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Measurement of Leadership Effectiveness: Development and Standardisation of the Scale

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The Indian IT industry boomed after 2005 and is continuing to grow. The role of a leader is to handle strategy, manage resources, inspire the team and still be humane. After the pandemic, it is now even more necessary to alter the pillars of leadership. Although the personality and characters of leaders are similar, the effectiveness with which leaders perform is altering. There is a paucity of tools to measure the same. There are theoretical models and tools developed to gauge the personality factors of an effective leader, behavioural factors that contribute to leadership effectiveness are not vastly studied. The behaviours used in the test align with developing strategy, change management, operations, performance and entrepreneurial effectiveness of the leader. The aim of the study was to establish a scale to measure leadership effectiveness through an item analysis process and EFA. 50-item scale of leadership effectiveness was developed for the standardisation process. Representative data from 300 leaders (150 male & 150 female leaders) was procured from mid and large size organisations of IT and ITES sectors from Indian metro cities. Exploratory factor analysis (EFA) with Item analysis was carried out, to explore the factor structure of the scale and establish the other psychometric properties of the scale. This scale can be widely applied considering the cultural unique aspects of Indian leaders. The scale can be used in training and behaviour modification set up.

Keywords: leadership, leadership effectiveness, personality, scale development

The IT industry in India has seen a boom since 2005. Colleges of engineering almost doubled in 5 years. This has created a massive pool of employees, learned but not necessarily well skilled (Pathak, 2007). Organisations hence look for an efficient leader who not only can take care of processes of right hiring, effective training and getting maximum performance from the team resulting in successful growth. Hiring and training especially cost a lot to organisations especially with the ease of job switching. With all this, a leader has to have the ability to do more than just improving performance. The leader has to strategize, perform, operate at various levels, manage change effectively and have visionary ideas to expand the organisation. Hence a leader has to exhibit effective behaviour.

Leadership effectiveness as a concept refers to having a complex set of behaviours which are sometimes contradictory. It includes flexibility in the approach of how managers deal with situations while being highly resourceful. He can lead an empathetic but when needed has an ability to use power for the benefit of the organisation. According to Yukl (2012), "the leader's ability to effectively influence followers and other organisational stakeholders to reach the goals of the organisation is effective leadership. Leadership effectiveness can also be defined as the successful exercise of personal influence by an individual, which results in accomplishing

one or several goals, as a result of the coordinated efforts of those who are led. (Warner, 2012). It is largely recognized and accepted by practitioners and researchers that effective leadership is important and research supports the notion that leaders do contribute to organisational outcomes (Day & Lord, 1988; Kaiser, Hogan, & Craig, 2008). Organisations are desperate for good leaders.

In spite of the significant need for effective leaders, the concept is still in theory and there are no empirical tools that have been developed pertaining to Indian norms. The models of effectiveness are also underdeveloped. In the old days, leadership was assessed on the basis of consequences of a leader's action, Pointers to subordinates performance, their job satisfaction, commitment, decisions, etc.

There are two main issues in this. The conceptualization of leadership effectiveness is challenging. There are many models and theories developed around the concept. Secondly, measures that are currently used are based on consequences of action, but we need a tool that predicts the performance in advance so that effective interventions can be created.

To address these issues and advance the IT leadership knowledge pool, researchers have created a tool which is empirically sound and can have a wide implication for assessment and training purposes. Effective leaders have power over specific traits and show specific behaviours or styles of leadership. Researcher started by articulating theoretical foundations of leadership effectiveness and its dimensions and domains. The psychometric properties of the scale have been established along with designing norms. The paper is concluded with applications of the scale.

Concept of Leadership Effectiveness

Initially effective leadership referred to the successful application of the influence to mission accomplishment. Later with time conventional leadership has highlighted behavioural displays of the leader (Meindl, 1993). Differences between process and outcome

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agreement/disagreement with statements meant to characterise them. This formulation follows common practice in applied psychology research (Lewis, 2003). 5 point Likert scale of agreeableness is used for responses. The responses are Strongly disagree, Disagree, Neutral, Agree and Strongly Agree. Following table describes scoring details and reverse items. The scale yields a minimum score of 0 and maximum score of 200. Each domain has minimum score 0 and maximum score 40.

Table 1*List of Reverse Items*

List of reverse item

Area	Item number	Item number in final scale
Strategic	S2, S4	6,16
Change	C2, C4, C6, C8	7,17,27,37
Operational	O2, O4, O6	8,18,28
Performance	P1, P3, P5, P7	4,14,24,34
Entrepreneurial	E1, E3, E5, E7, E9	5,15,25,35,45
Total reverse items	4,5,6,7,8,14,15,16,17,18,24,25,27,28,34,35,37,45	

After mining the data and removing missing data, the data was suspended to item analysis.

Item Analysis

Item analysis included calculation of item difficulty and

discrimination index. Item difficulty less than 0.3 and higher than 0.7 were removed. The criteria was given by (Allen & Yen, 2001). Following norms given by Ebel (1965) Items with discrimination index more than 0.40 were retained in the test. Internal consistency of the items was also evaluated. After item analysis, the researcher was left with 75 statements, 15 statements on each domain.

Main Study

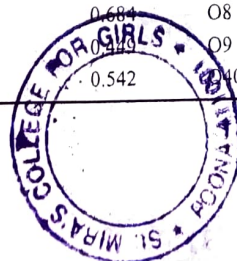
Strenuous efforts have been taken in order to establish Psychometric properties by calculating reliability, validity and norms. In the present research researcher has calculated Cronbach's alpha to estimate reliability. Exploratory factor analysis is done to establish validity. Norms are calculated using percentile ranks. For the main study, data was collected from 302 (152 male, 150 female) IT and ITES companies from metro cities in India using Google forms over the span of 6 months. There was no restriction on job specifications of the managers. Researcher has used factor analysis in order to validate the scale

Factor Analysis

After modification of items based on inter item correlation researcher retained 50 items in the finals scale. For Factor analysis, researcher has used Principal component analysis for extraction of factors and Varimax rotations as the factors are not related with one another. The table 2 below explains rotated component analysis.

Table 2*Explains Rotated Component Analysis*

Component						Component					
1	2	3	4	5	Uniqueness	1	2	3	4	5	Uniqueness
E1	0.305				0.793	P6			0.553		0.619
E2	-0.725				0.436	P7			-0.639		0.494
E3	0.581				0.525	P8			0.626		0.562
E4	-0.699				0.468	P9			0.615		0.519
E5	0.694				0.476	P40	0.39		0.36	0.354	0.573
E6	-0.626				0.525	C1				0.5	0.72
E7	0.477				0.749	C2				-0.554	0.608
E8	-0.511				0.738	C3		0.378		0.422	0.659
E9	0.493				0.734	C4	0.434			-0.567	0.483
E10	0.314	-0.62			0.509	C5				0.463	0.723
S1	0.711				0.441	C6				-0.643	0.506
S2	-0.386				0.813	C7				0.645	0.528
S3	0.666				0.495	C8				-0.4	0.748
S4					0.899	C9				0.588	0.634
S5	0.582				0.575	C40				0.585	0.549
S6	0.775				0.382	O1		0.633			0.569
S7	0.715				0.437	O2		-0.666			0.482
S8	0.691				0.448	O3		0.557			0.643
S9	0.791				0.342	O4		-0.588			0.565
S10	0.668				0.464	O5		0.566			0.597
P1			-0.538		0.643	O6		-0.51			0.656
P2	0.372		0.515		0.559	O7		0.514			0.617
P3			-0.455		0.684	O8		0.586			0.585
P4			0.711		0.440	O9		0.429			0.731
P5			-0.653		0.542	O40		0.717			0.41



Factor maximally corresponding to respective items were loaded for comprehension-clarity. In the table above it can be seen that reasonable factor loading structure is obtained. Every variable has its highest loading only on one factor. Although variables E10, E11 and C4 have loading on non-intended factors, their highest loadings are on intended factors only. Its P10 is loaded highest on unintended factors, but based on the theoretical model it will be loaded on Performance factor only.

Summary of Factor Loadings

Eigen Values of the Factors are Mentioned Below in Table 2.

Table 2	
Eigen Values	
Factor	Eigenvalue
1	6.9327
2	4.7173
3	3.1169
4	2.5689
5	1.9835
6	1.8219
7	0.9110

Based on theoretical understanding of items, researcher has decided to retain only 5 factors. Component statistics suggest that five components together explain 42.2 % variance. Details of each factor loadings are mentioned below.

Table 2
Summary of Factor Loadings

Component	SS Loadings	% of Variance	Cumulative %
1	5.10	10.20	10.2
2	4.37	08.74	18.9
3	3.98	07.96	26.9
4	3.93	07.86	34.8
5	3.72	07.43	42.2

Based on item component loading factors were labelled by the researcher. Factor 1 named Strategic leadership contributes 10.2 %

variance. Factor 2 is labelled as Entrepreneurial explain 8.74% variance. Factor 3 called operational leadership shares 7.96% variance. Factor 4 identified as Performance leadership contributes 7.86% variance. Lastly, factor 5 is labelled as Change leadership which contributes 7.43 % of total variance. Hence it can be concluded that Principal component analysis with varimax rotation supports a five factor model of leadership effectiveness.

Researcher has later attempted for Confirmatory factor analysis. Although it was noted that Value of goodness of fit chi square is 2850 significant at 0.01 level. Chi square describes the similarity of the observed and expected matrices. In the current example Chi square is significant, representing that observed and expected matrices are not similar to each other. CFI is 0.664 which does not meet the criteria value of more than 0.9. It is interpreted that the model fit is unacceptable. RMSEA indicates the amount of unexplained variance and residual which is 0.0692. It is larger than the criteria value of 0.06 or less.

On the basis of the above interpretation it can be concluded that the model outcome of EFA is not confirmed. Further research is needed to validate the model.

Reliability Analysis

The reliability of the scale was established by Chronbach's alpha (α) for the final tool consisting of 50 items loading on five factors. Construct reliability measures internal consistency among all the items quantifying any particular variable. According to Hair et al. (2014), Nunnally and Bernstein (1994), for the measurement model to be reliable the values of Chronbach's alpha should be greater than 0.7. Reliability of leadership effectiveness scale is 0.704 which is satisfactory.

Norms

Researchers have calculated stanine scores and percentile ranks in the present research. Norms help one to convert raw scores into a scale which is comparable and help in interpretation of the data. Norms also help to position an individual in a group or in the same population. This helps even in designing growth plans for an individual. In the present research the normative sample is based on a sample size of 302 managers from IT and ITES industry. There are 152 males and 150 females included in the sample.

The standard score based norms are given below:

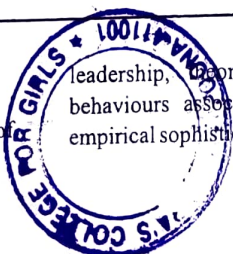
Table 4
Norm Table

Percentile	Stanine	Interpretation	Strategic	Change	Operational	Performance	Entrepreneurial	Total
4th	1	Low	20	28	29	28	28	144
10th	2		22	29	30	29	29	150
22th	3		26	31	31	31	31	157
39th	4		30	33	33	32	32	162
59th	5	Average	33	34	34	34	35	169
77th	6		38	36	36	35	37	177
89th	7		41	39	38	37	39.9	183
96th	8		44	41	39	39	42	190
99th	9	High	46	43	42	43	45	198

Discussion

Despite of the central role effectiveness plays in the new era of

leadership, theories, models and methods for studying the behaviours associated with it have fallen short of substantial empirical sophistication in the construct (Palreja, 2012). The above



results have been due to dearth of rigorous empirical findings especially in Indian context regarding leadership effectiveness. Seen from this perceptive, the present paper makes significant contributions in Indian behavioural research.

At a methodological level, researchers have contributed a reliable measure, which is used to predict effectiveness of leaders using a highly user-friendly tool which can generate simple and workable reports. So far only situation based tools like interview and past performance have been used. Hence this tool adds in ease of administration as well. The five different domains provide a concrete and systematic way to explore the nature of leadership effectiveness.

Implications of the Study

A Primary implication of the study is to facilitate interest and future research on culture specific behavioural aspects of leadership effectiveness and how the construct is different from other performance and personality measures of leadership. By developing tools and testing its validity researchers have provided a way to investigate leadership effectiveness systematically and on various domains. This in turn has resulted into effective, user friendly tools even to plan interventions and behavioural training programs at group level. This can also help in generating awareness at organisational level about the behaviours of managers and help understanding them better.

Limitations of the Study

Rarely any study in the field of behavioural science comes without a limitation. Theoretically, it can be questioned if the five domains efficiently cover the construct. Since the researcher has only used qualitative data there is a possibility to operationalize the construct differently. Future research could focus upon sophistication and addition of new domains. Methodologically, the CFA of the test has not been carried out. Also the data is based upon only self-report observations. Hence more exploration is needed to establish better convergent validity of the tool.

Conclusion

By developing and validating instruments for measuring domains of leadership effectiveness, researchers have attempted to draw focus on the cultural aspect of leadership and tried to broaden the assessment endeavour.

References

- Allen, M. J., & Yen, W. M. (2001). *Introduction to measurement theory*. Waveland Press.
- Day, D. V., & Lord, R. G. (1988). Executive leadership and organisational performance: Suggestions for a new theory and methodology. *Journal of Management*, 14(3), 453-464.
- Durga, D. P., & Prabhu, N. (2011). The relationship between effective leadership and employee performance. *International Conference on Advancements in Information Technology*, 20, 198-207.
- Ebel, R. L. (1965). Confidence weighting and test reliability. *Journal of Educational Measurement*, 2(1), 49-57.
- Hair, Jr. J. F., Sarstedt, M., Hopkins, L., & Kuppelwieser, V. G. (2014). Partial least squares structural equation modelling (PLS-SEM): An emerging tool in business research. *European Business Review*, 26, 106-121.
- Kaiser, H. F. (1974). An index of factorial simplicity. *Psychometrika*, 39(1), 31-36.
- Kaiser, R. B., Hogan, R., & Craig, S. B. (2008). Leadership and the fate of organisations. *American Psychologist*, 63(2), 96. <http://dx.doi.org/10.1037/0003-066X.63.2.96>
- Lewis, K. (2003). Measuring transactive memory systems in the field: Scale Development and Validation. *Journal of Applied Psychology*, 88(4), 587.
- Meindl, J. R. (1995). The romance of leadership as a follower-centric theory: A social constructionist approach. *The Leadership Quarterly*, 6(3), 329-341.
- Mustamin, N. F. N., & Al Muz-zammil bin Yasin, M. (2012). The competence of school principals: What kind of competence for school success? *Journal of Education and Learning*, 6(1), 33-42. <http://dx.doi.org/10.11591/edulearn.v6i1.188>
- Nunnally, J. C. (1978). *Psychometric theory*. New York: McGraw Hill.
- Nunnally, J. C. (1978). An overview of psychological measurement. *Clinical Diagnosis of Mental Disorders*, 3, 97-146.
- Palreja, R., Spangler, W. D., & Yammarino, F. J. (2012). A comparative study of three leadership approaches in India. *The Leadership Quarterly*, 23(1), 146-162.
- Pandey, A., Chattopadhyay, D., & Bose, S. (2015). The impact of leaders' spirituality at work and their reputation on teams' spiritual climate. *International Journal of Indian Culture and Business Management*, 11(4), 473-495. <http://dx.doi.org/10.5465/AMBPP.2013.11397abstract>
- Robbins, S. P., & Judge, T. (2009). *Organisational behaviour*. Pearson South Africa.
- Roebuck, C. (2011-12-22). *Critical need for entrepreneurial Leaders during turbulent times*. Chris Roebuck. Retrieved 2017-07-24.
- Sharma, S., & Sharma, A. (2010). Examining the relationship between organisational culture and leadership styles. *Journal of the Indian Academy of Applied Psychology*, 36(1), 97-105. <https://doi.org/10.1186/1472-6963-11-98>
- Srivastava, P., & Bhatnagar, J. (2010). Employer brand for talent acquisition: An exploration towards its measurement. *Vision*, 14(1-2), 25-34. <http://dx.doi.org/10.1177/097226291001400103>
- Wamer, J. (2012). Social capital and is leadership: a conceptual framework. *Academy of Information and Management Sciences Journal*, 15(1), 85-98.
- Yukl, G. (2012). Effective leadership behavior: What we know and what questions need more attention. *Academy of Management Perspectives*, 26(4), 66-85. <http://dx.doi.org/10.5465/amp.2012.0088>

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