

## Psychometric Validation of the Multifactor Leadership Questionnaire Form 6-S in Indian Context

Deepika Dhingra<sup>1</sup>, Sanjay Srivastava<sup>2</sup> and Nandini Srivastava<sup>3</sup>

### Abstract

*The purpose of this study was to examine the factor structure and reliability of the Multifactor Leadership Questionnaire Form 6S (MLQ-6S) for use with Indian corporate leaders. Data was collected from 321 leaders employed across public (n = 165) and private (n = 156) sector organizations via convenience sampling. Before conducting exploratory factor analysis (EFA), tests of normality, sphericity, and sampling adequacy were performed to check statistical assumptions. EFA revealed a 3-factor structure consistent with the MLQ-6S factors of transformational, transactional, and laissez-faire leadership as measured by the 21 items. All factor loadings exceeded 0.5, supporting retention of the original item set. Reliability was assessed using Cronbach's alpha and split-half coefficients. The overall MLQ-6S scale achieved good reliability ( $\alpha = 0.719$ ; split-half = 0.664), meeting common psychometric standards. These findings provide evidence that the MLQ-6S demonstrates satisfactory factor structure and reliability for use in assessing leadership behaviors among Indian organizational leaders.*

**Keywords:** Transformational Leadership, Transactional Leadership, Laissez-Faire, Exploratory Factor Analysis, MLQ – 6S

### INTRODUCTION

As a developing country, Malaysia has achieved tremendous progress in socioeconomic growth. Rapid economic expansion and the creation of microenterprises have contributed to this accomplishment. In today's economy, sustainable development is a crucial goal; hence policymakers must find characteristics that can improve individuals' economic conditions and support national economic growth. Microfinance institutions offer various financial and non-financial services that assist clients in developing their human capital capabilities, improving financial management, and enhancing their entrepreneurial competencies. These factors enable micro-enterprises to gain a competitive edge over their rivals and achieve better entrepreneurial performance (Abdullah, Zainudin, Ismail, & Zia-Ul-Haq, 2022).

Saving literacy is a challenge for some individuals, particularly those in microenterprises despite having a high net income, many microenterprises owners struggle to set aside money for savings or investment purposes. Saving literacy is critical for making informed decisions in the future and achieving financial security for micro-enterprise owners. However, many struggle to save despite having a surplus in business turnover. This limitation can be attributed to various financial issues, including low saving literacy, low income, and high levels of debt (Tarisha, Ardi, Fatkhurrahman, & Margaretha, 2021).

### LITERATURE REVIEW

Leadership is defined as a process of encouraging a group of individuals to work together toward a common objective or guiding them towards a shared purpose. This requires inspiring them to reach beyond themselves, motivating them to contribute their unique strengths, and empowering them to work together to achieve a cherished vision (Northouse, 2001). Leadership theories have evolved significantly across the world over the past century. Early 20th century views largely focused on trait-based theories that certain innate qualities differentiated leaders from non-leaders. However, subsequent research recognized that leadership is a process influenced by situational factors as well. This led to behavioural theories examining what leaders actually do and how they act. More recently, contingency theories emphasize that different leadership styles are best suited depending on various contextual considerations like organizational culture, follower characteristics and task

<sup>1</sup> PhD Scholar, Manav Rachna International Institute of Research and Studies, E-mail- [deepikabhalla@mris.edu.in](mailto:deepikabhalla@mris.edu.in), ORCID ID:0009-0005-5125-8823

<sup>2</sup> Professor, Manav Rachna International Institute of Research and Studies, E-mail- [dss@mrei.ac.in](mailto:dss@mrei.ac.in), ORCID ID: 0009-0001-1738-9070

<sup>3</sup> Professor, Manav Rachna International Institute of Research and Studies. Email: [nandini.slm@mriu.edu.in](mailto:nandini.slm@mriu.edu.in), ORCID ID 0000-0001-5362-3250

demands (Northouse, 2018). Against this backdrop, transformational and transactional models proposed by Burns (1978) and further developed by Bass (1985a) established new directions by differentiating levels of motivation and performance inspired in followers.

Leadership has always played an important role in guiding societies and organizations throughout history. In ancient India, great leaders like Chandragupta Maurya and Ashoka helped establish large empires through their strategic vision and ability to inspire masses. Their leadership styles incorporated both transactional and transformational elements. Transactional leadership entails an exchange process between leaders and followers, where followers are motivated by rewards or disciplined by punishments from leaders. Transformational leadership goes beyond transactions by motivating and inspiring followers to perform beyond expectations through idealized influence, inspirational motivation, intellectual stimulation and individualized consideration (Bass & Avolio, 1994).

In the modern era, India saw the emergence of transactional as well as transformational leaders in both public and private sectors. In the public domain, leaders like Mahatma Gandhi and Jawaharlal Nehru transformed the national movement through their moral authority, compelling vision of an independent India, and ability to empower masses to work for this shared goal (Bass, 1985a; Dhiman, 2009). Meanwhile, pioneering industrialists like Jamsetji Tata exemplified transformational leadership through establishing employee welfare initiatives, focusing on long term organizational goals over short term profits, and inspiring others with their vision of an industrialized India. The focus on intrinsic motivation and follower development in transformational leadership, as suggested by Bass and Riggio (2006), might explain its popularity. This style caters to the needs of today's employees, who want to be inspired and empowered to navigate uncertain times.

This suggests that both transactional and transformational styles have been effective in the Indian context, depending on the situation and followers' needs. While transactions may work better for day-to-day administration or crisis periods, transformations are needed for change, innovation and developing people to their full potential. Some have also argued that Indian culture, with its emphasis on spiritual and moral leadership, aligns more with transformational approaches focusing on developing the whole person (Nair, 1994).

With rapid globalization and economic reforms, both public and private sector dynamics are evolving. It is thus critical to examine how Full Range Leadership models like transformational, transactional and laissez-faire styles manifest and relate to effectiveness in today's Indian work environments (Jam et al., 2011). The Multifactor Leadership Questionnaire offers a valid instrument for such an investigation. Measuring the prevalence and impacts of these styles could offer valuable insights for managing Indian human capital more efficaciously.

### **Factor Structure of the MLQ**

The Multifactor Leadership Questionnaire (MLQ) developed by Avolio and Bass in the 1990s is one of the most widely used and valid instruments globally for measuring transformational, transactional and passive/avoidant leadership styles based on the Full Range Leadership framework. The validated MLQ – 6S includes 21 items used to assess 3 distinct leadership factors - transformational leadership with 4 dimensions like idealized influence, inspirational motivation, intellectual stimulation and individual consideration, transactional leadership measured by 2 dimensions through contingent reward and management-by-exception-passive and the last factor identifies laissez-faire leadership representing the most inactive and ineffective leadership style. The MLQ has been proven to be a reliable, cross-culturally generalizable tool to assess how these different leadership styles manifest in various organizational and cultural contexts. It allows comparison of prevalence and impacts of transformational versus transactional approaches (Avolio & Bass, 2004).

### **Transformational Leadership Dimensions**

**Idealized Influence** is called charisma, encompasses leadership that cultivates admiration and trust through moral actions and compelling visions of the future (Antonakis, 2012). Leaders exhibiting this dimension are deeply respected role models who followers strive to emulate.

**Inspirational Motivation** involves communicating ambitious but attainable expectations that inspire commitment to a shared vision. Leaders using this approach motivate higher performance beyond self-interest through symbols and enthusiasm (Bass, 1985a).

**Intellectual Stimulation** promotes innovation and creative problem-solving by challenging assumptions and valuing intelligence. Followers are encouraged to think independently and carefully tackle issues in new ways (Bass, 1985a).

**Individualized Consideration** provides a supportive climate where leaders listen attentively to each follower's needs and ambitions. These leaders act as coaches and mentors to help followers achieve their full potential through delegation and development challenges (Bass, 1985a).

### **Transactional Leadership Dimensions**

**Contingent Reward** constitutes an exchange process where effort and achievement are rewarded as agreed upon between leaders and followers. Contingent reward links accomplishment of agreed-upon objectives with promised incentives (Bass, 1985a).

**Management-by-Exception** involves corrective action for deviations from standards. It takes an active form through close oversight seeking errors to correct, or a passive form by waiting for lapses to emerge before taking action (Bass, 1985a). Both use negative reinforcement more than positive (Northouse, 2018). Only the passive form is assessed in the abbreviated MLQ-6S.

### **Non-leadership Factor - Laissez-Faire**

Laissez-faire Leadership represents an absence of meaningful influence as this "hands-off" approach fails to meet responsibilities, provide feedback, or help followers satisfy needs (Bass, 1985a). This non-transactional, non-transformational approach has consistently shown negative correlations with important outcomes (Hater & Bass, 1988).

## **PREVIOUS RELIABILITY AND VALIDITY FINDINGS**

Antonakis, Avolio, and Sivasubramaniam (2003) assessed the Multifactor Leadership Questionnaire's (MLQ) psychometric properties using a sample of over 3,000 raters. Confirmatory factor analysis strongly supported the validity of the MLQ Form 5X, distinguishing all nine dimensions within the Full Range Leadership model. Conversely, Avolio and Bass (2004) supported the MLQ-5X measurement model through confirmatory factor analysis, demonstrating successful measurement of the full leadership range conceptualization. Internal consistency reliability estimates for scales ranged from 0.74 to 0.94 (Avolio & Bass, 2004; Bass & Riggio, 2006). Similarly, Hinkin and Schriesheim (2008) examined the MLQ's transactional and non-leadership dimensions, identifying methods to improve reliability and validity through more reliable measurement.

However, some studies present criticisms of the MLQ. Tracey and Hinkin (1998) found substantial overlap between the four dimensions of transformational leadership - idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration. This suggested a lack of clear delineation between the theorized dimensions. Tejada, Scandura, and Pillai (2001) challenged the MLQ's validity, finding high correlations between the four transformational dimensions (the Four Is) implied a lack of distinctiveness. Some transformational dimensions also correlated with transactional and passive-avoidant dimensions, threatening uniqueness to transformational theory. Additionally, Bryman (1992) noted transformational and charismatic leadership are often conflated despite charisma being just one component in models like Bass (1985a).

Lowe, Kroeck, and Sivasubramaniam's (1996) meta-analysis found transformational scales intercorrelated strongly ranging from 0.68 to 0.85 with very high internal consistency ( $\alpha \geq .82$ ). However, others reported weaker reliabilities ( $\alpha = .58 - .70$ ) for management-by-exception-passive (Den Hartog et al., 1997). This lack of discriminant validity between transformational dimensions challenged the underlying theoretical construct, prompting modifications to improve metrics (Bass & Riggio, 2006; Bycio et al., 1995; Lowe et al., 1996). The MLQ has been constantly improved since its creation to ensure accurate and reliable measurement. While the

full MLQ has been extensively validated, the empirical base examining the reliability and validity of the abbreviated MLQ – 6S especially in different cultural contextual form remains limited (Middleton et al., 2023; Bhageri et al., 2015). Given prior research, EFA was conducted to examine the current study's factor structure and internal consistency.

Validating leadership assessment tools like the Multifactor Leadership Questionnaire (MLQ) in the Indian organizational context is critical for furthering leadership research on Full Range Leadership theories. While these theories are generally applicable, directly applying Western models without establishing their structural validity in India risks not fully capturing cultural nuances influencing local leadership dynamics (Dorfman, 1996). Empirically validating the factor structure and reliability of the MLQ for Indian samples provides confidence that it accurately measures the intended theoretical leadership constructs in this context (Lok & Crawford, 2004). Establishing the MLQ's structural validity and reliability cross-culturally is a prerequisite before drawing meaningful comparisons or inferences about Indian leaders based on scores (Hanges et al., 2016).

Such validations also have important implications for organizational efforts. With a reliable tool, specific development needs can be identified to enhance the effectiveness of existing leaders through certain styles promoted by the organizations (Bass & Avolio, 1993). Established metrics facilitate benchmarking and evaluation of training impacts over time (Den Hartog et al., 1997). Data on prevailing best practices linkable to outcomes provide guidance for policies, recruitment, and succession planning customized for India's conditions. Multinational firms can also leverage validation studies for customized assessments and deployment of the right leaders through an understanding calibrated to this context (Javidan & House, 2001). Therefore, establishing the psychometric properties of tools like the MLQ is essential for both advancing contextualized leadership theory and guiding strategic HR interventions informed by cultural realities in India.

**METHOD**

The current research study examined the validity of the Multifactor Leadership Questionnaire Form 6S (MLQ-6S) instrument within the Indian corporate context. An exploratory factor analysis (EFA) was conducted to assess the construct validity of the measurement tool. Through EFA, the underlying dimensions represented by the items in the questionnaire were identified. This approach allowed the researchers to evaluate whether the structure of the questionnaire aligned with leadership theory, and if it could appropriately capture leadership attributes in Indian organizations. It is recognized that psychometric tests developed in other cultural contexts need to demonstrate validity when used within a new population (Foxcroft and Roodt, 2005). While adopting established psychological measures from abroad is a common practice, their transportability must be supported through analyzing the tool's psychometric properties in the target group (Görgens-Ekermans and Herbert, 2013).

Sample size is an important consideration in factor analysis, though opinions vary on a particular size (Hogarty et al., 2005). Tabachnick & Fidell (2019) suggests a minimum of 300 cases, while Hair et al. (1995) recommend at least 100 cases. Comrey and Lee (1992) provide guidance that “100 cases is poor, 200 is fair, 300 is good, 500 is very good, and more than 1000 is excellent.” In our study, the sample size exceeded 300, which is considered a good sample size for analysis according to literature guidance.

**Participants**

**Table 1 Demographic Characteristics of the Sample (Indian Corporate Leaders) (n=321)**

Characteristics of Sample		Public Sector % (n)	Private Sector % (n)
Gender	Male	15.8 (26)	53.2 (83)
	Female	84.2 (139)	46.8 (73)
Experience	1-5 years	0 (0)	0 (0)
	6-10 years	4.8 (8)	0 (0)
	11-15 years	23.6 (39)	16 (25)
	16-20 years	22.4 (37)	34 (53)

Characteristics of Sample	Public Sector % (n)	Private Sector % (n)
21-25 years	31.4 (52)	28.8 (45)
26-30 years	8.5 (14)	16.7 (26)
Over 30 years	9.1 (15)	4.5 (7)
Employee Experience		
At least 5 years	4.8 (8)	36.5 (57)
At least 10 years	29.1 (48)	34.6 (54)
At least 15 years	33.3 (55)	21.8 (34)
More than 15 years	32.7 (54)	7.1 (11)
Leadership experience		
1-5 years	26.7 (44)	76.9 (120)
6-10 years	24.2 (40)	12.2 (19)
11-15 years	29.1 (48)	3.2 (5)
16-20 years	7.9 (13)	7.7 (12)
21-25 years	12.1 (20)	0 (0)

The participants for the study were 321 Indian corporate leaders from public and private sector organizations employed through convenience sampling. Given in **Table 1**, for public sector organizations, 165 leaders participated. Majority of them were females (84.2%), with only 15.8% being males. In terms of employee experience, 33.3% had at least 15 years of experience, while 32.7% had more than 15 years of experience. When it comes to leadership experience, 29.1% had 11-15 years of experience, followed by 26.7% having 1-5 years and 24.2% having 6-10 years of experience.

For private sector organizations, 156 leaders participated. The gender split was closer, with 53.2% being males and 46.8% being females. A large proportion had at least 5 years of employee experience (36.5%) and at least 10 years of experience (34.6%). Leadership experience was mostly in the range of 1-5 years (76.9%), followed by 6-10 years (12.2%).

**Material**

The study employed the shortened form of Northouse’s (2001) MLQ-6 S as developed by Bass and Avolio (1990). This scale is based on one of the most influential models developed by Bass (1985b) conceptualized three broad categories: transformational, transactional, and laissez-faire leadership. The full-length MLQ measures leadership styles through nine dimensions, though subsequently reduced to eight (MLQ – 8 Y) then seven (Bass & Avolio, 1990). Seeking an efficient yet reliable shortened version, Northouse (2001) devised the MLQ-Form 6S (MLQ-6S). It retains the trifold theoretical framework while assessing four dimensions of transformational leadership (idealized influence, inspirational motivation, intellectual stimulation, individualized consideration) by 12 items, two dimensions of transactional leadership (contingent reward, management-by-exception passive) by 6 items, and the single laissez-faire dimension (Bass, 1985) in 3 items. Responses range from 1="Not at all" to 5="Frequently, if not always" with higher scores denoting stronger endorsement of that particular leadership style.

The MLQ exhibits strong reliability and validity (internal consistency, construct validity and test–retest reliability) through extensive empirical investigation (Bass, 1998). Decades of validation research has demonstrated the MLQ-6S’ strong psychometric properties across populations, organizational levels, and cultures (Bass, 1998). Its efficacy in capturing the full range of leadership constructs in a concise yet nuanced manner has made it a mainstay assessment in leadership research worldwide (Vinger & Cilliers, 2006).

**Procedure**

Data was collected from 321 participants through an online questionnaire. The data was then screened for missing values and outliers. Exploratory factor analysis (EFA) was conducted to evaluate the construct validity of the MLQ-Form-6-S instrument among Indian corporate leaders in both public and private sectors. Descriptive statistics like skewness and kurtosis were first calculated to check the assumption of normality.

Before performing EFA, the Kaiser-Meyer Olkin (KMO) test, Bartlett's test of sphericity and Kaiser's criterion for eigenvalue were computed to assess the suitability of the data for further analysis. Principal component analysis was used as the extraction method, followed by varimax rotation for each subscale of the instrument. After completing the EFA and validating the subscales, Cronbach's alpha and split-half coefficients were calculated to determine whether the subscales could be considered reliable, with 0.70 or higher considered acceptable (Cicchetti, 1994; Nunnally & Bernstein, 1994).

## RESULT

### Descriptive Analysis

**Table 2 Descriptive Statistics of MLQ-Form 6S (n = 321)**

Code	Items of MLQ-Form 6S	Mean	SD	Skewness	Kurtosis
TFL1	I make others feel good to be around me	3.29	1.05	-0.08	-0.55
TFL2	I express with a few simple words what we could and should do	3.50	1.09	-0.38	-0.59
TFL3	I enable others to think about old problems in new ways	3.79	0.99	-0.77	0.41
TFL4	I help others develop themselves	3.42	1.06	-0.40	-0.36
TSL1	I tell others what to do if they want to be rewarded for their work	2.89	1.11	-0.02	-0.69
TSL2	I am satisfied and avoid my interference if others agree upon standards of work	3.61	1.08	-0.64	-0.13
LF1	I am content to let others continue working in the same ways always	3.24	1.02	-0.39	-0.40
TFL5	Others have complete faith in me	3.41	1.15	-0.42	-0.72
TFL6	I provide appealing images about what we can do	3.73	0.96	-0.66	0.06
TFL7	I provide others with new ways of looking at puzzling things	3.69	0.93	-0.71	0.30
TFL8	I let others know how I think they are doing	3.56	1.15	-0.68	-0.36
TSL3	I provide recognition/rewards when others reach their goals	3.55	1.12	-0.64	-0.23
TSL4	As long as things are working, I do not try to change anything	3.62	1.08	-0.71	-0.05
LF2	Whatever others want to do is OK with me	2.74	1.07	0.17	-0.58
TFL9	Others are proud to be associated with me	3.50	1.03	-0.72	0.10
TFL10	I help others find meaning in their work	3.42	1.03	-0.60	-0.11
TFL11	I get others to rethink ideas that they had never questioned before	2.48	1.21	0.47	-0.70
TFL12	I give personal attention to others who seem rejected	2.61	1.30	0.38	-1.01
TSL5	I call attention to what others can get for what they accomplish	3.24	1.22	-0.24	-1.01
TSL6	I tell others the standards they have to know to carry out their work	2.55	1.23	0.54	-0.73
LF3	I ask no more of others than what is absolutely essential	2.38	1.29	0.66	-0.72

Note. TFL = Transformational Leadership; TSL = Transactional Leadership; LF = Laissez Faire Leadership.

The leadership styles of participants were analyzed using descriptive statistical methods. As shown in **Table 2**, the means and standard deviations were calculated for all 21 items on the MLQ-Form 6S questionnaire to get a preliminary sense of response patterns. The normality of the data distribution was also assessed by examining skewness and kurtosis values. Skewness indicates symmetry and how clustered responses are around the mean, affecting tests of central tendency. Kurtosis measures peakedness or outliers and how this impacts tests of

variation. The skewness statistics ranged from -0.77 to 0.66, well within the conventional threshold of  $\pm 2.58$  (Hair et al., 2010), suggesting responses were relatively symmetrical with limited outlier tendencies. Kurtosis values fell between -1.01 to 0.41, also comfortably within the guideline range, demonstrating a normal distribution curve shape (**Table 2**). Therefore, all items of the MLQ-Form 6S were included in the exploratory factor analysis (EFA) to determine the internal validity of the inventory.

### **Exploratory Factor Analysis**

The original MLQ-6S scale comprised 21 items designed to operationally capture three distinct leadership styles based on prior theory: transformational, transactional, and laissez-faire. Given this conceptual framework, the study used an a priori criterion in EFA to examine if the three-factor structure held for the Indian population sample as well.

Prior to performing Exploratory Factor Analysis (EFA), certain assumptions were tested following recommendations in the literature (Lattin et al., 2003). Multivariate normality and sampling adequacy are important to confirm the suitability of the data for EFA (Lattin et al., 2003). Bartlett's Test of Sphericity was conducted using SPSS to determine if the variables were sufficiently correlated for factor analysis, and whether the correlation matrix differed significantly from an identity matrix where variables are unrelated (Lattin et al., 2003; George & Mallery, 2016). The Kaiser-Meyer-Olkin (KMO) test similarly evaluates adequacy of the sampling, assessing whether partial correlations among variables were small relative to overall correlations (George & Mallery, 2016; Tabachnick & Fidell, 2019). KMO values over 0.8 indicate variables are well predicted by other variables without error, and values above 0.6 are acceptable (George & Mallery, 2016; Tabachnick & Fidell, 2019). For this study, the KMO value was .848, suggesting sampling was appropriate for EFA (George & Mallery, 2016). Bartlett's test resulted in  $\chi^2(210) = 210.90$ , which was significant at  $p < 0.000$ , indicating multivariate normality assumptions were met (George & Mallery, 2016; Lattin et al., 2003). Lastly, Kaiser's criterion was followed where factors with eigenvalues over 1.0 were retained, which were 5.444, 3.077 and 1.403 for the three extracted factors (Kaiser, 1970). Having satisfied these testing prerequisites, EFA was performed on the MLQ items.

To obtain an interpretable solution representing the variable interrelationships, EFA involved two main steps as recommended by experts in the field (Pallant, 2020; Tabachnick & Fidell, 2019). First, factor extraction identified the optimal number of factors using an algorithm based on maximizing explained variance in the data (Field, 2013). Principal component analysis (PCA) was selected as it summarizes data variance into fewer factors for analysis, aligning with the objective of defining the leadership construct factors (Hair et al., 2010).

Second, factor rotation improved interpretation of the extracted solution (Tabachnick & Fidell, 2019). Varimax rotation was performed to maximize high variable loadings on each factor while minimizing cross-loadings (Pallant, 2020; Tabachnick & Fidell, 2019). This produces a clearer pattern of which variables define each factor. Loadings were examined in the rotated component matrix, with higher values indicating stronger correlation between a variable and underlying factor. An item with a loading below 0.3 isn't strongly related to the factor it's supposed to be measuring (Child, 2006). Following precedent, the practical significance threshold was set at 0.50 or above to retain an item within a given factor (Child, 2006).

Prior to extracting factors, communality estimates were generated indicating the amount of variance each item shared with other items. Communality ( $b^2$ ) represents the proportion of an item's variance explained by the retained factors, computed as the sum of squared factor loadings across factors (Tabachnick & Fidell, 2019). It is recommended that items with very low communalities (less than 0.20), where 80% of the variance is unique, be excluded from further analysis as they do not sufficiently describe the common construct. The goal of EFA is to summarize shared variance through the extracted factors (Child, 2006).

Goodness-of-fit for the model was assessed using chi-square ( $\chi^2 = 210.90$ ). The three-factor solution explained 52.65% of total variance in leadership styles. Twelve variables (TFL1, TFL2, TFL3, ..., TFL12) have high factor loadings (i.e., a strong relationship) with Factor 1 (transformational leadership). Similarly, six variables (TSL1 to TSL6) have strong relationships with Factor 2 (transactional leadership) and three variables (LF1, LF2 and LF3) with Factor 3 (laissez faire leadership).

Communalities ( $b^2$ ) and factor loadings are shown in **Table 3**. All items demonstrated communalities of 0.30 or higher, indicating good representation of the common variance. The rotated component matrix using varimax rotation showed a clear three-factor structure without any cross-loadings, validating this leadership model for the population.

**Table 3 Communalities and Factor loadings (EFA) of MLQ-Form 6S Scale (three-factor solution)**

Code	Communalities ( $b^2$ )	Factor 1	Factor 2	Factor 3
TFL1	.483	.669		
TFL2	.548	.689		
TFL3	.506	.696		
TFL4	.457	.592		
TFL5	.398	.622		
TFL6	.484	.683		
TFL7	.401	.562		
TFL8	.427	.643		
TFL9	.378	.609		
TFL10	.510	.704		
TFL11	.429	.616		
TFL12	.530	.702		
TSL1	.469		.678	
TSL2	.366		.548	
TSL3	.494		.701	
TSL4	.395		.611	
TSL5	.337		.530	
TSL6	.550		.724	
LF1	.551			.702
LF2	.593			.746
LF3	.618			.748

*Note.* TFL = Transformational Leadership; TSL = Transactional Leadership; LF = Laissez Faire Leadership.

### Reliability of MLQ-Form 6S Scale

Reliability was examined in **Table 4** using split-half coefficients and Cronbach's alphas. For the overall scale and its three factors, coefficients exceeded the 0.70 threshold, demonstrating good reliability of MLQ scores (Struwig, & Stead, 2013). Thus, MLQ-Form 6S and its subscales were deemed suitably reliable and valid for assessing the conceptualized leadership styles.

**Table 4 Cronbach's Alpha and Split-half Reliability Coefficients for MLQ-6S Scale (n = 321)**

Variables	Cronbach's Alpha	Split-half	Number of items
<b>MLQ-6S Scale</b>	<b>.719</b>	<b>.664</b>	<b>21</b>
Transformational Leadership (TFL)	.886	.854	12
Transactional Leadership (TSL)	.741	.742	6
Laissez-faire Leadership (LF)	.716	.752	3

Note. TFL, TSL and LF are the three factors of MLQ – 6S scale.

## DISCUSSION

The purpose of this study was to examine the factor structure and psychometric properties of the Multifactor Leadership Questionnaire Form 6S (MLQ-6S) in terms of reliability and factor structure within an Indian organizational context. The MLQ – 6S scale measures three types of leadership styles – transformational, transactional and laissez-faire. The results showed that the 21 – items questionnaire is suitable for measuring 3 – factor structure of MLQ - 6S.

In this paper, a comprehensive investigation of leadership styles in the public and private sector is presented. Factor structure of leadership styles were identified by EFA using principal component analysis (PCA) with varimax rotation to assess the dimensionality of the three factors of leadership namely – Transformational, Transactional and Laissez-faire. First, the assumption of normality was checked through examination of skew and kurtosis, then KMO test and Bartlett's Test of Sphericity gave adequate and significant values for further analysis followed by eigenvalues exceeding over 1.0. The values for communality estimates were higher than 0.3, with the overall model explaining 52.65% of total variance in leadership styles. The variables identified for each extracted factor were higher than 0.5 (ranging .530 – .748) with the factor loadings of Laissez-faire being the highest (**Table 3**), which indicating a substantial degree of contribution of each variable to its extracted factor. Thus, all the 21 variables were retained. Three factors were extracted from the 21 variables which were selected and grouped according to MLQ theory.

The reliability of MLQ – 6S was assessed by calculating split-half coefficients and Cronbach's alphas. The obtained values exceeded the required threshold and showed good reliability values for entire scale ( $\alpha = .719$ ) with split-half reliability of .664 and for individual subscales (TFL,  $\alpha = .886$ ; TSL,  $\alpha = .741$ ; LF,  $\alpha = .716$ ) with Transformational scale showing the highest internal consistency.

Although no particular study was found to be evaluating the factor structure, validity and reliability of MLQ – 6S scale, several studies have provided evidence of the validity and reliability of the original three-factor MLQ, making this study to be one of the first in doing so especially in Indian context. In one of the seminal works on the instrument, Bass, Avolio and Jung (1999) conducted a series of studies with over 3,000 respondents from different industries and reported strong support for the construct validity of the MLQ factors. Another study by Antonakis et al. (2003) replicated the factor structure of the MLQ with confirmatory factor analysis using two large independent samples, further establishing its validity. Regarding reliability, multiple studies have found the internal consistency of the MLQ scales to be good to excellent. For example, Avolio and Bass (2004) reported Cronbach's alpha coefficients ranging from 0.74 to 0.94. Additional research further validated the MLQ across cultures. A Persian version was developed by Bagheri et al. (2015), who conducted a CFA supporting the original three-factor structure of the MLQ. They also reported acceptable to good internal consistency coefficients ranging from 0.70 to 0.83. Examining human service teams, Garman et al. (2003) performed exploratory factor analysis and confirmed the transformational leadership model of the MLQ. This provides support for the valid application of the MLQ in evaluating leadership in diverse organizational contexts.

Although, there were several limitations to consider in the validation analysis. By only employing EFA to examine the factor structure limits validation of the measurement model. CFA would be needed to confirm the theorized relationships between items and factors. Also relying on Cronbach's alpha and split-half reliability for internal consistency assessment the study did not fully evaluate the measurement model's psychometric properties. Test-retest or alternative reliabilities would strengthen evaluation of consistency. The lack of CFA, convergent/discriminant validity testing, and alternative reliability metrics restricts conclusions regarding the nature and distinctiveness of theoretical factors. Additionally, generalizability is limited by use of a single Indian sample without description of age or the education level that could have conveyed associations between preferred leadership styles and education level. Furthermore, alternative explanations for factor structures cannot be ruled out, and test sensitivity/ability to detect effects is uncertain without examining relationships to other variables for known-groups/convergent validity.

## CONCLUSION

The utilization of the MLQ – 6S, a multidimensional three-factor model specifically designed to assess transformational and transactional leadership, appears well-suited for the Indian workforce context. The three-factor model of MLQ – 6S demonstrate adequate reliability and validity in general and offers a more streamlined approach focused on the core leadership dimensions most relevant to Indian workplaces. Further research could explore the specific cultural nuances of leadership styles in India and how the MLQ – 6S can be adapted to capture these effectively.

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