Validation of a Questionnaire for Emotional Leadership in Educational Center Managers

Evelyn Pizarro Fuentes, Fernando Díez Ruiz, Aurelio Villa Sánchez

Universidad de Deusto
Email: e.pizarro@opendeusto.es

Abstract

The primary objective of the research was to validate the Emotional Leadership Questionnaire for Training, as proposed by McKee et al. (2008). The study included a sample of 97 school principals. An analysis of the original questionnaire was conducted, which comprises four factors and 25 items. Of these, three items and 13 factors were retained. The results demonstrated an optimal fit of the model and high-reliability indices. This instrument provides a practical self-perception tool to assess emotional leadership, underscoring the importance of empathy, adaptability, and self-knowledge in the training of school principals. The content validity was established through the assessment of 15 experts using Lawshe's formula, which demonstrated the validity of all items and dimensions. The reliability was evaluated through Cronbach's alpha and Omega indices, which yielded values between 0.77 and 0.86 and between 0.79 and 0.87, respectively. These results indicate high reliability for all factors. Construct validity was confirmed through confirmatory factor analysis.

Keywords: Emotional leadership, emotional competencies, management practices, emotional intelligence, validation, questionnaire.

1. Introduction

The validation of psychometric instruments in the educational field is a fundamental pillar of ensuring the reliability and validity of the tools used in the assessment of cognitive, emotional, and social processes in students of various ages (Luna et al., 2020; Bonomelli et al., 2020). A multitude of investigations have been conducted on a global scale with the objective of optimizing and validating these instruments. These investigations reflect a diversity of methodological approaches and results, which contribute to the advancement of the field of educational psychometrics.

In the United States, the study conducted by the American Educational Research Association (AERA, 2020) demonstrated that 75% of the psychometric instruments utilized in the educational domain necessitate updates to their validation procedures to align with evolving

educational requirements and student demographics. This data highlights the necessity for continuous review and updating of psychometric tools to ensure their continued applicability and accuracy (Vergara & Castellanos, 2020).

Meanwhile, in Europe, research coordinated by the European Association of Psychological Assessment (EAPA, 2019) revealed that 65% of the instruments analyzed exhibited deficiencies in their procedures. This finding underscores the necessity to reinforce validation methodologies that consider the cultural and linguistic diversity of the continent (Luna et al., 2020).

A review of the literature reveals that the validation of psychometric instruments in education has shown significant growth in Latin America over the past decade. Only 40% of the instruments utilized in the educational domain had undergone validation procedures, underscoring the necessity for adapting and validating psychometric instruments within the specific cultural and educational contexts of the region (Vergara & Castellanos, 2020; Bonomelli, et al., 2020).

With regard to the validation methodologies employed, 70% of the studies indicate the use of confirmatory factor analysis as the primary technique for evaluating the internal structure of the instruments (Blanco-Molina, 2020). A total of 65% of the studies included criteria validation procedures (Vergara & Castellanos, 2020; MacCann et al., 2020). It is noteworthy that, despite these advances, only 50% of the published validation studies report having performed sensitivity and specificity analyses (Fernández-Berrocal & Cabello, 2021).

This panorama reflects a constantly evolving scenario in the field of psychometric instrument validation in Chile, where there is a growing commitment to the quality and relevance of educational assessment tools (Bonomelli et al., 2020). Nevertheless, it underscores the necessity to persist in the exploration of particular methodological elements, such as sensitivity and specificity analyses, to enhance the reliability and validity of these instruments in the educational context.

The objective of this study is to address several pivotal inquiries pertaining to the validation of an emotional leadership questionnaire. Does the questionnaire demonstrate intercultural consistency in its results? What is the degree of concordance between the emotional leadership self-evaluations conducted by managers using the McKee questionnaire and the external evaluations performed by experts in the field? This could assist in determining the objectivity and accuracy of the instrument. The questionnaire must demonstrate adequate construct validity when applied in educational contexts to validate its usefulness in different academic settings. It must also maintain its consistency and reliability throughout multiple applications with different cohorts of managers to ensure its stability as a measurement tool over time. These questions will guide the critical evaluation of the questionnaire to ensure its relevance and applicability in the study of emotional leadership in the educational field.

Purpose of the study.

The specific research objectives are as follows:

(1) To design a psychometric validation protocol for the emotional leadership questionnaire of McKee et al. (2008), which includes reliability analysis, construct validity, content validity, and

convergent validity. This protocol is aimed at educational leaders and is designed to ensure the adequacy and coherence of the tool for the educational context. To date, no studies have been conducted to highlight the importance of this topic. (2) The objective is to explore the interrelationships between the constructs of empathy, adaptability, self-knowledge, and positive attitude, and their impact on the effectiveness of educational leadership. (3) Conduct statistical analyses to assess the reliability and validity of the questionnaire in the context of educational leadership.

2. Literature review.

Measuring emotional leadership.

It is imperative to recognize that evaluation should not be merely regarded as a quantitative measurement exercise. Instead, it should be conceptualized as a valuable instrument for enhancing the learning process (Villa, 2021). The fundamental principle should be "evaluate to improve" (Jiménez-Blanco et al., 2020). However, there are instances when both education professionals and researchers may be unaware of the most appropriate instruments to conduct an evaluation and interpretation in this context (Hallinger, 2023). This may be attributed to a multitude of factors, including a dearth of awareness regarding the array of available tools or the sheer number of options (Fernández-Berrocal & Cabello, 2021).

Emotional intelligence assessment instruments

Table 1 below shows a considerable variety of instruments available to measure Emotional Intelligence (EI).

Table 1. Assessment instruments.

Instruments of the Emotional Intelligence - Ability model	
EARS (Emotional Accuracy Research Scale)	Mayer and Geher (1996)
EISC (Emotional Intelligence Scale for Children)	Sullivan (1999)
MSCEIT (Mayer Salovey Caruso Emotional Intelligence Test)	Mayer et al., (2002) and the Spanish version (2009)
Self-report instruments of the emotional intelligence model - Trait (trait)	
TMMS (Trait Meta Mood Scale)	Salovey et al., (1995)
EQ-i (Emotional Quotient Inventory)	Bar-On (1996,1997)
SEIS (Schutte Emotional Intelligence Scale)	Schutte et al., (1998)
ECI (Emotional Competence Inventory)	Boyatzis et al., (1999)
EISRS (Emotional Intelligence Self-Regulation Scale)	Martínez-Pons (2000)
EI-IPIP (Emotional Intelligence based IPIP Scales)	Barchard (2001)
DHEIQ (Dulewicz y Higgs Emotional Inteligence Questionnaire)	Dulewicz y Higgs (2001)
TEIQue (Trait Emotional Inteligence Questionnaire),	Petrides y Furnham (2001)
TEIl (Tapia Emotional Inteligence Inventory)	Tapia (2001)
WEIP (Work-group Emotional Intelligence Profile)	Jordan et al., (2002)
SUEIT (Swuinburne University Emotional Intelligence Test)	Palmer y Stough (2002)

VEIS (Van der Zee Emotional Intelligence Scale)	Van der Zee et al., (2002)
WLEIS (Wong y Law Emotional Intelligence Scales)	Wong y Law (2002)
LEIQ (Lioussine Emotional Intelligence Questionnaire)	Lioussine (2003)
EIS (Emotional Inteligence Scale)	Austin et al., (2004)
TMMS-24 (Trait Meta Mood Scale)	Adaptation to Spanish by Fernández Berrocal et al., (2004)

Note. Adapted from the Bisquerra and López-Cassá Base (2020).

Conceptual Framework of Annie McKee's Emotional Leadership Approach

In contrast to tests that assess intelligence quotient (IQ), there is currently no definitive test that can determine the "degree of emotional intelligence" (Hellwig, 2020). Annie McKee (2008) developed a self-assessment questionnaire to ascertain the emotional competencies of leaders, classifying it as a "questionnaire for training" (McKee et al., 2008). Annie McKee, a researcher at the University of Pennsylvania, has collaborated with Daniel Goleman's team on several research projects. The author constructed a questionnaire to diagnose the competencies of the managers who were undergoing training and, based on the evaluation results, developed a training program to enhance their leadership abilities.

The questionnaire designed by McKee (2008) is based on the emotional intelligence model developed by Goleman et al. and has been applied in various international contexts and different professional fields. In their work, "Resonant Leadership," authors Annie McKee and Boyatzis (2005; McKee et al., 2008; McKee, 2013) concur with Daniel Goleman (2008) in identifying the following competencies as priorities in the development of emotional intelligence in leadership: self-awareness, self-management, social awareness, and relationship management. These competencies, which share similar nomenclature, are referenced in disparate conceptual models of emotional intelligence, as illustrated in Table 1.

Image 1. Models for the evaluation of emotional competencies.

Source: Own elaboration.

In order to comprehend the interrelationship between the content of the competencies delineated in the disparate models, it is imperative to undertake a detailed examination of the definitions espoused in each approach that has been put forth to address the construct of emotional intelligence. First, we present the definitions used in McKee's (2008) questionnaire, selected from different publications by Goleman, which the author considers most relevant in the context of managerial leadership.

In the context of managerial leadership, Goleman (2008) identifies a number of competencies that are particularly relevant. These are outlined in the following section. The competencies of self-knowledge, positive attitude, adaptability, self-control, and empathy are essential for effective managerial leadership. Self-knowledge encompasses the ability to recognize and understand one's own emotions and their impact on behavior. A positive attitude is the tendency to maintain an optimistic vision in the face of difficulties. Adaptability refers to the capacity to adjust and respond effectively to changes and stressful situations. Self-control is the ability to manage impulsive emotions and behaviors in diverse situations. Empathy is the capacity to understand and share the feelings of others. These competencies are crucial for effective managerial leadership (Goleman, 1995, 1998).

Secondly, the definitions of the dimensions identified by Weisinger (1998) are presented. Self-awareness refers to the accurate perception of one's own emotions at the moment, together with the understanding of behavioral tendencies. Self-management involves taking charge of one's thoughts or cognitive evaluations of others and events. Self-motivation consists of staying focused, inspired, and moving forward, based on the recognition of emotions, participation in constructive self-dialogue, and the productive use of arousal and behaviors. Communication skills, which include self-disclosure, assertiveness, dynamic listening, criticism, and team

communication; interpersonal experience, which is relationship management based on the ability to analyze a relationship and communicate for the effective exchange of information; and empathy, which is a fundamental skill in people, since empathetic individuals are natural leaders who can express and guide the group towards its objectives (Mayer & Salovey, 1997).

The WLEIS proposal (Wong & Law, 2002) identifies four primary dimensions of emotional intelligence: intrapersonal perception, which encompasses the capacity to understand one's own emotions and express them authentically; interpersonal perception, which involves the ability to discern and recognize emotions in others; emotional assimilation, which refers to the ability to regulate emotions, facilitating swift recuperation from psychological distress; and emotional regulation, which pertains to the capacity to utilize emotions for constructive endeavors and personal performance enhancement. These dimensions have been validated in various studies, as indicated by the American Educational Research Association (2020), which underscores the significance of psychological and educational assessment instruments.

In the case of Emily Sterret, her model is based on the dimensions proposed by Goleman (2008), which include the following: The dimensions of self-awareness, self-confidence, self-control, empathy, motivation, and social competencies are essential for understanding emotional intelligence.

Self-awareness is the ability to self-analyze and recognize personal moods. As Fernández Berrocal and Cabello (2021) posit, emotional intelligence serves as the foundation for emotional education, a perspective that aligns with the dimensions put forth by Sterret (Villa, 2021).

The initial competency that a leader must cultivate is self-knowledge, which pertains to the capacity to discern one's profound emotional states. In the WLEIS model, this competence is referred to as “intrapersonal perception,” whereas in Sterret's model, it is designated as “self-awareness.” As McKee (2013) observed, maintaining a positive attitude entails maintaining an optimistic outlook. Although this concept is not explicitly present in other models, it can be understood as an underlying term, such as “self-confidence” (Boyatzis & McKee, 2005). The concept of adaptability, as defined by McKee as the ability to respond appropriately to change, can be related to the concept of “emotional assimilation” in the WLEIS model. Another pivotal competency is self-control, which is a common thread in many models. In the WLEIS, it is referred to as “emotional regulation,” whereas in Sterret's model, the emphasis is placed on emotional balance. Finally, empathy is a fundamental component of effective emotional leadership, as evidenced by its presence in numerous models. This concept can be operationalized as the ability to empathize with and understand the perspectives of others. Gómez-Leal et al. (2022) also emphasized this aspect in their systematic review of the relationship between emotional intelligence and leadership.

Emotional competencies considered in the formative questionnaire by Annie Mckee et al., 2008.

Annie McKee and colleagues (2008) have made significant contributions to the field of emotional and organizational leadership. They have proposed a specific set of emotional competencies that are essential for effective leadership, particularly in the context of training (Boyatzis & McKee, 2005; McKee et al., 2008; McKee, 2013). These competencies, which include self-awareness, positive attitude, emotional self-control, adaptability, and empathy, have

been meticulously selected by McKee based on her extensive research and experience (McKee, 2017). The selection of these five competencies by Annie McKee (2013) was not arbitrary. They were identified and prioritized based on their direct impact on leaders' abilities to inspire, motivate, and manage their teams (Zeidner, 2008; McKee et al., 2022).

The question of whether emotional intelligence can be acquired has been a topic of debate for decades, as has the question of whether leaders are born or made (Zeidner, 2008). Nevertheless, research and practice have demonstrated that emotional intelligence can be acquired (Hellwig, 2020). A seminal study by Goleman (1995) in his book Emotional Intelligence posits that emotional intelligence can be developed and enhanced over time through education and practice (Matthews et al., 2004). It is an irrefutable conclusion that this quality tends to increase with age, a process that can be defined as maturation.

3. METHOD

Sample.

The study's target population consisted of school directors in the commune who were invited to participate in the research, which was conducted as part of the Program to Explore the South West Metropolitan Region of the Ministry of Science. A total of 52 establishments were included in the sample. The invitation was a prerequisite for the board's participation. Of the total number of institutions invited to participate, 16 responded to the invitation, representing a response rate of 30.7%. A total of 97 managers participated in these centers, which implies an average of 6 managers per center. The population of managers under analysis is predominantly female, comprising 55.67% of the total, with the remaining 44.33% being male. In terms of age distribution, it is noteworthy that more than half of the population (55.67%) is in the range of 41 to 50 years old. Additionally, 25.77% of the population is between 31 and 40 years old, while a smaller percentage (18.56%) is over 60 years old. In terms of length of service, it is notable that the majority of individuals (54.64%) have been employed for more than 20 years. A notable proportion of the sample, representing 22.68%, has between six and ten years of experience. Conversely, 21.65% of the group has served for a period between 11 and 20 years, while only 1.03% have served for less than five years. This indicates a noteworthy level of experience and tenure within the population under study.

Ethical Aspects of Research.

The research, conducted between May and September 2023, was carried out in accordance with the highest ethical standards. Before the commencement of data collection, the requisite certificate of ethical approval was obtained from the Ethics Committee of the University of Deusto (ETK-2/2324). Furthermore, the participants have been informed of the nature of the study and have consented to participate, thereby ensuring anonymity and confidentiality.

Instruments.

Data collection was conducted via the Google Forms platform, and comprehensive instructions were provided to ensure the accurate administration of the surveys (Clark & Watson, 2016). The

instrument utilized was the Emotional Intelligence in Leadership Questionnaire, as originally formulated by Annie McKee (2006). The initial version of the questionnaire consisted of 25 items. The five competencies are self-awareness, positive attitude, adaptability, self-control, and empathy. The questionnaire employs a Likert scale. 1. The respondents were asked to indicate the frequency with which they engage in the behaviors described in the questionnaire. They were instructed to select one of the following options: 1. Never, 2. Rarely, 3. Sometimes, 4. Frequently, 5. Most of the time, and 6. Always. This response indicates that the subject exhibits the behavior or characteristic in question consistently and without exception.

The data were analyzed using the Jamovi project (2022) version 2.3 statistical software.

Stages of the Analysis.

First, the questionnaire was validated through the evaluation of its content by 15 experts from various universities. Eight experts from the University of Deusto, two from the University of the Basque Country (EHU), one from the University of Melbourne, one from the UCSH University of Chile, one from the Catholic University of Uruguay, one from the University of Barcelona, and one from the University of Hong Kong. Please refer to Annex 2 for a list of the doctors involved. The experts were asked to evaluate each item in terms of its necessity, usefulness, and essentiality in relation to the respective dimension.

In order to achieve this, the Content Validity Index (CVI) has been applied. Lawshe (1975) proposed this validity index based on the assessment of a group of experts in each of the items of the test, who were asked to rate each item as unnecessary, useful, or essential. A content rating ratio ranging from 0 to 1 indicates the extent of agreement among the group of experts. A ratio approaching 1 indicates a high degree of consensus. The table below presents the indices obtained for each item, for each dimension, and the total as scales.

Table 2. Data from content rating indices according to Lawshe (1975).

Item	IVC
1. I can describe my emotions the moment I feel them.	0,87
2. I can describe my feelings in detail.	0,60
3. I understand the reasons for my feelings.	0,47
4. I understand how stress affects my mood.	0,87
5. I understand the strengths and weaknesses of my leadership.	0,87
Dimension 1 Self-awareness	0,579
6. I am optimistic in the face of difficult circumstances.	0,73
7. I focus on opportunities, rather than obstacles.	0,73
8. I think people are good and have good intentions.	0,47
9. I look forward to the future.	0,73
10. I feel hopeful.	0,73
Dimension 2 Positive Attitude	0,678
11. I manage stress well.	0,87
12. I remain calm in circumstances of emotional pressure or turmoil.	0,87
13. I control my impulses.	0,73
14. I use my intense emotions, such as anger, fear, and joy, appropriately and for the sake of another.	0,73
15. I am a patient person.	0,87
Dimension 3 Adaptability	0,786
16. I am flexible when situations change unexpectedly.	0,87
17. I am an expert in managing multiple and conflicting demands.	0,87
18. I can easily adjust the objectives when circumstances change.	0,73

19. I can change my priorities quickly.	0,73
20. I adapt easily when a situation is uncertain or changing.	0,73
Dimension 4 Self-control	0.952
21. I strive to understand people's feelings.	0,87
22. My curiosity about others leads me to listen to them carefully.	0,73
23. I try to understand why people behave the way they do.	0,87
24. I easily understand other people's points of view, even when they are different from my own.	0,87
25. I understand how other people's experiences affect their feelings, thoughts, and behaviors.	0,87
Dimension 5 Empathy	0,842
IVC OF THE TOTAL SCALES	0,767

All items are deemed suitable for inclusion in the emotional leadership scale, as determined by the Content Rating Index developed by Lawshe. However, it was noted that items 3 and 8 exhibited a lower index than the remaining items. Item 3 may present a semantic discrepancy, as it attempts to evaluate feelings, but is formulated in cognitive terms with the phrase, "I understand the reasons." This is not the most significant factor when considering feelings, which are elements of the affective level. With regard to item 8, "I think people are good and have good intentions," its formulation is notably general. Likely, experts have not deemed this item to be an adequate reflection of a positive attitude in comparison to the other items within the factor, which tend to focus more on future expectations. According to Lawshe, an IVC of 0.51 is sufficient with 15 experts. As can be observed, the indices obtained for all items, for all factors, and the total scale exceed this value.

Validity of the contract.

A second analysis was conducted to evaluate the items using the original questionnaire. This involved calculating goodness of fit indices, including the RMSEA (Root Mean Square Error of Approximation) and the CFI (Comparative Fit Index), to assess the adequacy of each item individually. This included the estimator, standard error, Z-value, p-value, and standardized estimator. Items exhibiting a poor fit, as indicated by an RMSEA exceeding 0.08 and a CFI below 0.9, were identified and subjected to exclusionary consideration. Items with low factor loads, such as items 8, 9, and 15 of the positive attitude factor, were eliminated based on the findings of the literature review. Subsequently, a theoretical and potentially methodological review was conducted to achieve a more accurate representation of the data structure.

The factor loads and covariances between the different factors were analyzed to validate the revised factor structure and the theoretical relationships between the latent variables.

4. RESULTS

The initial stage of the process entailed the validation of the content of the original model of the instrument, which is presented in Table 3.

Table 3 Indexes Original model

	Items	Estimator	EE	With	p	Standard Estimator
F1	1. I can describe my emotions the moment I feel them.	0.589	0.1105	5.33	<.001	0.639
	2. I can describe my feelings in detail.	0.692	0.1082	6.40	<.001	0.707
	3. I understand the reasons for my feelings.	0.493	0.0768	6.41	<.001	0.655
	4. I understand how stress affects my mood.	0.578	0.1016	5.69	<.001	0.627
	5. I understand the strengths and improvable of my leadership.	0.608	0.0868	7.00	<.001	0.738
F2	6. I am optimistic in the face of difficult circumstances.	0.619	0.0754	8.22	<.001	0.800
	7. I focus on opportunities, rather than obstacles.	0.460	0.0920	5.00	<.001	0.539
	8. I think people are good and have good intentions.	0.412	0.1150	3.58	<.001	0.395
	9. I look forward to the future.	0.465	0.1428	3.25	<.001	0.371
	10. I feel hopeful.	0.604	0.0780	7.74	<.001	0.769
F3	11. I manage stress well.	0.412	0.0939	4.39	<.001	0.477
	12. I remain calm in circumstances of emotional pressure or turmoil.	0.544	0.0838	6.49	<.001	0.677
	13. I control my impulses.	0.564	0.0747	7.55	<.001	0.740
	14. I use my intense emotions, such as anger, fear, and joy, appropriately and for the sake of another.	0.624	0.0844	7.38	<.001	0.730
	15. I am a patient person.	0.462	0.1168	3.95	<.001	0.442
F4	16. I am flexible when situations change unexpectedly.	0.509	0.0783	6.50	<.001	0.636
	17. I am an expert in managing multiple and conflicting demands.	0.617	0.0944	6.53	<.001	0.635
	18. I can easily adjust the objectives when circumstances change.	0.646	0.0709	9.11	<.001	0.808
	19. I can change my priorities quickly.	0.595	0.0996	5.97	<.001	0.588
	20. I adapt easily when a situation is uncertain or changing.	0.763	0.0764	9.99	<.001	0.859
F5	21. I strive to understand people's feelings.	0.765	0.0842	9.09	<.001	0.802
	22. My curiosity about others leads me to listen to them carefully.	0.823	0.0942	8.73	<.001	0.780
	23. I try to understand why people behave the way they do.	0.748	0.0808	9.26	<.001	0.811
	24. I easily understand other people's points of view, even when they are different from my own.	0.719	0.0797	9.02	<.001	0.798
	25. I understand how other people's experiences affect their feelings, thoughts, and behaviors.	0.702	0.0760	9.23	<.001	0.810

The table presents the findings of an analysis of the psychometric properties of Annie McKee's questionnaire. The factor loads, reflected in the standard estimators, are all significant ($p < .001$), indicating that each item has a strong relationship with the theoretical construct it intends to measure. However, the statistical significance of these loads does not necessarily imply that they all have the same contribution to the construct. For instance, items 8 and 9 within the positive attitude construct (F2) show lower factor loads (0.395 and 0.371, respectively) compared to other items such as 6 and 10, which have factor loads of 0.800 and 0.769, respectively. This could indicate that while specific elements such as optimism in the face of challenges (item 6) and the sense of hope (item 10) are more illustrative of the construct, the perception of benevolence and anticipation of the future (items 8 and 9).

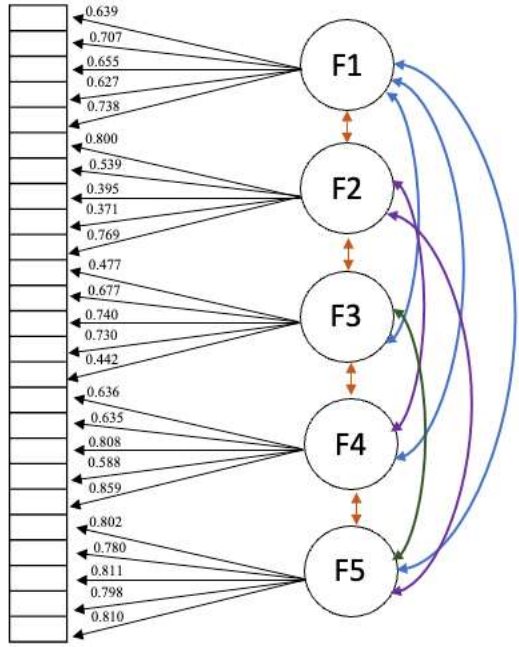
Table 4. In the analysis of the fit of the model.

			90% RMSEA CI	
CFI	TLI	RMSEA	Inferior	Superior
0.764	0.756	0.0989	0.0859	0.112

As illustrated in Table 4, the indicators point towards the necessity for an adjustment. The Comparative Fit Index (CFI) and the Tucker-Lewis Index (TLI) exhibited values of 0.764 and 0.756, respectively, both falling below the conventional threshold of 0.90. This indicates a moderate adjustment, but there is potential for further improvement. The Root Mean Square Error of Approximation (RMSEA) value, which is 0.0989, exceeds the upper limit of the reasonable fit of 0.08. This value, along with its 90% confidence interval, extends from 0.0859 to 0.112. These results indicate the necessity for a theoretical and methodological review to achieve a more accurate representation of the data structure (The jamovi project, 2022).

In Image 2 the initial model of the emotional competencies test is observed.

Image 2. Initial model flow diagram.



In the initial analysis, items from the Positive Attitude factor were excluded due to their low factor loads, as identified through confirmatory factor analysis. This aligns with the recommendations set forth by Alavi and colleagues (2020). Items with factor loads below 0.4 may not adequately measure the same theoretical construct as other items on the scale. The decision to remove items 8, 9, and 15 from the Positive Attitude factor was based on the aforementioned guideline, as their loadings were 0.395 and 0.371, respectively, indicating a limited contribution to the reliability of the scale.

Following the elimination of the items, the model was recalculated with factor structures that included (F1) Self-awareness, (F2) Positive Attitude, (F3) Adaptability, (F4) Self-control, and

(F5) Empathy. This was done with the expectation that the internal consistency and validity of the scale construct would improve (Martínez-Corona et al., 2020).

Second analysis of the original model.

Table 5 reflects the results of a post-hoc analysis. Despite the modifications made, the adjustment indices demonstrate a moderate yet insufficient improvement. The Comparative Fit Index (CFI) increased to 0.823 and the Tucker-Lewis Index (TLI) to 0.795. Both indices remain below the desired threshold of 0.90, which typically denotes a good fit of the model to the data. The Root Mean Square Error of Approximation (RMSEA) remains elevated, with a value of 0.100, and its 90% Confidence Interval ranges between 0.0856 and 0.115, indicating no significant improvement compared to the values observed before adjustment (Hernández-Sampieri & Mendoza, 2020).

Table 5. Fit measure of the model without items 8,9,15.

			90% RMSEA CI	
CFI	TLI	RMSEA	Inferior	Superior
0.823	0.795	0.100	0.0856	0.115

The analysis demonstrates that all remaining items exhibit considerable loadings ($p < .001$), with standard estimators spanning from moderate to high, which serves as an indicator of the relevance of each item to its corresponding factor. In particular, the items pertaining to the Empathy factor (F1) demonstrate a robust correlation, which is consistent with the existing literature that underscores the significance of empathy in interpersonal relationships and social comprehension. With regard to the Adaptability factor (F2), the items reflect the capacity to manage demands and adjust to changes, which is of paramount importance in dynamic and often unpredictable contexts (McKee & Boyatzis, 2006).

The items pertaining to Self-Knowledge (F3) evince a comprehensive and deliberate self-perception, which is of paramount importance according to Mayer et al. (1997). These researchers posit that self-knowledge is a pivotal element of emotional intelligence. In conclusion, the Positive Attitude factor (F4) underscores the significance of optimism and hope as indispensable elements of resilience and psychological well-being, corroborating the hypothesis of Sweetman and Luthans (2010) regarding hope as a motivational force.

Table 6 shows the factor loads for a new measurement model:

Table 6. Factor loads new measurement model (Final scale)

	Items	Estimator	USA	Z	p	Standard Estimator
F1.	21. I strive to understand people's feelings.	0.778	0.0809	9.62	<.001	0.844
	22. My curiosity about others leads me to listen to them carefully.	0.856	0.0941	9.10	<.001	0.811
	23. I try to understand why people behave the way they do.	0.802	0.0842	9 53	<.001	0.840
F2.	17. I am an expert in managing multiple and conflicting demands.	0.683	0.0718	9 52	<.001	0.855
	18. I can easily adjust the objectives when circumstances change.	0.736	0 0808	9 11	<. 001	0.828

	20. I adapt easily when a situation is uncertain or changing.	0.673	0.0936	7.19	<.001	0.693
F3.	2. I can describe my feelings in detail.	0.500	0.0759	6.58	<. 001	0.664
	3. I understand the reasons for my feelings.	0.552	0.1015	5.44	<.001	0.564
	4. I understand how stress affects my mood.	0.674	0.0896	7.52	<.001	0.732
	5. I understand the strengths and improvables of my leadership.	0.674	0.0785	8 59	<.001	0.818
F4.	6. I am optimistic in the face of difficult circumstances.	0.699	0.0940	7.44	<. 001	0.891
	9. I look forward to the future.	0.546	0.0896	6.09	<. 001	0.705
	10. I feel hopeful.	0.573	0.1338	4 28	<.001	0.458

In examining the constructs of factors F1 to F4, it was observed that the factor loads were significantly associated with Z-values (all with $p < .001$), indicating a robust and significant relationship between each item and its respective factor. To illustrate, the F1 items pertaining to empathy (items 21-23) exhibit high factor loads (0.778, 0.856, and 0.802) and standard estimators exceeding 0.8, indicative of robust internal consistency and relevance to the constructed measure. In factor 2 (F2), which appears to address adaptability and conflict management (items 17, 18, and 20), the factor loads are also high, with a minimum of 0.673 and high standard estimators, indicating a substantial contribution of these items to the construct. With regard to factors 3 and 4, which assess self-awareness and optimism (items 2-5, 6, 9, and 10), the factor loads range from 0.500 to 0.674, with standard estimators ranging from 0.458 to 0.891. Although the loads are slightly lower, they remain statistically significant, indicating a meaningful relationship between the items and their respective constructs. Nevertheless, item 10, although significant, exhibits a comparatively lower factor load (0.573) and a lower standard estimator (0.458), which may indicate a smaller, yet still relevant, contribution to the construct of optimism.

Table 7 presents the fit indices for a revised model in the statistical analysis, which demonstrates a substantial improvement compared to previous measurements:

Table 7. New Setting Measurement (Final Scale).

			90% RMSEA CI	
CFI	TLI	RMSEA	Inferior	Superior
0.968	0.958	0.0526	0.00	0.0863

Table 7 illustrates the exceptional results of a post-adjustment statistical model, with a Comparative Fit Index (CFI) of 0.968 and a Tucker-Lewis Index (TLI) of 0.958, both exceeding the excellence threshold of 0.95. This demonstrates a highly satisfactory fit of the model. The Root Mean Square Error of Approximation (RMSEA) of 0.0526, although slightly above the ideal of 0.05, is nevertheless indicative of a good fit, particularly in light of the 90% confidence interval, which ranges from 0.00 to 0.0863.

Table 8 illustrates the covariances between the various factors of a confirmatory factor analysis model that is centered on the assessment of emotional competencies.

Table 8 Covariances of Factors. (Final scale).

		Estimator		EE	Wit h	p	Standard Estimator
F1. Empathy	Empathy	1.000	[a]				
	Adaptability	0.569		0.0893	6.37	<.001	0.569
	Self	0.434		0.1035	4.20	<.001	0.434
	Positive attitude	0.169		0.1185	1.43	0.154	0.169
F2. Adaptability	Adaptability	1.000	[a]				
	Self	0.428		0.1061	4.04	<.001	0.428
	Positive attitude	0.472		0.1119	4.21	<.001	0.472
F3. Self	Self	1.000	to				
	Positive attitude	0.325		0.1227	2.65	0.008	0.325
F4. Positive attitude	Positive attitude	1.000	to				

to fixed parameter

Table 8 presents a detailed analysis of the relationships between four key factors of emotional competence in leadership, highlighting significant patterns of covariance. According to Hernández-Sampieri and Mendoza (2020), covariances are indicative of the magnitude of the relationship between latent variables in a structural equation model.

In this model, the covariance between Empathy and Adaptability is 0.569, with a p-value less than 0.001. Similarly, the covariance between Empathy and Self-Knowledge is significant (0.434, $p < 0.001$). This lends support to the notion that greater empathy may be associated with a greater understanding of oneself, as described in Salovey and Mayer's (1990) theory of emotional intelligence.

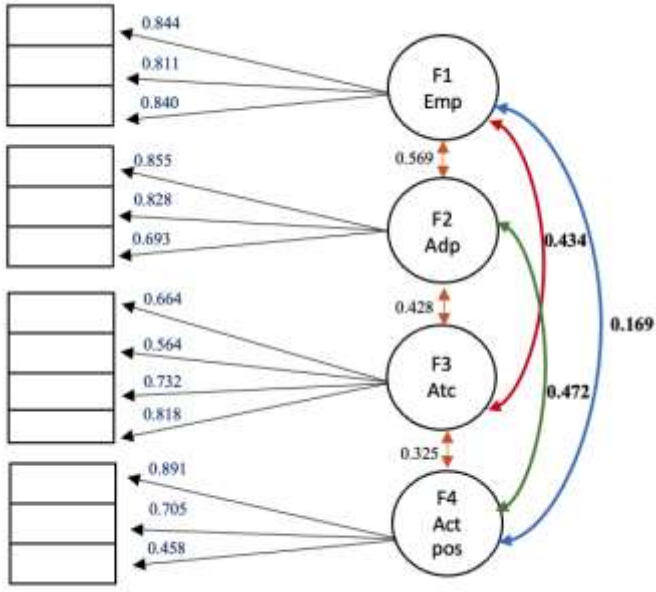
Nevertheless, the correlation between empathy and positive attitude is not statistically significant ($p = 0.154$), which may indicate a conceptual distinction between empathic capacity and optimism or a general positive attitude. This finding aligns with the differentiation between affect and emotional understanding in the literature (Fredrickson, 2001). Additionally, a significant covariance was observed between Adaptability and Self-Knowledge (0.428, $p < .001$), supporting the assertion that behavioral adaptability is inherently linked to self-knowledge (Fernández-Berrocal & Cabello, 2021). Finally, a positive relationship was observed between adaptability and positive attitude (0.472, $p < .001$), which is consistent with research identifying adaptability as a component of psychological well-being and resilience (Yan, 2020).

The reliability of the F1 Empathy factor is indicated by a Cronbach's Alpha of 0.869 and a McDonald's Omega of 0.871, which together demonstrate excellent reliability. However, the removal of any item from the scale results in a reduction in reliability, indicating the importance of each item. The alpha and omega values for the F2 adaptability factor are 0.824 and 0.838, respectively, which are deemed acceptable (Hair et al., 2010). The exclusion of item 18 resulted

in a notable reduction in reliability. The F3 Self-Knowledge factor has an alpha of 0.778 and an omega of 0.791, which is deemed adequate, although not as robust as in Empathy or Adaptability.

The exclusion of items should be based on a comprehensive assessment of their impact on reliability, conceptual relevance, and the integrity of the construct being measured. To ensure the validity of a scale, it is essential to prioritize coherence and thematic diversity.

Image 3 New Model Flowchart (Final Model)



The image considers the latent variables (circles), which represent the factors (F1) Empathy, (F2) Adaptability, (F3) Self-knowledge, and (F4) Positive Attitude. These are latent factors or theoretical constructs that are being evaluated. These variables are not directly measured; rather, they are assessed through their associated items. The observed variables, represented by squares with lines connecting to circles, are as follows: In survey or questionnaire research, the numbers that accompany items or questions are used to quantify latent constructs. Numerical values, such as 0.844, 0.811, and so forth.

Covariances (curved arrows between circles): The curved arrows with numbers represent the covariances between latent factors, which are measures of how two factors vary together. For example, a covariance of 0.569 between the F1 and F2 factors indicates a significant positive relationship. This may indicate that they are being emphasized for a particular interpretation or that they represent disparate levels of relationship.

The relationship between the factors F1 and F4 is not statistically significant (Curved arrow between F1 and F4). The correlation coefficient between these two factors is 0.169.

5. Discussion and Conclusions

Main findings.

The results of the study indicate that the questionnaire by McKee et al. (2008) presents an acceptable consistency in different educational contexts, suggesting that the emotional leadership factors evaluated are relevant beyond cultural barriers (McKee et al., 2008). Nevertheless, future research should concentrate on item adaptation to more accurately reflect cultural variations in the perception of emotional competencies (Alavi et al., 2020; Bisquerra & Bye, 2011). In regard to the comparison between emotional leadership self-evaluations conducted by managers and external evaluations performed by experts, a moderate to high level of agreement is evident. This confirms the objectivity of the questionnaire, although it also highlights the importance of training and awareness of self-evaluation in managers to improve the accuracy of self-evaluations (Bar-On, 2006).

The analysis indicates that managers who have participated in emotional leadership training programs tend to self-evaluate more accurately, suggesting that these programs are effective in improving self-awareness and emotional leadership competencies (Boyatzis & McKee, 2005). In terms of validity, the high-reliability rates and satisfactory construct validity obtained through confirmatory factor analysis provide evidence to support the questionnaire's suitability for use in diverse educational settings (Clark & Watson, 2016). Furthermore, the questionnaire demonstrated consistency across multiple applications, indicating that the instrument is stable and reliable for measuring emotional leadership in different cohorts of managers (Hair et al., 2010). The Emotional Leadership Questionnaire (ELQ) by McKee et al. (2008) has been demonstrated to be a valid and reliable instrument for the self-assessment of emotional leadership competencies in school principals. The consistency and agreement between internal and external evaluations reinforce the applicability of this approach in the global educational field. Moreover, participation in training programs pertaining to emotional leadership markedly enhances the precision of self-assessments, underscoring the pivotal role of such programs in the professional advancement of managers (Jordan et al., 2002).

It is recommended that future research expand the study to different cultural contexts and increase the sample size in order to further explore the generalization of the results. Furthermore, it would be advantageous to examine the immediate effect of enhanced emotional leadership abilities on organizational effectiveness and educational results (Leithwood et al., 2020).

The theoretical and practical implications of this study are as follows:

In the practical field, the results of the study provide a framework for the development of training programs for educational leaders, emphasizing the significance of cultivating adaptability and self-awareness. These findings lend support to McKee's (2006) proposal regarding the relevance of emotional leadership and are in alignment with the recommendations put forth by MacCann et al. (2020).

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