

# Study for the Validation of the Validation of Experiences in Expanded States of Consciousness Questionnaire, VEEC

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## Abstract

**Objectives:** Self-awareness is an increasingly relevant variable in clinical and health psychology as a growing body of research indicates its positive relationship with psychological and emotional well-being. It is therefore necessary to be able to measure the expansion of this awareness psychometrically. At present, there are few instruments available for this purpose. This research evaluates the suitability of the Validation of Experiences in Expanded States of Consciousness questionnaire, VEEC, to contribute to the measurement of this variable.

**Methods:** confirmatory factor analyses were carried out to obtain evidence of the validity and reliability of the tool.

**Results:** These analyses yielded results indicating the presence of adequate psychometric characteristics to measure the construct (CFI=.92, TLI=.91, RMSEA=.09;  $\alpha$ =.97,  $W$ =.97). In order to identify variables that could predict VEEC, a stepwise multiple linear regression analysis was performed, yielding a statistically significant model ( $F(3, 224) = 48.34, p < .001$ ) with cognition, self-perception and personal growth as predictor variables.

**Conclusions:** Although further research is needed in this area, the results suggest that the VEEC is an appropriate tool to help measure the expansion of consciousness following an awareness-expanding experience.

**Keywords:** Awareness, Consciousness, Validation, Questionnaire, Expanded States of Consciousness

## Introduction

Consciousness is at the center of research challenges. Starting from transcendental phenomenology, Husserl proposed to know the essential laws inherent in the consciousness of the world, the Aristotelian logos, evidence or intuition [1,2]

Today there are followers of this proposal such as Laughlin and Rock in the field of neurophenomenology:

**The focal point of Laughlin's work is the Husserlian method of *transcendental phenomenology*. In order to know where we are in this complexity, he states:**

There comes a time when contemplative men reach a specific *epoch* within which they can perceive that their entire sensorium (conscious sensory field) is made up of points (dots, granules, particles, bindus, yods, and so forth) [3].

**Laughlin, a pioneer in the study of consciousness, along with Rock, defines neurophenomenology as:**

A powerful method that relies upon a dialogue between descriptions of the essential properties of consciousness as ascertained through trained contemplation, on the one hand, and the structures and processes of the brain discovered in neuroscience on the other hand [3].

The concept of *mature contemplation* emerges and offers promising insights [4].

In this triadic line of personal practice, clinical practice and research, we believe that we may be moving towards the forefront, based on immersion in internal experience [5,6].

In this connection between the spiritual and expanded states of consciousness of radical actuality, especially through research on mindfulness and in the psychedelic field, William James [7] is a representative figure as a pioneer, although more focused on the varieties of religious experience, in the early twentieth century. The attempt to reduce strange states to pathology is a widespread criticism today [8]. Aldous Huxley dared to propose the value of consciousness modifiers, albeit in a cautious way [9].

In a broad sense, we must consider that the philosopher is sometimes the one who has best embodied this perspective of consciousness immersed in vital renewal, consciousness as participatory knowledge [10]. As early as 1913 Unamuno advocated the idea that "The world is for Consciousness"[10]. [11] Discusses consciousness and truth, conceiving it as a trans subjective truth produced when consciousness transcends the limits of its individuality.

The process of differentiation does not stop, as it is part of the evolutionary process [12]. For Juan Rof Carballo [13,14], a new consensus will be created for a new science of the inner spaces of consciousness. Although there are discussions about whether reality is invented or not [15,16].

[17], another contemporary author, describes consciousness as something of a mystery—a view that has apparently become a slogan for the cautious researcher—and, appealing to psychological discourse, states that it is impossible to define it, to describe in detail what it is, what it does, and why it has evolved. First of all, he describes it as a cognitive agent in relation to the subjective nature of experience.

Varela's phenomenological approach can be found in several other concepts [18,19]. Although they have different nuances, they all consider the opening of the black box and the irreplaceable value of the being's interiority. For example, [17] develops an entire process around this type of experience, not far from Varela's concept, relating conscious experience to the mind and consciousness. He defines the "phenomenal mind" as that of conscious experience and understands the "psychological mind" as the causal and explanatory basis of behavior (p. 11).

It seems obvious that expanded states of consciousness have been brought to light by millenarian wisdom. Hence the diatribe between the rational consciousness of modernity and the irrational consciousness of the Greeks [20]. This leads us, according to some authors, to the recovery of ethno-consciousness's, and possibly to an integration in the dynamic process of the evolution of the structures of consciousness, as proposed by Jean Gebser [21]. The field is already fertile for understanding the full consciousness of the aforementioned Francisco Varela [22]. Mindfulness has some of its beginnings here.

These *expanded states of consciousness*, sometimes referred to as *non-ordinary states of consciousness*, which are becoming increasingly important in the clinical setting, can also occur spontaneously. We call this an emergent crisis [5,23].

For the study of *states of consciousness*, we propose the necessity of a "first person" experience, complemented by a "third person" observation [6,24]. This approach expands in a perspective that would transcend phenomenological consciousness if we define it as a subject's awareness of an object, and from here consider the possibility of a continental consciousness, difficult to objectify and possibly close to what is known as the enlightenment process. We would already be entering the essence of the intuitive processes, and of the very essence of mindfulness meditation [25]. Could this be a new revolution? [5,26,27,63]. One that includes the ability and challenge of mindfulness meditation [28].

[29], based on the concept of self-organizing and autopoietic processes [30], believe that expanded states of consciousness can play an important role in the evolutionary development of individuals. And as research with psychedelic substances is currently at the forefront, we would like to emphasize that for [31-33] the psychedelic substance produces an inner seeing and extending the scientific demand, Roberts and Winkelman [34] see the need to create a neurophenomenological model directed at the relationship between exogenous and endogenous neurotransmitters. They draw on research conducted at Johns Hopkins Hospital in *psycholytic* and *psychedelic* therapy.

Facing this challenge, it follows that the supreme degrees of St. John of the Cross' contemplation lead us to perceive a formless light [35]; and it is Hunt [36-40] who develops a multiple perspective: mystical experiences and phenomenological and holistic cognitive theories. The individual is present in the insertion of the self that opens the field of experience to the observer in the process of meditation and lucid dreaming [41]. Other researchers follow this line: [6,24,42-49] who have studied these states of consciousness experimentally.

Hence the need for a phenomenological psychology that provides us with insights and disseminates them in a

university open to new paradigms [50].

As an approach to these states of consciousness, briefly following the guidelines of the so-called non-linear dynamics of meditative states of consciousness, we propose a novel categorization.

Taking one of the vortices of dissipative processes, we develop the concepts of *emergent crisis* and *vortices* such as *sensitivity*, *instability* and *bifurcation*, considering the symptom as a trigger for healing and transformation [5,25]. We found the following.

**The Oxigeme Meditative Process has three progressive levels:**

"One Mind" (OM): There is a progressive break in the chain of thought. Some affective and cognitive processes may occur; especially at the beginning. The VBH (Ventral Breathing in Hara Focus) is essential. b) "Silent Mind" (SM): Thoughts almost disappear. c) Penetrating Consciousness (PC): One enters into experiences of deep silence and non-duality.

And we find the following correspondence [6]

- One Mind (OM) with Sensitivity
- Silent Mind (SM) with Instability:
- Penetrating Consciousness (PC) with Bifurcation

In this questionnaire we try to assess states of consciousness, and we understand that this challenge involves a delicacy that has borne fruit when it comes to measuring the processes that define the subtle category of human.

In order to obtain satisfactory results, it is therefore essential to be able to measure these states empirically by establishing correlations between different evaluation instruments. Firstly, to measure the level of psychological preparation that provides a solid foundation for processes of self-acceptance and commitment, personal growth, that clarifies the experience of the states of consciousness without false distortions. Secondly, this would lead us to a scientific respect for what is expanding today: spirituality as a high state of consciousness.

## Procedure

Before starting the research, the study was approved by the Research Commission of the authorized Oxígeme Health Center.

The sample (N= 229) was recruited between 2016 and 2022, through face-to-face seminars conducted by psychologists working at the Oxígeme Health Center, linked to the practice of mindfulness meditation and awareness. During these seminars, participants were invited to voluntarily complete the questionnaires associated with this research. Those who expressed an interest in participating were informed about the study. They then completed a questionnaire designed ad hoc to record their sociodemographic data, as well as questions relevant to the study, such as the number of times they had attended the seminars.

Inclusion criteria were healthy adults, aged 18 to 60 years (M=39.19, SD=11.26) who had just completed a mindfulness seminar. Exclusion criteria were adults with any diagnosed psychopathology.

## Instruments

- Validación de Experiencias en Estados de Consciencia (VEEC), designed by Almendro in 2015 (*Validation of Experiences in Altered States of Consciousness*); 29 items on the 5-point Likert scale, (1 = This phrase bears no relation to me; 5= This phrase adequately describes my experience and opinion). El cuestionario mide el estado expandido de consciencia tras una experiencia vivencial asociada a la toma

de consciencia (table 2).

- The Ryff Scales of Psychological Wellbeing (Ryff, 1989), in its Spanish version (Díaz et al., 1989), with 29 items on a 5-point Likert scale with 6 sub-factors; self-perception, positive relationships, autonomy, environmental control, personal growth and purpose in life. The internal consistency of the 6 sub-scales (Cronbach's alpha) varies between 0.68 and 0.83.

- The NEO Five-Factor Personality Inventory (NEO-FFI), the Openness to Experience subscale with 12 items on a 5-point Likert scale. The reduced version of the Personality Inventory was used (Costa y McCrae, 1992), the Spanish adaptation by Manga et al, (2004). The inventory comprises 60 items on a 5-point Likert scale. Examines 5 major domains of personality: Neuroticism, Extraversion, Openness to experience, Agreeableness and Conscientiousness. The Openness to Experience sub-scale has an internal consistency (Cronbach's alpha) of 0.76.

- The Expressions of Spirituality Inventory-Revised, ESI-R [49]. The *Cognitive* sub-scale. The Spanish adaptation is by López, Jódar and MacDonald (2017). It consists of 6 items on a 5-point Likert scale. The "Cognitive" subscale has an internal consistency (Cronbach's alpha) of 0.97.

- The sociodemographic data can be seen in Table 1.

**Table 1:** Sociodemographic data of the sample

Variable	N	%
<b>Sex</b>		
Female	147	64.2
Male	80	34.9
<b>Nationality</b>		
Spanish	190	83.0
Other	30	13.1
<b>Marital Status</b>		
Single	132	57.6

Widowed	2	.9
Separated	7	3.1
Divorced	24	10.5
Married	54	23.6
<b>Education</b>		
Less than 5 years	3	1.3
Compulsory Secondary Education	8	3.5
Baccalaureate	33	14.4
Vocational training	17	7.4
University studies	150	65.5
Doctorate	7	3.1
<b>Employment Status</b>		
Self-employed	55	24.0
Employed	106	46.3
Unemployed	19	8.3
Retired	5	2.2
Student	19	8.3
Civil servant	11	4.8

Note: percentages in the table are absolute.

## Data Analysis

In order to obtain evidence of the construct validity of the VEEC [52], a confirmatory factor analysis (CFA) was conducted. This analysis was performed in R [53] using the R Studio interface [54]. The Lavaan package [61] was used for data analysis.

The polychoric correlation matrix and the robust estimator WLSMV were used for all factor analyses. Following the criteria of [55], the CFI (Comparative Fit Index), TLI (Tucker-Lewis Index), RMSEA (Root Mean Square Er-

ror of Approximation) and SRMR (Standardized Root Mean Square Residual) indicators were estimated because of their good performance in assessing model fit. Various reliability indices were also calculated to obtain data on this property, Cronbach's alpha and McDonald's omega [56,57].

The model tested was a unifactorial model, in which the 36 items of the tool weigh on the same factor. As can be seen in Table 2, the fit and error indices are not acceptable (Bentler, 1990; Hu & Bentler, 1995). In terms of reliability, the Cronbach's alpha and McDonald's omega indices yielded satisfactory results above .70.

**Table 2:** AFC fit indices and reliability of the original model

Indices	Values obtained	Acceptable values
CFI	.89	> .90
TLI	.88	> .90
RMSEA	.10	< .10
SRMR	.11	< .10
Cronbach's	.97	> .70
McDonald	.97	> .70

Note: CFI = Comparative Fit Index; TLI = Tucker-Lewis Index; RMSEA = Root Mean Square Error of Approximation; SRMR = Standardized Root Mean Square Residual.

Taking these results into account, an in-depth study of the performance of the VEEC items and model mismatches was carried out. The aim was to eliminate items that violated construct validity and to obtain a tool with the highest psychometric quality.

Taking into account the factor weights of the items, two of them were eliminated as they were lower than .400 (items 13 and 36). The weights of the remaining items were found to be between .424 and .907. The model modifi-

cation indices were then consulted in order to see which items were detrimental to the indicators described above. This resulted in the elimination of 5 additional items (items 19, 9, 8, 8, 23 and 29). A total of 7 items were therefore eliminated (items 8, 9, 13, 19, 23, 29 and 36). The results of the new AFC after these debugging actions are shown in Table 3. In this case, the fit and error indices are acceptable (Bentler, 1990; Hu & Bentler, 1995) and a high reliability of the tool is maintained.

**Table 3:** AFC fit and reliability indices after debugging

Indices	Values obtained	Acceptable values
CFI	.92	> .90
TLI	.91	> .90
RMSEA	.09	< .10
SRMR	.09	< .10
Cronbach's	.97	> .70
McDonald	.97	> .70

Note: CFI = Comparative Fit Index; TLI = Tucker-Lewis Index; RMSEA = Root Mean Square Error of Approximation; SRMR = Standardized Root Mean Square Residual.

In addition, the item weights are all above .400 (between .438 and .883).

In order to analyze whether there were statistically significant linear relationships between the study variables,

Pearson correlation analyses were carried out. The results are shown in Table 4. We can see that the strongest Pearson correlation with VEEC is with Cognition (.55), while the strongest relationship between the study variables is between Self-perception and Purpose in life (.76).

**Table 4:** Table of Pearson correlations

Pearson correlations									
	1	2	3	4	5	6	7	8	9
1. Self-perception									
2. Positive relationships	.19**								
3. Autonomy	.28**	.40**							
4. Environmental control	.48**	.41**	.40**						
5. Personal growth	.47**	.42**	.37**	.46**					
6. Purpose in life	.76**	.24**	.17**	.52**	.37**				
7. Openness	.05	.12	.03	.14*	.04	.14*			
8. Cognition	.17**	-.06	.05	.08	.21**	.11	.10		
9. VEEC	.34**	.09	.22**	.24**	.36**	.25**	.15*	.55**	

\*  $p > .05$ , \*\*  $p > .01$ , \*\*\*  $p > .001$

A multiple linear regression analysis was carried out in successive steps to find, among the study variables, those that best predicted the levels of VEEC. The model yielded statistically significant results ( $F(3, 224) = 48.34$ ,

$p > .001$ ). Table 5 shows the indicators of the regression model. It can be seen that a total of 39% of the variance of the VEEC was explained by the model with Cognition as the strongest predictor ( $Beta = .49$ ).

**Table 5:** Multiple Linear Regression Model

Variable	B	ET.B	Beta	Tolerance	FIV	R <sup>2</sup>	ΔR <sup>2</sup>
Step1						.31***	.31
Constant	39.79***	5.61					
Cognition	2.20***	.21	.55	1.00	1.00		
Step2						.37***	0.06
Constant	13.63	7.70					
Cognition	2.03***	.21	.51	.97	1.03		
Self-perception	2.07***	.43	.25	.97	1.03		
Step3						.39***	.02
Constant	-1.46	9.37					
Cognition	1.94***	.21	.49	.94	1.05		
Self-perception	1.47**	.48	.18	.77	1.29		
Personal growth	1.56**	.57	.16	.76	1.31		

## Conclusions

Given that mindfulness is positively associated with emotional and psychological well-being [62], it is im-

portant to have tools that can help measure expanded states of consciousness in clinical practice and also in psychoeducation in healthy people.

In the results of this research, the VEEC questionnaire was found to have adequate psychometric characteristics to contribute to the measurement of the expanded state of consciousness construct following a mindfulness-related experiential event.

According to the linear regression model used, the variables that best predicted the VEEC total score were Cognition, Self-perception and Personal growth. Such a prediction was given for each variable both independently and jointly. These results are congruent with those obtained in research that considers these variables and their positive relationship with self-awareness [60].

Being able to measure expanded states of consciousness as much as possible may make it easier to free them from the condemnation of the abnormal and pathological, and perhaps these research processes may offer new ways of understanding the disorder. They may also allow us to learn more about psychological processes beyond rational understanding. Most importantly, they may allow us to open up new avenues in the field of psychotherapy.

## Ethical Standards

All human and animal studies have been approved by the appropriate ethics committee and have therefore been performed in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki and its later amendments.

It should also be stated clearly in the text that all persons gave their informed consent prior to their inclusion in the study. Details that might disclose the identity of the subjects under study should be omitted.

## Conflict of Interest

The authors declare that they have no conflict of interest.

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The authors did not receive support from any organization for the submitted work.

## Author Contributions

All authors contributed to the study conception and design. Material preparation, data collection and analysis were performed by Manuel Almendro, Bárbara Horrillo and Daniel Vázquez. The first draft of the manuscript was written by Manuel Almendro, Bárbara Horrillo and Daniel Vázquez and all authors commented on previous versions of the manuscript. All authors read and approved the final manuscript.

## Consent to Participate

Informed consent was obtained from all individual participants included in the study.



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