

## Validity and Reliability of Least Preferred Coworker (LPC) Scale

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### Abstract:

The purpose of this study was to test the validity and reliability of the Least Preferred Coworker (LPC) Scale in Indonesia. LPC is a self-report instrument that measures the level of relationship between coworkers. Validation was carried out with a sample of 244 respondents spread throughout Indonesia. The results showed that the LPC has a reliability index with Cronbach's Alpha is 0.754 and the validity by factor analysis shows KMO and Bartlett's Test 0.818 with a significance of 0.000 and an *anti-image* correlation value > 0.5. Formed 1 factor that can explain 46.875% of the variability. *factor loading* (*factor loading*) of each item between 0.186 - 0.808. The results of this study indicate that LPC can be used as a valid and reliable instrument for measuring the level of relationship between coworkers.

**Keywords:** least preferred coworker, factor analysis, validity

## INTRODUCTION

The Contingency Model proposes that leadership effectiveness is an interactive function of situational factors and individual attributes of the leader. Leadership style, as measured by the "esteem for least preferred coworker" (LPC) scale, is the primary leader attribute considered by the model. The Contingency leadership model focuses on achieving task standards by creating a harmonious working relationship behavior and setting policies that are right on target (Saiful, Bolotio & Ardianto; 2017). The basic thesis is that the relationship between the leader's score on the LPC scale and group performance is "contingent" upon the situation. In particular, low LPC leaders have more productive groups than high LPC leaders in situations that are either very favorable or very unfavorable for the leader in terms of capacity to exercise influence and control within the group. In situations of intermediate favorableness, groups with high LPC leaders are more effective than groups with low LPC leaders. The LPC scale, the

central measure in the Contingency Model and the focus of this article, requires detailed examination. Respondents are instructed to think of all the persons with whom they have ever worked and to identify their least preferred coworker, defined as "the person with whom you had the most difficulty in getting a job done". Respondents describe their least preferred coworker on a series of eight point bipolar semantic differential scales (Rice, 1978a).

The recent version of the instrument includes the following items: pleasant - unpleasant, friendly - unfriendly, rejecting - accepting, helpful - frustrating, unenthusiastic - enthusiastic, tense - relaxed, distant - close, cold - warm, cooperative - uncooperative, supportive - hostile, boring - interesting, quarrelsome - harmonious, self assured - hesitate, efficient - inefficient, gloomy - cheerful, open - guarded (Fiedler & Chemers, 1984). The favorable pole of each scale is scored as "8" and the unfavorable pole as "1." The LPC score is calculated by summing the values for all scales. Respondents describe their least preferred coworker in the negative region on most of the scales receive low LPC scores. To receive a high score on the LPC scale, respondents must describe their least preferred coworker in neutral or relatively favorable terms on most of the bipolar scales. Earlier research relied on a median (or more extreme) split within each particular subject population to identify high and low LPC persons. But normative data are now available for the scale (Posthuma, 1970). The LPC scale was developed within the context of Fiedler's (Fiedler, 1953; Fiedler, 1958)) earlier work on person perception. This research typically required respondents to report perceptions of several different persons, eg, self, ideal self, family members, other group members (including most and least preferred coworkers). Different indexes of these person perception responses were then correlated with various criteria. Fiedler's first study in this area showed that reputedly effective clinical psychologists described themselves and their clients more similarly than did clinicians reputed to be relatively ineffective. Somewhat serendipitously, Fiedler (Fiedler, 1954) discovered that leaders' perceptions of coworkers were related to group effectiveness. The LPC measure has been the subject of considerable scientific debate; some scholars have defended the measure and its interpretation, whereas others have attacked it (Ayman, 2002).

## METHOD

The research design is descriptive quantitative. The population is workers in Indonesia. The sampling technique used is *random sampling in* order to obtain 244 workers with details according to table 1.

Table 1. Description of Respondents

Gender	Male	53.27%
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	Female	46.73%
Age	<24 Years	3.69%
	25 - 34 Years	42.62%
	35 - 44 Years	30.74%
	45 - 54 Years	11.89%
	55 > Years	11.07%
Domicile	Western Indonesia	44.67%
	Central Indonesia	38.11%
	Eastern Indonesia	17.21%

Data collection techniques using a scale that is shared online. The instrument used is the Least Preferred Coworker (LPC) Scale adapted from “The LPC Questionnaire,” in *Improving Leadership Effectiveness* by Fiedler, FE, & Chemers, MM, 1984. The Least Preferred Coworker (LPC) Scale consists of 18 items with answer choices using Likert scale which can be seen in table 2.

Tabel 2. Least Preferred Coworker (LPC) Scale

	Answer Options								
Pleasant	8	7	6	5	4	3	2	1	Unpleasant
Friendly	8	7	6	5	4	3	2	1	Unfriendly
Rejecting	1	2	3	4	5	6	7	8	Accepting
Tense	1	2	3	4	5	6	7	8	Relaxed
Distant	1	2	3	4	5	6	7	8	Close
Cold	1	2	3	4	5	6	7	8	Warm
Supportive	1	2	3	4	5	6	7	8	Hostile
Boring	1	2	3	4	5	6	7	8	Interesting
Quarrelsome	1	2	3	4	5	6	7	8	Harmonious
Gloomy	1	2	3	4	5	6	7	8	Cheerful
Open	8	7	6	5	4	3	2	1	Closed
Backbiting	1	2	3	4	5	6	7	8	Loyal
Untrustworthy	1	2	3	4	5	6	7	8	Trustworthy
Considerate	8	7	6	5	4	3	2	1	Inconsiderate
Nasty	1	2	3	4	5	6	7	8	Nice
Agreeable	8	7	6	5	4	3	2	1	Disagreeable
Insincere	1	2	3	4	5	6	7	8	Sincere
Kind	8	7	6	5	4	3	2	1	Unkind

Each item is rated on a scale of 1, 2, 3, 4, 5, 6, 7, up to 8. The data analysis technique used descriptive statistics and reliability analysis and factor analysis with IBM SPSS 24 software for Windows.

## RESULT AND DISCUSSION

Normality Testing. The mean score of the items ranged between 4.1967 and 6.8033 on an 8-point Likert-type scale (1 to 6). The value of skewness and kurtosis is less than 2 for each item. The normality index of item 18 is marginally acceptable.

Tabel 3. Descriptive Statistics

	Mean	Std. Deviation	Variance	Skewness	Kurtosis
ITEM_1	6,2623	2,16900	4,705	-1,083	0,078
ITEM_2	6,0000	2,32361	5,399	-0,826	-0,806
ITEM_3	6,0492	2,12704	4,524	-0,675	-0,901
ITEM_4	5,6557	2,45375	6,021	-0,702	-0,861
ITEM_5	5,6066	2,40903	5,803	-0,534	-0,989
ITEM_6	5,2131	2,41473	5,831	-0,309	-1,237
ITEM_7	6,6393	1,57169	2,470	-1,004	0,151
ITEM_8	6,2951	2,07944	4,324	-1,108	0,253
ITEM_9	6,5082	1,69844	2,885	-0,949	-0,010
ITEM_10	6,6557	1,79515	3,223	-1,212	0,195
ITEM_11	4,1967	2,49325	6,216	0,134	-1,234
ITEM_12	6,5082	1,85590	3,444	-1,111	0,306
ITEM_13	6,3770	2,12501	4,516	-1,125	0,098
ITEM_14	6,3934	1,99818	3,993	-1,202	0,568
ITEM_15	6,8033	1,72915	2,990	-1,446	1,068
ITEM_16	6,5574	1,92471	3,705	-1,436	1,293
ITEM_17	6,2459	2,11330	4,466	-1,045	0,083
ITEM_18	6,7869	1,81548	3,296	-1,760	2,709

The results of the reliability test (Table 4) obtained a reliability coefficient ( *Alpha* ) of 0.896 so it was concluded that the Least Preferred Coworker (LPC) Scale had a high level of reliability.

Tabel 4. Reliability Statistics

Cronbach's Alpha	N of Items
.754	18

Correlation Between Items. The results of the correlation between items show that the lowest value of *item-total correlation* is 0.413 and the highest value is 0.777 with a significance level of 0.01 so it can be accepted.

Tabel 5. Item-Total Correlation

	ITEM_1	ITEM_2	ITEM_3	ITEM_4	ITEM_5	ITEM_6	ITEM_7	ITEM_8	ITEM_9
Pearson Correlation	.610**	.675**	.777**	.413**	.590**	.523**	.745**	.771**	.771**
Sig. (2-tailed)	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000

  

	ITEM_10	ITEM_11	ITEM_12	ITEM_13	ITEM_14	ITEM_15	ITEM_16	ITEM_17	ITEM_18
Pearson Correlation	.711**	.643**	.749**	.770**	.748**	.751**	.760**	.681**	.771**
Sig. (2-tailed)	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\* . Correlation is significant at the 0.05 level (2-tailed).

The results of the construct validity test using factor analysis on 18 items. Estimating the significance of the overall correlation contained in the correlation matrix.

Tabel 6. *KMO and Bartlett's Test*

<i>Kaiser-Meyer-Olkin Measure of Sampling Adequacy.</i>		.818
<i>Bartlett's Test of Sphericity</i>	<i>Approx. Chi-Square</i>	3128,605
	<i>df</i>	153
	<i>Sig.</i>	.000

The result of KMO and Bartlett's Test is 0.818 with a significance of 0.000. Because the figure is already above 0.5 and the significance is far below 0.05 ( $0.000 < 0.05$ ), then the existing variables and samples can be analyzed further.

Tabel 7. *Anti-image Matrices*

<i>Anti-image Correlation</i>	ITEM_1	.849 <sup>a</sup>
	ITEM_2	.849 <sup>a</sup>
	ITEM_3	.869 <sup>a</sup>

ITEM_4	.531 <sup>a</sup>
ITEM_5	.886 <sup>a</sup>
ITEM_6	.779 <sup>a</sup>
ITEM_7	.856 <sup>a</sup>
ITEM_8	.864 <sup>a</sup>
ITEM_9	.664 <sup>a</sup>
ITEM_10	.858 <sup>a</sup>
ITEM_11	.514 <sup>a</sup>
ITEM_12	.875 <sup>a</sup>
ITEM_13	.772 <sup>a</sup>
ITEM_14	.755 <sup>a</sup>
ITEM_15	.823 <sup>a</sup>
ITEM_16	.791 <sup>a</sup>
ITEM_17	.914 <sup>a</sup>
ITEM_18	.905 <sup>a</sup>

Keterangan:

a. *Measures of Sampling Adequacy (MSA)*

Test the suitability of the correlation matrix of each item/variable . The results of the *anti-image correlation test* show that of the 18 items that make up the Least Preferred Coworker (LPC) Scale factor, there are 18 items that have an *anti-image* correlation value > 0.5, which means that 18 items are valid to be factored.

Tabel 8. Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	8,437	46,875	46,875	8,437	46,875	46,875

2	1,490	8,279	55,153			
3	1,245	6,915	62,069			
4	1,143	6,349	68,418			
5	0,945	5,250	73,668			
6	0,878	4,878	78,546			
7	0,745	4,142	82,687			
8	0,552	3,068	85,755			
9	0,510	2,833	88,588			
10	0,399	2,215	90,803			
11	0,308	1,709	92,512			
12	0,304	1,686	94,199			
13	0,247	1,371	95,570			
14	0,240	1,331	96,901			
15	0,208	1,157	98,057			
16	0,160	0,891	98,948			
17	0,130	0,723	99,671			
18	0,059	0,329	100,000			

Extraction Method: Principal Component Analysis.

The total variance explained determines how many factors are formed. The result of the *total variance explained* shows that there is 1 factor formed because with one factor, the *eigenvalues* are above 1. *Cumulative* value shows that 1 factor formed can explain 46.875% of the Least Preferred Coworker (LPC) Scale variability and the rest is explained by other factors in outside of the formed factor.

Tabel 9. Rotated Factor Matrix

	<i>Factor</i>
	1
ITEM_1	0,620

ITEM_2	0,681
ITEM_3	0,792
ITEM_4	0,290
ITEM_5	0,561
ITEM_6	0,460
ITEM_7	0,773
ITEM_8	0,768
ITEM_9	0,675
ITEM_10	0,729
ITEM_11	0,186
ITEM_12	0,773
ITEM_13	0,808
ITEM_14	0,779
ITEM_15	0,786
ITEM_16	0,762
ITEM_17	0,692
ITEM_18	0,781

Rotated factor matrix determines the *factor loadings* of each item/variable. The results of the *rotated factor matrix* show that of the 18 Least Preferred Coworker (LPC) Scale items it can be reduced to 1 factor with 18 items having *factor loading* between 0.186 – 0.808. The first step is to test the normality of 18 items on the Least Preferred Coworker (LPC) Scale and the correlation between items-total. Then, the researcher continued to test the internal reliability of 18 LPC items and ended with exploratory factor analysis. The results show that the LPC is reliable and valid. LPC factor structure testing with IBM SPSS 24 for Windows showed a good fit of the model. Reliability and factor analytic studies suggest contradictory conclusions concerning the importance of item content in the measurement of the LPC. High coefficients of internal consistency and parallel form reliability suggest that specific item content is relatively unimportant. But limited data from factor analytic studies suggest that item content may be very important; Several factor analytic studies have shown that external criteria are more strongly related to the task competence factor score than to the total LPC score (Rice, 1978). The internal analyzes of the LPC instrument reported in the prese article were conducted in response to the controversy embroiling the contingency model for the last few years (Ashour, 1973; Fiedler, 1971; Fiedler and Chemers, 1974; Graen, Orris, Alvarez, and Martella, 1970; McMahon, 1972; Mitchell, Biglan, Oncken, and Fiedler, 1970, Schriesheim and Kerr, 1977).

Rice (1978b), Cronbach's alpha was high for the entire 22-item scale,  $r_{XX} = .90$ . It appears inappropriate to interpret a reliability index of this magnitude as indicating that item content is not important when constructing LPC scales for the purposes of classifying respondents as either task-oriented or relationship-oriented.

## CONCLUSION

The results showed that the Least Preferred Coworker (LPC) Scale can be used as a reliable and valid instrument to measure the level of relationship between coworkers in Indonesia.

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