

Factor Analysis of the Levels of Emotional Awareness Scale

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Abstract

The Levels of Emotional Awareness Scale (LEAS) is an open-ended test of Emotional Intelligence that appears to be both reliable and valid (Lane & Schwartz, 1987). Although the LEAS was first created over a decade ago, extensive scale refinement has not yet taken place. Research on the quality of individual items is therefore needed. As well, the LEAS is long: many respondents take more than half an hour to complete the measure. It would be useful to identify any weak items, which could then be removed from future versions of the LEAS. This would reduce both administration and scoring time, and might make the LEAS more useful to both researchers and clinicians. The purpose of this study was to conduct an item-level factor analysis, to assist in the development of a short form of the LEAS.

A total of 150 undergraduate students participated in this study. Three factors were found: Conflicting Emotions, Frustration, and Compassion. All items had salient loadings on at least one of these three factors. If a short form of this measure is created, it should include items from all three areas. However, before final decisions can be made regarding the content of a short form, additional research is needed to examine the quality of the LEAS items according to other reliability and validity criteria.

Introduction

Emotional Intelligence includes the ability to perceive, understand, and manage emotions in the self and others. It is difficult to measure Emotional Intelligence, because experts disagree about the correct answers to questions regarding emotions. If two people interpret emotional stimuli or events in different ways, it is difficult to decide which interpretation should be scored as correct. An alternative method of scoring a test of Emotional Intelligence is to examine the *structure* of the responses, rather than the *content*. The Levels of Emotional Awareness (LEAS) does this.

The LEAS was created to focus on “the structural organization of emotional experience without regard to the associated representations of significant relationships or enduring personal qualities” (Lane, Quinlan, Schwartz, Walker, & Zeitlin, 1990, p. 125). Higher scores are designed to reflect greater awareness and differentiation of emotional experience, rather than agreement between the respondent and test designer. This test appears to be a reliable and valid measure of Emotional Intelligence (Lane & Schwartz, 1987). Because the use of a structural approach to measure emotional intelligence is unique to the LEAS, and because the LEAS has been found to be a useful research tool, it is worthwhile to examine ways to improve this test.

It takes a long time for participants to complete the Levels of Emotional Awareness Scale and for researchers to score it. Therefore, making the LEAS shorter would be helpful, if the

shortened form of the test was still reliable and valid. The purpose of this research is to use a factor analysis of the LEAS to help decide which items should be included in a short form of this test.

Method

Participants

A total of 150 undergraduate students (97 females and 53 males) completed this study in return for course credit. Ages ranged from 18 to 48 with a mean of 20.40 and a standard deviation of 4.83. Participants primarily identified themselves as White (64%), Black (10.7%), and Asian (10.7%).

Measures

The Levels of Emotional Awareness Scale (LEAS; Lane & Schwartz, 1987) is a written behavioral measure of Emotional Intelligence that asks the participant to describe their anticipated feelings and those of another person in each of twenty situations. Each scenario is described in two to four sentences, and one item is presented per page.

Scores on the LEAS are based on Lane and Schwartz's (1987) five levels of emotional awareness. The five levels in ascending order are physical sensations, action tendencies, single emotions, blends of emotions, and blends of blends of emotional experience (the capacity to appreciate complexity in emotional experience). Each item receives a score of 0 to 5 corresponding to the levels of emotional awareness, so that higher scores reflect greater differentiation in emotion and greater awareness of emotional complexity. For each item, separate scores are first given for the "self" and "other" responses. Then, total scores for each item are calculated based on the Self and Other scores.

Procedure

Participants completed the LEAS as part of a larger study. That study consisted of two one-and-a-half hour sessions held one week apart. The LEAS was given in the first session.

Analyses

To determine if the data for men and women could be analyzed together we tested the equality of covariance matrices for men and women using Box's test. Unfortunately, the analysis showed there was a significant difference (Box's $M = 310.78$, $F(210,36618) = 1.24$, $p = .01$) indicating that data should ideally be analyzed separately for men and women. With the small number of participants we have, however, we have an insufficient number of male participants for a separate factor analysis. Therefore, we analyzed men and women together.

To determine the number of factors, we used three different criteria. The scree test suggested that there were three factors. The Kaiser-Guttman rule indicated there were seven factors. The maximum-likelihood ratio test indicated there were three factors. We extracted three factors to be parsimonious and because of the convergence of the scree test and the maximum-likelihood ratio test.

To determine which rotation to use, we examined the hyperplanar count, number of complex items, and correlations among factors, for eight different oblique rotations. The direct oblim rotation with $\delta = 0$ came closest to the ideal of simple structure.

Results

The first principle component was extracted to determine if all items are related to the central concept being measured by this scale. Items 2 and 5 did not have salient coefficients, although all other items did (see Table 1). These two items should probably not be included on a short form of the LEAS.

A multiple-factor principle components analysis was then conducted to determine the number and type of constructs underlying responses to the LEAS. Three factors were found (see Table 2). The first factor has salient factor pattern matrix coefficients for items 1, 8, 11, 12, 15, 16, 17, 18, 19, and 20. The highest loading items on this factor all dealt with situations that are likely to result in two or more emotions that conflict with each other. The second factor has salient factor pattern matrix coefficients for items 2, 4, 5, 6, 9, 13 and 14. Participants' answers to the highest loading items on this factor often involve frustration from the point of view of "self". The third factor has salient factor pattern matrix coefficients for items 3, 6, 7, 10, and 12. Participants' answers to the highest loading items on this factor involve feeling compassion for the "other" person in the situation.

Conclusions

The purpose of this research was to complete a factor analysis of the items on the Levels of Emotional Awareness Scale (LEAS) to help decide which items should be included in a short form of this test. Three factors were extracted. These were labeled: Conflicting Emotions, Frustration, and Compassion. These are therefore the three main content areas that the LEAS is measuring and therefore we should include items from each of these three areas when creating the short form, to ensure good content validity. Two items appeared on multiple factors: items 6 and 12. These items should probably be excluded from a short-form. As well, items 2 and 5 failed to load on the first unrotated principle component, and should also probably be excluded. Further research is necessary to examine the reliability and validity of each item before final decisions are made about which items to include on the short form.

References

- Lane, R.D., Quinlan, D.M., Schwatz, G.E., Walker, P.A., Zeitlin, S.B. (1990). The Levels of Emotional Awareness Scale: A Cognitive-Developmental Measure of Emotion. *Journal of Personality Assessment*, 55, 124-134.
- Lane, R.D. & Schwartz, G.E. (1987). Levels of emotional awareness: A cognitive-developmental theory and its application to psychopathology. *American Journal of Psychiatry*, 144, 133-143.

Table 1
First Principle Component

LEAS Item	Factor Pattern Matrix Coefficient
1	.36
2	.29
3	.38
4	.42
5	.28
6	.47
7	.53
8	.49
9	.37
10	.47
11	.45
12	.51
13	.35
14	.53
15	.44
16	.57
17	.65
18	.51
19	.65
20	.53

Note. Salient coefficients are in bold. Coefficient Alpha for First Principle Component is .82.

Table 2
Three-Factor Direct Oblim Rotated Pattern Matrix

LEAS Items	Factor ^a			Communalities
	1	2	3	
1	.46	.08	-.14	.17
2	-.24	.64	.24	.30
3	-.15	.23	.64	.25
4	.16	.48	.02	.24
5	.09	.50	-.12	.17
6	-.02	.31	.53	.30
7	.27	-.09	.59	.34
8	.37	.12	.18	.24
9	.23	.42	-.11	.23
10	.15	-.12	.67	.35
11	.41	.03	.14	.24
12	.44	-.29	.49	.35
13	.05	.53	.02	.20
14	.26	.42	.13	.34
15	.40	.14	.02	.23
16	.66	-.07	.07	.35
17	.66	.00	.12	.46
18	.73	.07	-.27	.38
19	.59	.06	.17	.44
20	.33	.28	.15	.24

Factor Inter-Correlation Matrix			
	Factor 1	Factor 2	Factor 3
Factor 1	1.00		
Factor 2	.28	1.00	
Factor 3	.24	.14	1.00

Note. Salient factor pattern coefficients are in bold.

^a Factor 1, Conflicting Emotions; Factor 2, Frustration; Factor 3, Compassion.