



Psychometric Properties of the Entrepreneurial Attitudes for Students and Wong and Law's Emotional Intelligence Scales in a Sample of Ecuadorian University Students

Propiedades psicométricas de las escalas de actitudes emprendedoras para estudiantes y de inteligencia emocional de Wong y Law en una muestra de universitarios ecuatorianos

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Abstract:

Emotional intelligence directly influences individual personal development and could influence entrepreneurship skills as well. The objectives of this study were to assess the construct validity, internal consistency, and metric invariance of the Spanish version of the Wong and Law Emotional Intelligence Scale (WLEIS-S) and the Entrepreneurial Attitudes Scale for Students (EASS) and correlate the levels of emotional intelligence and entrepreneurship in a sample of university students (n=558). The validity, reliability, and invariance analysis reveal adequate goodness of fit, internal consistency, and equivalence. In addition, statistically significant correlations were found between all dimensions of the scales. The Entrepreneurship and Emotional Intelligence Scales have adequate psychometric properties. In professional training, emotional intelligence acts as a decision-making ability and entrepreneurial capacity as a factor for future development.

Keywords: emotional intelligence, entrepreneurship, higher education, attitudes, psychometric properties, education.

Resumen:

La inteligencia emocional es un factor que influye directamente en el desarrollo personal y podría influir en la capacidad de emprendimiento. Este trabajo tuvo como objetivos evaluar la validez de constructo, consistencia interna e invarianza métrica de la versión en español de la Escala de Inteligencia Emocional de Wong y Law (WLEIS-S) y de la Escala de Actitudes Emprendedoras para Estudiantes (EASS) y correlacionar los niveles de inteligencia emocional y emprendimiento en una muestra de estudiantes universitarios (n=558). El análisis de validez, fiabilidad e invarianza revelan adecuada bondad de ajuste, consistencia interna y equivalencia. Se encontraron correlaciones estadísticamente significativas entre todas las dimensiones de las escalas. Las escalas de emprendimiento e inteligencia emocional poseen propiedades psicométricas adecuadas. En la formación profesional, la inteligencia emocional actúa como destreza para la toma de decisiones y la capacidad emprendedora como factor de desarrollo futuro.

Palabras clave: inteligencia emocional, emprendimiento, enseñanza superior, actitudes, propiedades psicométricas, educación.



1. Introduction

Since 1990, significant progress has been made in analyzing the construct of Emotional Intelligence (EI). Over the past three decades, considerable contributions have been made to how EI can be effectively assessed, developed, and trained (Fernández Berrocal et al., 2022). Salovey and Mayer (1990) point out that it should be understood through four dimensions, which should be understood as skills: a) perception, evaluation, and expression of emotions; b) emotional facilitation of thinking that allows the cognitive to be stimulated for effective development; c) analysis and understanding of emotions; and d) regulation of emotions and promotion of intellectual growth. In the same vein, some theories and models have been formulated that seek to explain EI; among the most cited approaches are those of Goleman (1995), who explains EI through a set of social and emotional competencies and skills.

In 1997, Mayer and Salovey reformulated the EI construct, defining it as a type of social intelligence that involves the ability to monitor one's own emotions and those of others and use this information to guide one's feelings and actions. Fernández-Berrocal and Extremera-Pacheco (2005) and Llamas-Díaz et al. (2022), following Salovey and Mayer's model, describe it as a person's ability to perceive, facilitate, understand, and adaptively regulate their own emotions and those of others, which affects well-being. In summary, Fernández-Berrocal and Extremera-Pacheco (2005) argue that the above approaches coexist due to how EI is assimilated and defined, and differ slightly in their theoretical approach.

EI, far from being a way of exclusively establishing priorities in emotions, allows emotion to be endowed with intelligence (Acosta, 2015). In other words, this skill facilitates more effective reasoning to perceive and understand signals in social interactions and the environment to generate a quick and controlled response (Bosch, 2010; Fernández-Berrocal and Extremera-Pacheco, 2005). Walker et al. (2022) also point out that the construct is associated with valuable life outcomes such as academic and

work performance, well-being, satisfaction in romantic relationships, and physical and mental health.

In addition, EI could empower future professionals with emotional management skills (Guzmán et al., 2022). The proposal by García-Cabrera et al. (2015) suggests that entrepreneurial orientations promote competence, and these skills are not developed independently but are closely related to cognitive ability, especially emotional intelligence (EI). These authors argue that EI could even be considered a predictor of entrepreneurial skills and propose that this variable should be investigated during the entrepreneurship process. Similarly, Palomeque et al. (2020) indicate that there is a direct influence of EI on entrepreneurial attitude, motivation, and behavior.

Concerns about analyzing entrepreneurial skills in university students and their close link to IE stem from research findings that highlight the value of emotional training and, at the same time, the importance of training new professionals to be entrepreneurial. Entrepreneurship can be understood as the ability to translate ideas into action (Oliver, Galiana, and Gutiérrez-Benet 2016). Moriano et al. (2006) define an entrepreneur as a person who carries out a business initiative as a creator or partner. This skill is closely linked to the ability to take risks about controlled resources. Rodríguez López and Borges Gómez (2018) outline the profile of an entrepreneur as comprising seven distinctive traits: originality, proactivity, resilience, time management, freedom, sociability, and image creation.

In Ecuador, since 2008, public policy has been committed to promoting entrepreneurial capacity (Samaniego, 2014). Studies on the impact of these measures indicate that the country ranks sixth among forty-three countries studied. In 2019, the early entrepreneurial activity rate was 36.2%, and compared to other Latin American countries, Ecuador has the second-highest rate of entrepreneurship (Landsdale et al., 2012; Lasio et al., 2020).

Given these statistics, two factors may explain this behavior: necessity and opportunity.

Although these statistics appear favorable, youth participation is only 6.5%, and in recent years, activity has tended to decline (Lasio et al., 2020). In this sense, it is vitally essential that universities consider entrepreneurship as a skill to be developed in their professional training.

Moriano et al. (2006) point out that in Europe, becoming an entrepreneur is not always a highly sought-after option for university students due to the constant risks involved. Even entrepreneurship training tends to be concentrated in economics and business degrees and, in general, tends to prepare students for the role of employee, rather than for self-employment or entrepreneurship. To analyze the predominant values in entrepreneurs, Moriano et al. (2001) distinguish two main groups: individuals, oriented towards emotional independence, and collectives, associated with a sense of belonging and group dependence. Based on this differentiation, an entrepreneurial person will be mainly inspired by more individualistic values.

Therefore, referring to entrepreneurship and behavior at the initiation stage requires a more in-depth analysis. Moriano et al. (2006) argue that it is vital for an entrepreneur to consider at least three aspects: family: the way of Support and “examples” of economic management would motivate a person to develop their business idea; socio-labor: education, social Support, experience, and the difficulties and obstacles to creating a business would all influence how a company is established; and personal characteristics would facilitate the ability to consider, undertake, and assume objectives. On the latter, Moriano et al. (2001) list some personality characteristics of entrepreneurs, including: a high motivation to achieve, which drives them to improve, tackle challenging goals, and take calculated risks; a high need for achievement and a low need for power; a greater internal locus of control vs. a lower external locus of control, which would allow them to assume the success and/or failure of their behavior as a result of their responsibility rather than depending on the context; and personal initiative, which allows them to have a capacity for planning, persistence, directionality, self-motivation, and proactivity.

In contrast, a comprehensive study by Oliver and Galiana (2015) summarizes the characteristics of entrepreneurial personality as follows: proactivity, which refers to the ability to take initiative, identify opportunities, and plan for the long term; professional ethics, which is understood as an ethical way of working; empathy, which is the ability to understand emotions and contribute to others; innovation, which refers to a predisposition to create, participate in, and support new ideas that lead to new products or services; autonomy or “independent mindset”; and, finally, the ability to take risks.

Oliver, Galiana, Calatayud, et al. (2016) argue that entrepreneurs share specific skills, such as creativity, initiative, innovation, risk-taking, and project management, to achieve particular goals. However, not all entrepreneurs are the same or use the same approaches. It is important to highlight individual differences and the influence of context, as these factors determine the success or failure of each entrepreneur (García-Cabrera et al., 2015). Although various theories attempt to explain what makes someone an entrepreneur, such as trait theory, demographics, or parenting style (Kuratko, 2007; Louw et al., 2003; Patzelt and Shepherd, 2011), it is argued that the most accurate way to identify this characteristic is through emotional intelligence.

Research has shown that students with higher levels of emotional intelligence have a greater capacity to maintain constant effort and self-motivate (Fernández-Berrocal and Extremera-Pacheco, 2005). In addition, it has been found that different factors of EI can be correlated with certain personality traits (Tesoro et al., 2021). According to Hernández (2019), personality attributes are part of the initial phase of entrepreneurial development through people's entrepreneurial intention. Therefore, emotional intelligence is presented as an alternative variable to explain why people become entrepreneurs and under what conditions they do so. Zampetakis (2011) even defines emotional intelligence as a predictor of the success or failure of an entrepreneurial venture.

Consequently, the assessment of EI and entrepreneurial attitude (EA) becomes crucial as

a key activity for analyzing vocational training and motivating university students to identify and enhance their professional skills. Palomeque et al. (2020) point out that, given the importance of EI in the success of entrepreneurship, it is essential to understand the relationship between EI and entrepreneurial behavior. The psychometric properties of the WLEIS have been extensively evaluated. For example, Merino et al. (2016) demonstrated high and satisfactory internal consistency, even considering the short number of items in each subscale. Sánchez (2016) concludes that internal consistency was satisfactory, with a Cronbach's alpha of 0.79 to 0.95 in all dimensions that were strongly correlated. Researchers Extremera Pacheco et al. (2019) found that the four-factor model had good goodness of fit, criterion validity, and adequate internal consistency.

Other studies have evaluated the WLEIS in other languages and contexts; in a Chinese sample, the four-factor model of Wong and Law's Emotional Intelligence Scale showed an excellent fit to the data with $\chi^2(98) = 386.74$, $p < 0.001$, NNFI = 0.96, CFI = 0.96, RMSEA = 0.050, SRMR = 0.032, thus validating the instrument (Kong, 2017). Another study showed that a bifactorial model also fit the data well: $\chi^2(88) = 268.671$, $p < .001$, CFI = .944, TLI = .923, SRMR = .043, RMSEA = .063 (90% CI: .054 – .071), and all factor loadings were significant, ranging from .465 to .641 (Di et al., 2021).

For the Italian version of the scale, confirmatory factor analysis confirmed a four-factor model with $\chi^2(98) = 200.45$, CFI = 0.981, RMSEA = 0.047, providing a good fit with the data and adequately describing the relationships between the observed variables and the latent factors (Iliceto and Fino, 2017). In India (RMSEA = 0.10, GFI = 0.94, and CFI = 0.90; Traymbak et al. 2022), Korea (RMSEA=.07, GFI=.89, CFI=.95, and TLI .93; Jeong et al. 2020), Chile (RMSEA=.031, SRMR=.077, CFI=.967, TLI=.959; Acosta-Prado and Zárate Torres, 2019), Colombia (RMSEA< 0.08; CFI> 0.95; TLI> 0.95; and SRMR < 0.06; Acosta-Prado et al. 2022).

Confirmatory factor analyses conducted by Oliver and Galiana (2015) on the Entrepreneurial Attitudes Scale for Students (EAEE) showed adequate internal consistency and construct validity, concluding that the instrument had sufficient psychometric properties. Subsequently, Oliver, Galiana, and Gutiérrez-Benet (2016), using the same instrument, concluded that: "Descriptive statistics show a high presence of entrepreneurial personality traits" (p.186) in the participating students. Similarly, the results in Oliver, Galiana, Calatayud, and Piacentini (2016) indicated a confirmatory factor analysis with an adequate overall fit and high and significant factor saturations.

García-Cabrera et al. (2015) concluded that both the direct and positive influence of emotional intelligence on the subject's entrepreneurial attitude, intention, and behavior, as well as its indirect influence through various factors—such as the entrepreneur's creativity and proactivity, their propensity for innovation, or their preference for risk-taking—are facilitators of entrepreneurship. In addition to the personality traits of the entrepreneur and the confidence that the entrepreneur can generate in others. In this sense, the novelty of this study is oriented towards the evaluation of the psychometric properties of the instruments.

2. Method

This descriptive correlational research, with a quantitative approach, seeks to analyze the possible relationships between the different dimensions of emotional intelligence and entrepreneurship. Digitalized scales were used to collect information through the Google Forms portal.

2.1. Participants

Participants were selected through non-probabilistic convenience sampling: students enrolled in the March-July 2018 academic period at the University of Cuenca (368 women, 190 men, with an age of $M = 21.09$) were invited to participate through visits to each of the courses. The inclusion criteria were: a) freely and voluntarily agreeing to participate in the research and b) being enrolled in one of the degree programs. Regarding marital status, 92.7% were single and 7.3% were married, in a common-law relationship, or divorced. The most significant areas of study were health (46.8%) and social sciences (45.5%), followed by administrative and technical studies (5.6% and 2.2%, respectively).

2.2 Procedure

To apply the instruments, we requested necessary permissions to access courses in various faculties. After obtaining consent to participate, participants were provided with a link to access the form from their smartphones. The application was completed in approximately 25 minutes for each group.

2.3 Instruments

The Wong and Law Emotional Intelligence Scale (WLEIS-S hereinafter) of emotional intelligence, adapted by Extremera Pacheco et al. (2019), is an instrument consisting of four factors assessed based on 16 Likert scale questions, in which one equals "completely disagree" and Seven means "completely agree." The dimensions considered by this instrument are: appreciation of one's own emotions, appreciation of the feelings of others, use of considered by this instrument are: appreciation of one's own emotions, appreciation of the feelings of others, use of emotions, and regulation of emotions.

The Entrepreneurial Attitudes Scale for Students (EASS, hereinafter) by Oliver Galiana, Calatayud, et al. (2016) assesses entrepreneurial personality traits through 18 items integrated into the dimensions of proactivity, professional ethics, empathy, innovation, autonomy, and risk-taking, and has adequate psychometric properties (GFI=.906, CFI=.959, SRMR = .044, RMSEA = .040). The instrument has been adapted for use with teachers and has shown evidence of validity and consistency (CFI=.963, TLI .953, SRMR = .011, RMSEA= .071).

Both scales are self-report instruments in which the subject had to mark the level they believed to be appropriate for the questions asked.

2.4 Data analysis

After data collection, the results from the Google Forms were filtered. The analysis was performed using R Core v 4.4.0 software (R Core Team, 2021).

Due to the ordinal nature of the items, a confirmatory analysis was performed with the DWLS (Diagonalized Weighted Least Squares) estimator and a polyphonic correlation matrix. To assess goodness of fit, the absolute chi-square index, the chi-square/degrees of freedom ratio, the incremental indices CFI (Comparative Fit Index), TLI (Tucker-Lewis Index), RMSEA (Root Mean Square Error of Approximation) with its 90% confidence interval, and SRMR (standardized residual mean square root). The cutoff points for interpretation are taken from Hu and Bentler (1999) and Jöreskog and Sörbom (1993).

Internal consistency is assessed for each subdimension using Cronbach's polychoric alpha and the hierarchical omega reliability coefficient. In addition, the results of the item-total correlation are analyzed.

The invariance analysis is performed between men and women using multigroup confirmatory factor analysis.

Correlational analysis uses Spearman's correlation coefficient and the factor scores obtained in confirmatory factor analysis. Comparisons between sociodemographic variables are performed using nonparametric tests.

3. Results

The results of goodness of fit and internal consistency are shown in Table 1. The EASS proposes a model of six first-order correlated factors. For the WLEIS-S, a model of four first-order correlated factors is used.

Table 1: Goodness of fit and internal consistency of WLEIS-S and EASS

Scale	Dimension	α	ωH	χ^2	gl	χ^2/gl	CFI	TLI	SRMR	RMSEA	RMSEA IC 90%
EISW	Own emotions	.853	.585	301.880	98.000	3.080	.995	.994	.047	.064	.056 - .072
	Emotions of others	.831	.827								
	Use of emotions	.888	.875								
	Regulation	.896	.867								
EASS	Proactivity	.918	.775	190.130	120.000	1.584	1.000	.999	.027	.034	.024 - .043
	Professional ethics	.883	.844								
	Empathy	.924	.912								
	Innovation	.962	.951								
	Autonomy	.952	.933								
	Risk	.890	.853								

Note. α = Cronbach's alpha; ωH = hierarchical omega; χ^2 =chi-square; gl=degrees of freedom; CFI= Comparative Fit Index; TLI= Tucker-Lewis Index; SRMR = standardized root mean square residual; RMSEA = root mean square error of approximation

The factorial structure of the two instruments, together with their factor loadings and correlations between dimensions, is shown in Figure 1

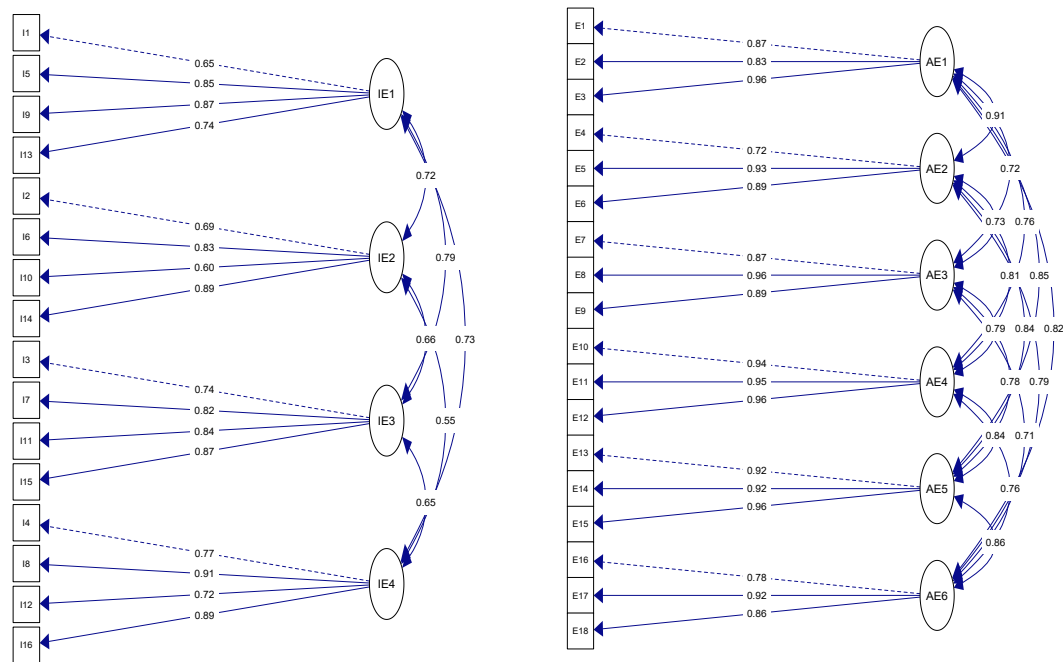


Figure 1: Factor loadings obtained through CFA
 Note. IE1 = Appreciation of one's own emotions; IE2 = Appreciation of others' emotions; IE3 = Use of emotions; IE4 = Regulation of emotions; AE1 = Proactivity; AE2 = Professional ethics; AE3 = Empathy; AE4 = Innovation; AE5 = Autonomy; AE6 = Risk-taking.

The invariance between gender in the WLEIS-S and EASS is carried out in stages. Based on the configural invariance analysis, restrictions are added, and the change in goodness of fit is evaluated (Table 2).

Table 2: Measurement invariance analysis

Scale	Invariance	CFI	RMSEA	Δ CFI	Δ RMSEA
WLEIS-S	Configural	.99	.063		
	Metric	.99	.062	<.001	.001
	Strong (factor loads and intercepts)	.99	.058	.001	.005
	Means	.99	.058	<.001	<.001
EASS	Configural	.99	.009		
	Metric	.99	0	<.001	.009
	Strong (multiple loadings and intercepts)	.99	0	<.001	<.001
	averages	.99	.018	<.001	.018

The distribution of factor scores, scatter plots, and correlations between the dimensions of attitudes toward entrepreneurship and the dimensions of emotional intelligence are presented in Figure 2.

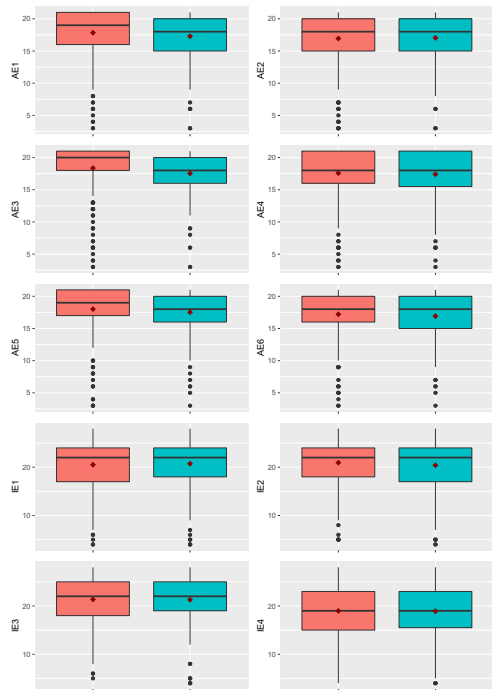


Figure 2: Descriptive characteristics of the dimensions of emotional intelligence and entrepreneurial attitudes among men and women
 Note. AE1 = Proactivity; AE2 = Professional Ethics; AE3 = Empathy; AE4 = Innovation; AE5 = Autonomy; AE6 = Risk Taking; IE1 = Appreciation of one's own emotions; IE2 = Appreciation of others' emotions; IE3 = Use of emotions; IE4 = Regulation of emotions.

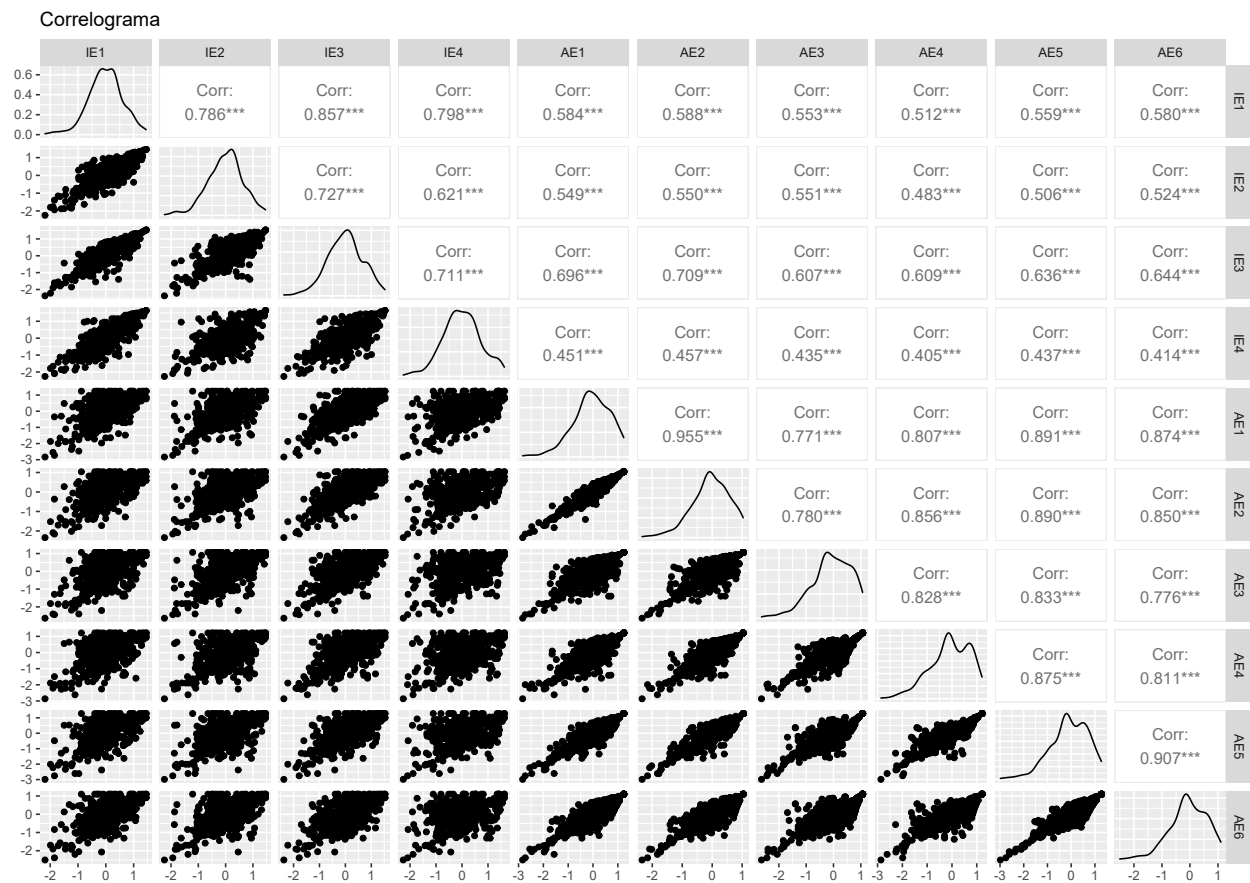


Figure 3: Correlogram of the relationship between the dimensions of entrepreneurship and emotional intelligence

Note. IE1 = Appreciation of one's own emotions; IE2 = Appreciation of others' emotions; IE3 = Use of emotions; IE4 = Regulation of emotions; AE1 = Proactivity; AE2 = Professional Ethics; AE3 = Empathy; AE4 = Innovation; AE5 = Autonomy; AE6 = Risk Taking.

4. Discussion

This article describes the characteristics of emotional intelligence and entrepreneurship in a sample of university students after evaluating the psychometric properties of internal consistency, construct validity, and invariance of the WLEIS-S and EASS instruments.

Ecuador is one of the countries with the highest rates of entrepreneurship in the region, especially among women. The early entrepreneurial activity rate is the second highest in the area, surpassed only by Chile, and the highest among middle-income economies (Lasio et al., 2020). Therefore, it is not surprising that the young population in this study tends to score very high on these items. Considering the subsequent psychometric analyses, the cultural context is the most plausible explanation. In the case of WLEIS-S, the asymmetry of the items is not as pronounced as in the case of EASS, where it is moderate. The items in both instruments have adequate values of difficulty and discrimination (item-total correlation).

Confirmatory factor analysis of the original EASS and WLEIS-S models reveals excellent goodness of fit in all coefficients except RMSEA for WLEIS-S, which slightly exceeds the conventional cutoff value (RMSEA = .06). However, the lower limit of the confidence interval is less

than this value. Regarding internal consistency, Cronbach's alpha values show that it is excellent or perfect. McDonald's omega values corroborate this; the lowest omega coefficient is found in the proactive entrepreneurial attitude dimension ($\omega = .775$). In both instruments, the factor loadings obtained through confirmatory factor analysis are salient and significant. In the case of WLEIS-S, the item with the lowest value is 10, which also has the lowest item-total correlation. However, the results presented do not justify any modification or elimination of this question. In the case of EASS, no factor loading is lower than .7.

Regarding the analysis of invariance between sexes, which is essential for comparing total scores, we observed that as restrictions are added, the change in goodness of fit (ΔCFI) is less than .001. In other words, the instruments are invariant.

Once the psychometric properties of the instruments were defined, the scores for each dimension were compared between gender categories. In general, similar patterns were observed in the distributions of scores, which were slightly more asymmetrical in the case of women. In addition, a large number of lower outliers were observed, especially in the EASS. These results are consistent with the explanation given at the beginning of the discussion about the marked tendency of participants to score high on items due to the cultural context. Very high positive correlations were

found between all dimensions of EASS and IE. The high correlation between dimensions of the same instrument suggests that the items could belong to a single dimension (for example, dimensions 5 and 6 correlate with .907). However, because the six-factor model showed adequate goodness of fit and internal consistency, and therefore there is agreement between the statistical constructs and the theoretical constructs, it is recommended that the six-factor correlated model be retained until a more appropriate theoretical and statistical version is presented.

Some authors agree that regulating emotions allows individuals to process better emotional information presented in everyday events, promotes higher levels of well-being, and facilitates the use of problem-solving strategies (Peña Garrido et al., 2012; Salovey et al., 1999). Similarly, Extremera Pacheco and Fernández Berrocal (2004) highlight that good levels of EI promote empathy, interpersonal relationships, and lower levels of aggression. In addition, Guzmán et al. (2022) point out in their study that the development of emotional skills allows professionals to manage their own emotions and those of others.

Regarding performance in AE, the scores achieved by participants indicate that a predominant trait is empathy, preceded by autonomy. At the same time, the level of professional ethics is a trait with a lower score. Although the scores show differences, these are not significant or below average.

The EASS measures show high levels, consistent with the results obtained in other studies with university students. Oliver, Galiana, Calatayud, and Piacentini (2016) and Oliver and Galiana (2015) point out that the descriptive results reflect positively skewed distributions in all entrepreneurial attitudes, with very similar characteristics for women and men. The authors note that this information can be helpful as a baseline for dimensions susceptible to intervention, as well as for monitoring their development.

Empathy is one of the most prevalent attitudes, with a minimal difference from autonomy. In a study on entrepreneurial attitudes among Peruvian university students, the results coincide about this attitude, indicating that empathy is of vital importance in entrepreneurial intentions, since it allows entrepreneurs to consider their own needs and those of others (Bustos, 2016; Olson, 2013).

This significant relationship would indicate that skills for reflecting on, managing, and prolonging emotional states (Mayer and Salovey, 1997) and the characteristics of proactivity—maintaining anticipatory, adaptive, and self-motivating thinking and behavior—are closely related and would favor the development of entrepreneurial and innovative behaviors (Oliver and Galiana, 2015).

In the same vein, for Lumpkin and Dess (1996), innovation manifests a tendency to create, generate, and support new ideas, while autonomy enhances these skills and allows the individual to act freely on them, so that adequate emotional

management would allow this skill to be managed appropriately.

Let's consider that university students with high levels of EI, according to Ciarrochi et al. (2000), show greater empathy, higher life satisfaction, and better quality social relationships. They should receive an entrepreneurship education that gives greater value to their professional work, since, according to Oliver and Galiana (2015), an entrepreneurship education promotes competence and intentions toward self-employment.

Although public policy in Ecuador has been committed to entrepreneurship, socioeconomic and bureaucratic conditions do not always provide the necessary guarantees for entrepreneurship. However, intrapreneurship can be an option for those working within a company who prefer not to take risks. Moriano et al. (2009) distinguish that an intrapreneur is characterized by feeling identified with the organization, tending to innovate, and taking risks in favor of the place and group with which they work.

Even the way of establishing an exemplary work commitment would be closely related to higher levels of positive affect (Gorgievski et al., 2014). In contrast, good emotional management would allow for better positive interactions and fewer negative interactions (Extremera Pacheco and Fernández Berrocal, 2004). If higher education environments favor emotional and entrepreneurial development, then it would be possible to invest in training future professionals in emotional and work management skills.

5. Conclusions

The data found shows that emotional intelligence and entrepreneurial traits are personal aspects that are closely linked, concluding that if there is good emotional intelligence, there will be positive entrepreneurial traits. If analyzed in a more theoretical way, one could hypothetically distinguish elements such as internal locus of control, related to the ability to appreciate one's own emotions, and external locus of control, linked to the appreciation of other emotions, empathy, and the use and regulation of emotions. Specifically, both skills would be closely related.

More specifically, it is crucial to highlight that emotional intelligence shows positive and statistically significant relationships with entrepreneurial attitude, thus corroborating the research hypothesis that proposed a relationship between these constructs. In this case, the relationships to highlight include emotion regulation and proactivity, or emotion regulation and risk-taking. Emotions and proactivity, or emotion regulation and risk-taking.

It should be noted that these scores predominated in all dimensions with above-average scores, which is why it would be relevant to analyze a larger population with data

that has a normal distribution. A qualitative analysis could even be established to confirm the hypothesis of a possible theoretical relationship.

On the other hand, we should point out that, as this is a cross-sectional study, the data cannot strictly define the extent to which emotional intelligence and entrepreneurial attitude variables modify the relationship between the intention to start a business and the maintenance of a business idea. It would be interesting in the future to establish a case study to analyze the scope of the relationship between these two constructs over time.

This theoretical review and the various analyses carried out have shown that emotional intelligence plays a fundamental role in professional training and encourage higher education institutions such as the University of Cuenca to enter into a virtuous circle of formal training by integrating EI and entrepreneurship into their curricula, academic programs, research, and intervention, in such a way as to benefit both their students and their teachers.

The EASS and WLEIS-S scales have adequate psychometric properties and can be used for professional practice and research.

6. References

- Acosta, J. (2015). Emotional Intelligence: Dismantling *Tópicos*. ESIC Editorial.
- Acosta-Prado, J. C., and Zárate Torres, R. A. (2019). Validation of the Wong and Law Emotional Intelligence Scale for Chilean managers. *Suma Psicológica*, 26(2). <https://doi.org/10.14349/sumapsi.2019.v26.n2.7>
- Acosta-Prado, J. C., Zárate-Torres, R. A., and Tafur-Mendoza, A. A. (2022). Psychometric Properties of the Wong and Law Emotional Intelligence Scale in a Colombian Manager Sample. *Journal of Intelligence*, 10(2), 29. <https://doi.org/10.3390/jintelligence10020029>
- Bosch, M. J. (2010). *The dance of emotions* (1st ed.). Edaf. <https://bit.ly/3n9pDOx>
- Bustos, V. (2016). *Learning strategies, entrepreneurial attitudes, self-concept, hope, life satisfaction, and inclination toward self-employment: An explanatory model in Peruvian university students* [Doctoral thesis, University of Valencia]. <https://bit.ly/36oDaMk>
- Ciarrochi, J. V, Chan, A. Y. C., and Caputi, P. (2000). A critical evaluation of the emotional intelligence construct. *Personality and Individual Differences*, 28(3), 539–561. [https://doi.org/10.1016/S0191-8869\(99\)00119-1](https://doi.org/10.1016/S0191-8869(99)00119-1)
- Di, M., Jia, N., Wang, Q., Yan, W., Yang, K., & Kong, F. (2021). A bifactor model of the Wong and Law Emotional Intelligence Scale and its association with subjective well-being. *The Journal of Positive Psychology*, 16(4), 561–572. <https://doi.org/10.1080/17439760.2020.1791947>
- Extremera Pacheco, N., & Fernández Berrocal, P. (2004). Emotional intelligence, quality of interpersonal relationships, and empathy in university students. *Clinical and Health*, 15(2), 117–137. <https://bit.ly/3jIMSCM>
- Extremera Pacheco, N., Rey, L., & Sánchez-Álvarez, N. (2019). Validation of the Spanish version of the Wong Law Emotional Intelligence Scale (WLEIS-S). *Psicothema*, 31(1), 94–100. <https://doi.org/10.7334/psicothema2018.147>
- Fernández Berrocal, P., Cabello, R., Gómez-Leal, R., Gutiérrez-Cobo, M. J., & Megías-Robles, A. (2022). New trends in Emotional Intelligence research. *Psychological Writings*, 15(2), 144–147. <https://doi.org/10.24310/espiescpsi.v15i2.15842>
- Fernández-Berrocal, P., and Extremera-Pacheco, N. (2005). Emotional Intelligence and the education of emotions based on the Mayer and Salovey Model. *Interuniversity Journal of Teacher Training*, 19(3), 63–93. <https://doi.org/27411927005>
- García-Cabrera, A. M., Déniz-Déniz, M. C., & Cuéllar-Molina, D. (2015). Emotional intelligence and entrepreneurship: possible lines of work. *Administration Notebooks*, 28(51), 65–101. <https://doi.org/10.11144/Javeriana.cao28-51.ieep>
- Goleman, D. (1995). *Emotional Intelligence*. Bantam Books.
- Gorgievski, M., Moriano, J., & Bakker, A. (2014). Relating work engagement and workaholism to entrepreneurial performance. *Journal of Managerial Psychology*, 29(2), 106–121. <https://doi.org/10.1108/JMP-06-2012-0169>
- Guzmán, M., Ortiz-Ochoa, W., Pernas, I., & Bello, Z. (2022). Academic analysis of emotional intelligence in the training of psychologists at the University of Cuenca, Ecuador 2021. *Experiences and Research in Educational Contexts*, 227–236.
- Hernández, R. (2019). Entrepreneurial intention: Is it influenced by personality and gender factors? *Academia & Negocios Journal*, 4(2), 1–12. <https://bit.ly/intempher>
- Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, 6(1), 1–55. <https://doi.org/10.1080/10705519909540118>
- Iliceto, P., & Fino, E. (2017). The Italian version of the Wong-Law Emotional Intelligence Scale (WLEIS-I): A second-order factor analysis. *Personality and Individual Differences*, 116, 274–280. <https://doi.org/10.1016/j.paid.2017.05.006>

- Jeong, H., Choi, H., & Park, M. (2020). The Reliability and Validity of Korean Version of Wong and Law Emotional Intelligence Scale (K-WLEIS). *Journal of Korean Academy of Nursing*, 50(4), 611. <https://doi.org/10.4040/jkan.20109>
- Jöreskog, K. G., & Sörbom, D. (1993). LISREL 8: Structural equation modeling with the SIMPLIS command language. In *LISREL 8: Structural equation modeling with the SIMPLIS command language*. Lawrence Erlbaum Associates, Inc.
- Kong, F. (2017). The validity of the Wong and Law Emotional Intelligence Scale in a Chinese sample: Tests of measurement invariance and latent mean differences across gender and age. *Personality and Individual Differences*, 116, 29–31. <https://doi.org/10.1016/j.paid.2017.04.025>
- Kuratko, D. F. (2007). Entrepreneurial Leadership in the 21st Century. *Journal of Leadership & Organizational Studies*, 13(4), 1–11. <https://doi.org/10.1177/10717919070130040201>
- Landsdale, D., Abad, C., & Vera, D. (2012). Key Drivers for Establishing a Dynamic Entrepreneurship Ecosystem in Ecuador. *Polémika*, 3(9). <https://bit.ly/3JeMGnL>
- Lasio, V., Amaya, A., Zambrano, J., & Ordeñana, X. (2020). Global Entrepreneurship Monitor Ecuador 2019/2020. *ESPAE*. <https://www.espae.edu.ec>
- Llamas-Díaz, D., Cabello, R., Megías-Robles, A., & Fernández-Berrocal, P. (2022). Systematic review and meta-analysis: The association between emotional intelligence and subjective well-being in adolescents. *Journal of Adolescence*, 94(7), 925–938. <https://doi.org/10.1002/jad.12075>
- Louw, L., van Eeden, S. M., Bosch, J. K., and Venter, D. J. L. (2003). Entrepreneurial traits of undergraduate students at selected South African tertiary institutions. *International Journal of Entrepreneurial Behavior & Research*, 9(1), 5–26. <https://doi.org/10.1108/13552550310461027>
- Lumpkin, G. T., & Dess, G. G. (1996). Clarifying the Entrepreneurial Orientation Construct and Linking It to Performance. *The Academy of Management Review*, 21(1),
- Mayer, J., and Salovey, P. (1997). What is emotional intelligence? In P. Salovey and D. Sluyter (Eds.), *Emotional Development and Emotional Intelligence* (pp. 3–31). Basic Books.
- Merino, C., Lunahuaná-Rosales, M., & Pradhan, R. (2016). Structural validation of the Wong-Law Emotional Intelligence Scale (WLEIS): preliminary study in adults. *Liberabit: Revista Peruana de Psicología*, 22(1), 103–110. <https://doi.org/10.24265/liberabit.2016.v22n1.09>
- Moriano, J., Palací, F., & Morales, J. (2006). The psychosocial profile of the university entrepreneur. *Journal of Work and Organizational Psychology*, 22(1), 75–99.
- Moriano, J., Topa, G., Valero, E., & Lévy, J. (2009). Organizational identification and “intrapreneurial” behavior. *Annals of Psychology*, 25(2), 277–287.
- Moriano, J., Trejo, E., & Palací, F. (2001). The psychosocial profile of entrepreneurs: a study from the perspective of values. *Journal of Social Psychology*, 16(2), 229–242.
- Oliver, A., and Galiana, L. (2015). Development and Validation of the Entrepreneurial Attitudes Scale for Students (EAEE). *The Spanish Journal of Psychology*, 18, E14. <https://doi.org/10.1017/sjp.2015.14>
- Oliver, A., Galiana, L., Calatayud, P., and D Piacentini, G. (2016). Measuring entrepreneurship: adaptation and validation of the EASS entrepreneurial attitudes scale in Spanish teachers. *Búsqueda*, 3(16), 41–52. <https://doi.org/10.21892/01239813.167>
- Oliver, A., Galiana, L., and Gutiérrez-Benet, M. (2016). *Diagnosis and policies for promoting entrepreneurship among students*. 32(1), 183–189. <https://doi.org/10.6018/analesps.32.1.186681>
- Olson, S. (2013). *Shaping an Ethical Workplace Culture*. <https://bit.ly/36Nq6k3>
- Palomeque, E., Plaza, J., & Tapia, N. (2020). Emotional intelligence and entrepreneurship: a brief approach to understanding. *University and Society Journal*, 12(4), 281–287.
- Patzelt, H., & Shepherd, D. A. (2011). Recognizing Opportunities for Sustainable Development. *Entrepreneurship Theory and Practice*, 35(4), 631–652. <https://doi.org/10.1111/j.1540-6520.2010.00386.x>
- Peña Garrido, M., Rey Peña, L., & Extremera Pacheco, N. (2012). Life satisfaction and engagement in Elementary and Primary educators: differences in emotional intelligence and gender. *Revista de Psicodidáctica*, 17(2), 341–358. <https://doi.org/10.1387/RevPsicodidact.1220>
- R Core Team. (2021). *R: A language and environment for statistical computing*. <https://www.R-project.org/>
- Rodríguez López, R., and Borges Gómez, E. (2018). The profile of the entrepreneur. Cultural construction of post-Fordist labor subjectivity. *Cuadernos de Relaciones Laborales*, 36(2), 265–284. <https://doi.org/10.5209/CRLA.60697>
- Salovey, P., Bedell, B. T., Detweiler, J. B., and Mayer, J. D. (1999). Coping intelligently: Emotional Intelligence and the Coping Process. In C. R. Snyder (Ed.), *Coping: The Psychology of What Works* (pp. 141–164). Oxford University Press. <https://doi.org/10.1093/med:psych/9780195119343.003.0007>

Salovey, P., & Mayer, J. D. (1990). *Emotional Intelligence. Imagination, Cognition and Personality*, 9(3), 185–211. <https://doi.org/10.2190/DUGG-P24E-52WK-6CDG>

Samaniego, F. (2014). Analysis and outlook for Ecuadorian entrepreneurship in the context of the economic policy of good living. *Latin American Economic Observatory*, 201. <https://bit.ly/3CwtMFk>

Sánchez, G. (2016). *Validation of Law and Wong's emotional intelligence scale: exploratory study in business management professionals*. [Master's thesis, Catholic University of Santiago de Guayaquil]. <https://bit.ly/3oWrMDi>

Tesoro, A. R., Gago Galvagno, L. G., and De Grandis, C. (2021). Emotional Intelligence and Eysenck's Psychobiological Model of Personality. *Journal of Psychology*, 17(33), 104–118. <https://doi.org/10.46553/RPSI.17.33.2021.p104-118>

Traymbak, S., Sharma, A., & Dutta, M. (2022). Reliability and Construct Validity Assessment of Wong and Law Emotional Intelligence Scale and Satisfaction With Life Scale in the Indian Hospitality Industry. *Annals of Neurosciences*, 29(2–3), 121–128. <https://doi.org/10.1177/09727531221100249>

Walker, S. A., Double, K. S., Kunst, H., Zhang, M., & MacCann, C. (2022). Emotional intelligence and attachment in adulthood: A meta-analysis. *Personality and Individual Differences*, 184, 1–42. <https://doi.org/10.1016/j.paid.2021.111174>

Zampetakis, L. A. (2011). Chapter 11 The Measurement of Trait Emotional Intelligence with TEIQue-SF: An Analysis Based on Unfolding Item Response Theory Models. In *What Have We Learned? Ten Years On* (pp. 289–315). [https://doi.org/10.1108/S1746-9791\(2011\)0000007016](https://doi.org/10.1108/S1746-9791(2011)0000007016)