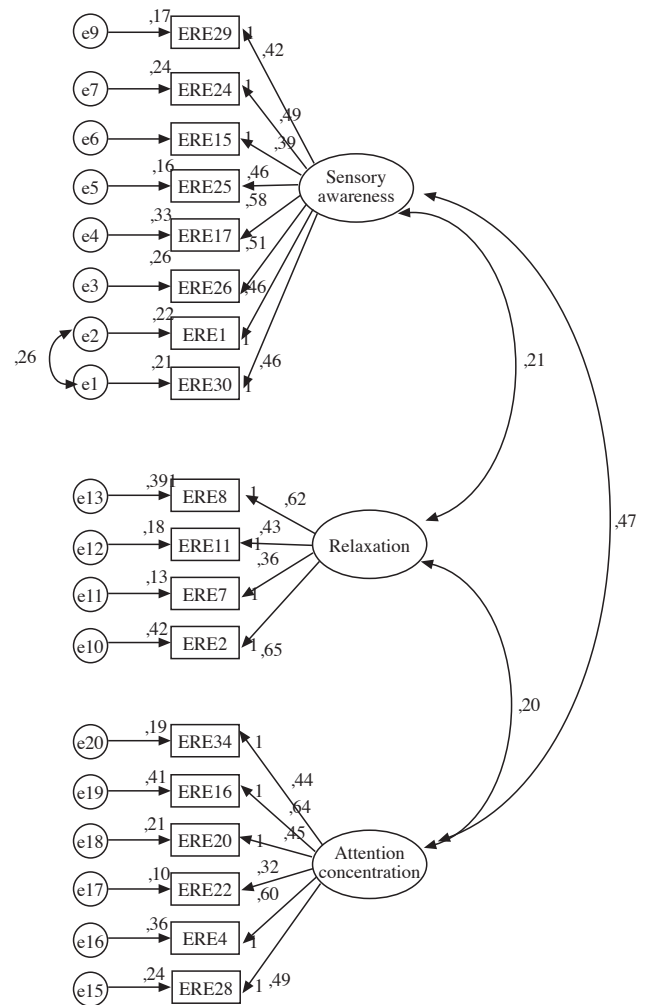


Figure 1. Confirmatory Factor Analysis with three factors solution

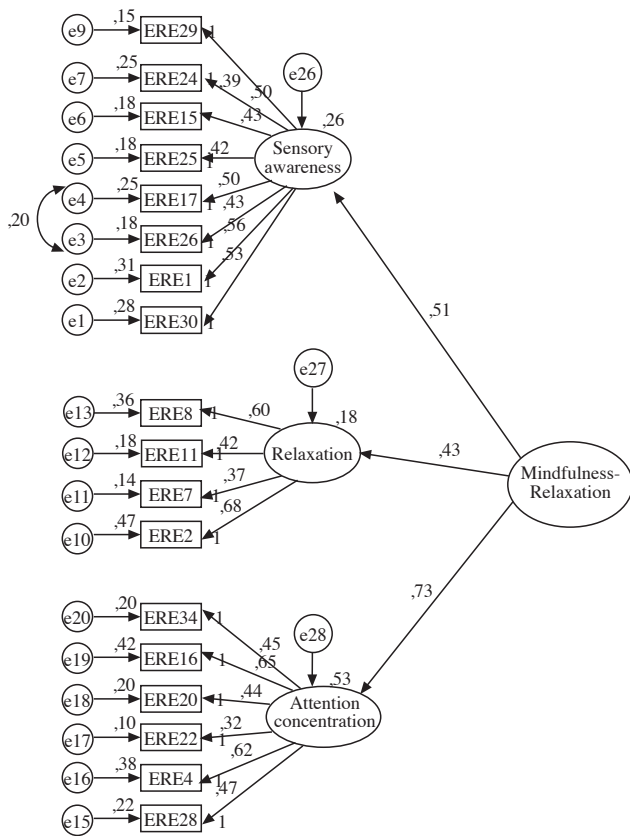


Figure 2. Confirmatory Factor Analysis considering a second order global factor of relaxation and mindfulness

or *admiration* as elements of ecological awareness developed from observing reality and admiration of nature (L'Ecuyer, 2014; Wall, 2005). Many Mindfulness-Based interventions (MBI's) fall into the error of focusing just on attention and excluding other spiritual aspects specific to mindfulness. Likewise, the concept of *interiority* is an emerging construct in an exploratory phase and it refers to the capacity to seek and sense the goodness and beauty in life. This implies *self-knowledge*, *self-pacification*, *sensibility*, *taste for solitude*, *admiration*, *curiosity*, and *finding a meaning in life* (Gardner, 2011; Jennings, 2008; López-González, 2015). Books, articles and educational material have been published in Spain on *interiority* that include *mindfulness* as a practice and some authors already refer to the *Pedagogy of interiority* (López-González, 2015). However, to date, there are no validated questionnaires or scales that assess these dimensions in

Models	χ^2	df	χ^2/df	CFI	TLI	RMSEA
Model 1 (CFA 3 factor solution)	559.056	133	4.02	.87	.85	.049
Model 2 (CFA 3 after covarying errors)	520.345	131	4.03	.91	.91	.045
Model 2 (CFA 1 factor solution)	519.871	131	4.20	.92	.92	.054

Note: χ^2 = chi-square, df = degrees of freedom, CFI = Comparative fit index. TLI = Tucker-Lewis index. RMSEA = Root-mean-square error of approximation

the preadolescent and adolescent periods. This scale and its three dimensions (Attention-Concentration, Relaxation, & Sensory-Awareness/ Contemplation/Interiority) include and evaluate many of the experiences mentioned above.

This scale will contribute to a more phenomenological view of mindfulness and enhance the effectiveness of many mindfulness-based programs. The validation of this scale should continue over time, using different samples to examine the validity and reliability of the results. Likewise, the factorial structure needs to be verified in different educational contexts. Future investigations will explore the effect of gender and sex on the acquisition of emotional competences and REMIND abilities that help to improve academic performance.

The present study attempts to make a contribution towards an enrichment of the *mindfulness* construct in adolescence, and at the same time open it up to related concepts. The results suggest the need to rethink the construct of mindfulness and include other factors and dimensions such as relaxation and interiority, and consequently improve the programs and evaluation tools..

A qualitative methodology is also necessary to benefit from the rich influences of the practise of mindfulness in an educational community, as is the combination of self-report instruments with others, such as direct observation. The design of instruments to evaluate mindfulness must respond to schools' specific educational objectives and be consistent with its purpose: identifying problems, measuring and evaluating results (Dariotis, Mirabal-Beltran, Cluxtin-Keller, Gould, Greenberg, & Mendelson, 2016; Eklund et al., 2017).

In summary, a broader conceptualization of mindfulness and the inclusion and association with other related, cross-discipline concepts is necessary. That will help MBI's adapt to the reality of adolescents in educational centres and enrich the scientific discussion. *Relaxation* and *interiority* are concepts to bear in mind.

References

Amutio, A. (2006). *Relajación y meditación: un manual práctico para afrontar el estrés* [Relaxation and Meditation: A practical manual for coping with stress]. Madrid: Biblioteca Nueva.
 Amutio, A., Franco, C., Gázquez, J.J., & Mañas, I. (2015). Aprendizaje y práctica de la conciencia plena (Mindfulness) en estudiantes de Bachillerato para potenciar la relajación y la autoeficacia en el rendimiento escolar [Learning Mindfulness for Enhancing Relaxation and Self-Efficacy on Academic Performance in High School Students].

Universitas Psychologica, 14(2), 15-25. doi:10.11144/Javeriana.upsy14-2.apcp
 Bishop, S.R., Lau, M., Shapiro, S., Carlson, L., Anderson, N.D., Carmody, J., Segal, Z.V., Abbey, S., Speca, M., Velting, D., & Devins, G. (2004). Mindfulness: A proposed operational definition. *Clinical Psychology: Science and Practice*, 11(3), 230-241. doi:10.1093/clipsy.bph077
 Black, D.S. (2015). Mindfulness training for children and adolescents: A state-of-the-science review. In K.W. Brown, R.M. Ryan & J.D. Creswell

- (Eds.), *Handbook of mindfulness: Theory and research* (pp. 283-310). New York, NY: Guilford Press.
- Blackledge, J.T., Spencer, R., & Ciarrochi, J. (2007, May). *Initial validation of the Personal Values Questionnaire*. Paper presented at the meeting of the Association for Behavior Analysis. Atlanta, GA.
- Blackledge, J.T., Ciarrochi, J., Bilich, L., & Heaven, P. (2007, May). *Continuing validation of the social values survey*. Paper presented at the Association for Behavior Analysis Conference. San Diego, CA.
- Brown, K.W., West, A.M., Loverich, T.M., & Biegel, G.M. (2011). Assessing adolescent mindfulness: Validation of an adapted Mindful Attention Awareness Scale in adolescent normative and psychiatric populations. *Psychological Assessment, 23*(4), 1023-1033. doi:10.1037/a0021338
- Burke, C.A. (2010). Mindfulness-based approaches with children and adolescents: A preliminary review of current research in an emergent field. *Journal of Child and Family Studies, 19*(2), 133-144. doi:10.1007/s10826-009-9282-x
- Byrne, B. M. (2001). Structural equation modeling with AMOS, EQS, and LISREL: Comparative approaches to testing for the factorial validity of a measuring instrument. *International Journal of Testing, 1*(1), 55-86. doi: 10.1207/S15327574IJT0101_4
- Browne, M. W., & Cudeck, R. (1992). Alternative ways of assessing model fit. *Sociological Methods & Research, 21*(2), 230-258. https://doi.org/10.1177/0049124192021002005
- Calvete, E., Sampedro, A., & Orue, I. (2014). Adaptation of the Mindful Attention Awareness Scale-Adolescents (MAAS-A) to assess the mindfulness trait in Spanish adolescents. *Psicología Conductual, 22*(2), 275-289.
- Cobb, E., Kor, A., & Miller, L.J. (2015). Support for Adolescent Spirituality: Contributions of Religious Practice and Trait Mindfulness. *Journal of Religion and Health, 54*(3), 862-870. doi:10.1007/s10943-015-0046-1
- Dariotis, J., Miralbal-Beltran, R., Cluxtin-Keller, F., Gould, L.F., Greenberg, M.T., & Mendelson, M. (2016). A qualitative exploration of implementation factors in a school-based mindfulness and yoga program: Lessons learned from students and teachers. *Psychology in the Schools, 7*(1), 76-89. doi:10.1002/pits.21979
- del Pino, T., Peñate, W., Fumero, A., Bethencourt, J., & Zambrano, S. (2016). La eficacia de la reexperimentación emocional: el papel del optimismo y la alexitimia [The effectiveness of emotional reexperiencing: The role of optimism and alexithymia]. *European Journal of Investigation in Health, Psychology and Education, 6*(3), 167-179.
- Eklund, K., O'Malley, M., & Meyer, L. (2017). Gauging Mindfulness in Children and Youth: School-Based Applications. *Psychology in the Schools, 54*(1), 101-114. doi:10.1002/pits.21983
- Felver, J.C., Celis de Hoyos, C.E., Tezanos, K., & Singh, N.N. (2016). A systematic review of mindfulness-based interventions for youth in school settings. *Mindfulness, 7*(1), 34-45. doi:10.1007/s12671-015-0389-4
- Franco, C., De la Fuente, M., & Salvador, M. (2011). Impacto de un programa de entrenamiento en conciencia plena (mindfulness) en las medidas de crecimiento y autorrealización personal [Impact of a training program in full consciousness (mindfulness) in the measure of growth and personal self-realization]. *Psicothema, 23*(1) 58-65.
- Franco, C., Amutio, A., López-González, L., Oriol, X., & Martínez-Taboada, C. (2016). Effect of a mindfulness training program on the impulsivity and aggression levels of adolescents with behavioral problems in the classroom. *Frontiers in Psychology, 7*, 1385. doi:10.3389/fpsyg.2016.01385
- Gardner, H. (2011). *Verdad, belleza y bondad reformulada. La enseñanza de las virtudes en el siglo XXI* [Truth, beauty and reformulated goodness. The Teaching of Virtues in the 21st Century]. Barcelona: Paidós Ibérica.
- Good, M., & Willoughby, T. (2008). Adolescence as a sensitive period of spiritual development. *Society for Research in Child Development, 2*(1), 32-37.
- Greco, L.A., Baer, R.A., & Smith, G.T. (2011). Assessing mindfulness in children and adolescents: Development and validation of the Child and Adolescent Mindfulness Measure (CAMM). *Psychological Assessment, 23*(3), 606-614. doi:10.1037/a0022819
- Hunsley, J., & Meyer, G. (2003). The incremental validity of psychological testing and assessment: Conceptual, methodological and statistical issues. *Psychological Assessment, 15*(4), 446-455. doi: 10.1037/1040-3590.15.4.446
- Jennings, P.A. (2008). Contemplative education and youth development. *New Directions for Youth Development, 118*, 101-105. doi:10.1002/yd.262
- Johnson, C., Burke, C., Brinkman, S., & Wade, T. (2016). Development and Validation of a Multifactor Mindfulness Scale in Youth: The Comprehensive Inventory of Mindfulness Experiences-Adolescents (CHIME-A). *Psychological Assessment, 29*(3), 264-281. doi:10.1037/pas0000342
- King, P.E., & Roeser, R.W. (2009). Religion and spirituality in adolescent development. In R.M. Lerner & L. Steinberg (Eds.), *Handbook of adolescent psychology* (pp. 435-478). Hoboken, NJ: Wiley.
- L'Ecuyer, C. (2014). The Wonder Approach to learning. *Frontiers Human Neuroscience, 8*, 764. https://doi.org/10.3389/fnhum.2014.00764
- León, B. (2008). Atención plena y rendimiento académico en estudiantes de Enseñanza Secundaria [Mindfulness and academic achievement in secondary school students]. *European Journal of Education and Psychology, 1*(3), 17-26.
- López-González, L. (2010). *Disseny i desenvolupament d'un programa de relaxació vivencial aplicada a l'aula* [Design and development of a program of experiential relaxation applied to the classroom]. Doctoral dissertation, University of Barcelona.
- López-González, L. (2015). *Educar la interioridad* [Educating interiority]. Barcelona: Plataforma Editorial.
- López-González, L., Amutio, A., Herrero-Fernández, D., & Bisquerra, R. (2016a). Validación de una escala de Habilidades y Estados de Relaxación-Mindfulness para adolescentes [Validation of a Relaxation-Mindfulness Skills and States Scale for Adolescents]. *Revista Interuniversitaria de Formación del Profesorado, 87*(30.3), 93-105.
- López-González, L., Amutio, A., Oriol, X., & Bisquerra, (2016b). Habits related to relaxation and mindfulness in high school students: Influence on classroom climate and academic performance. *Revista de Psicodidáctica, 21*(1), 121-138. doi:10.1387/RevPsicodidact.13866
- López-González, L., Álvarez, M., & Bisquerra, R. (2016). Mindfulness e investigación-acción en Educación Secundaria. Gestación del Programa TREVA [Mindfulness and research-action in Secondary Education. The development of the TREVA Program]. *Revista Interuniversitaria de Formación del Profesorado, 87*(30.3), 75-91.
- López-González, L., Amutio, A., & Herrero-Fernández, D. (2018). The Relaxation-Mindfulness Competence of Secondary and High School students and its influence on classroom climate and academic performance. *European Journal of Education and Psychology, 11*(1), 5-17.
- Medsker, G. J., Williams, L. J., & Holahan, P. J. (1994). A review of current practices for evaluating causal models in organizational behavior and human resources management research. *Journal of Management, 20*(2), 439-464. https://doi.org/10.1016/0149-2063(94)90022-1
- Miller, L. (2014). Spiritual awakening and depression in adolescents: Two sides of one coin. *Bulletin of the Menninger Clinic, 77*(4), 332-348. doi: 10.1521/bumc.2013.77.4.332
- Napoli, M., Krech, P.R., & Holley, L.C. (2005). Mindfulness training for elementary school students: The attention academy. *Journal of Applied School Psychology, 21*(1), 99-125. http://dx.doi.org/10.1300/J370v21n01_05
- Noggle, J.J., Steiner, N.J., Minami, T., & Khalsa, S.B.S. (2012). Benefits of yoga for psychosocial well-being in a US high school curriculum: A preliminary randomized controlled trial. *Journal of Developmental & Behavioral Pediatrics, 33*(3), 193-201. doi:10.1097/DBP.0b013e31824afdc4
- Olivier, P.R., Navarro, J.I., Menacho, I., López, M.M., & García, M.A. (2016). Bienestar psicológico en personas con alta capacidad intelectual [Psychological well-being in gifted people]. *European Journal of Education and Psychology, 9*(2), 72-78. doi:10.1016/j.ejeps.2015.12.001
- Pallozzi, R., Wertheim, E., Paxton, S., & Ong, B. (2016). Trait mindfulness measures for use with adolescents: A systematic review. *Mindfulness, 8*(1), 110-125. doi:10.1007/s12671-016-0567-z
- Renshaw, T.L. (2016). Preliminary Development and Validation of the Mindful Student Questionnaire. *Assessment for Effective Intervention, 42*(3), 168-175. doi:10.1177/1534508416678971
- Rodríguez-Fernández, A., Ramos-Díaz, E., Madariaga, J.M., Arrivillaga, A., & Galende, N. (2016). Steps in the construction and verification of an explanatory model of psychosocial adjustment. *European*

- Journal of Education and Psychology*, 9(1), 20-28. doi:10.1016/j.ejeps.2015.11.002
- Royuela-Colomer, E., & Calvete, E. (2016). Mindfulness facets and depression in adolescents: Rumination as a mediator. *Mindfulness*, 7(5), 1092-1102. doi:10.1007/s12671-016-0547-3
- Sauer, S., Walach, H., Schmidt, S., Hinterberger, T., Lynch, S., Büsing, A., & Kohls, N. (2013). Assessment of mindfulness: Review on state of the art. *Mindfulness*, 4(1), 3-17. doi:10.1007/s12671-012-0122-5
- Schonert-Reichl, K.A., & Roeser, R.W. (2016). *Mindfulness in Education: Emerging Theory, Research, and Programs*. Nueva York: Springer.
- Semple, R.J., Drotman, V., & Reid, B.A. (2017). Mindfulness goes to school: Things learned (so far) from research and real-world experiences. *Psychology in the Schools*, 54(1), 29-52. doi: 10.1002/pits.21981
- Shoshani, A., & Slone, M. (2013). Middle school transition from the strengths perspective: Young adolescents' character strengths, subjective well-being, and school adjustment. *Journal of Happiness Studies*, 14(4), 1163-1181. https://doi.org/10.1007/s10902-012-9374-y
- Spielberger, C.D., Gorsuch, R.L., & Lushene, R.E. (1982). *Cuestionario de Ansiedad Estado-Rasgo, STAI* [State-Trait Anxiety Questionnaire]. Madrid: TEA Ediciones.
- Tanay, G., & Bernstein, A. (2013). State mindfulness scale (SMS): Development and initial validation. *Psychological Assessment*, 25(4), 1286-1299. doi: 10.1037/a0034044
- Wall, R.B. (2005). Tai Chi and mindfulness-based stress reduction in a Boston public middle school. *Journal of Pediatric Health Care*, 19(4), 230-237. doi: 10.1016/j.pedhc.2005.02.006
- West, A.M., Penix-Sbraga, T., & Poole, D.A. (2007). *Measuring mindfulness in youth: Development of the Mindful Thinking and Action Scale for Adolescents*. Central Michigan University. Unpublished manuscript.
- Zenner, C., Herrnleben-Kurz, S., & Walach, H. (2014). Mindfulness-based interventions in schools – A systematic review and meta-analysis. *Frontiers in Psychology*, 5, 603-620. doi:10.3389/fpsyg.2014.00603
- Zoogman, S., Goldberg, S.B., Hoyt, W.T., & Miller, L. (2015). Mindfulness interventions with youth: A meta-analysis. *Mindfulness*, 6(2), 290-302. https://doi.org/10.1007/s12671-013-0260-4
- Zumeta, L., Basabe, N., Telletxea, S., Amutio, A., & Bobowik, M. (2016). Flujo compartido en actividades colectivas físico-deportivas y bienestar subjetivo [Shared flow in collective physical and sports activities and subjective well-being.] *European Journal of Investigation in Health, Psychology and Education*, 6(3), 151-166.