

A WHITE PAPER
ON
W.E.-MATTER MODEL
FOR WELL-BEING AND EMPLOYEE ENGAGEMENT

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1. Document Objective

The purpose of this document is to ascertain reliability and validity of W.E.-Matter Model for Well-being and Employee Engagement using statistical modeling.

2. Concept of Employee Engagement

Employee engagement means a sense of working within a community that resonates for you. Employee satisfaction or happiness is part of engagement, but true engagement goes farther than just satisfaction in a job. Truly engaged employees are proud of their association with their organization and feel connected to it. They enjoy participating at work, whether full-time, part-time or virtually. Employees who enjoy the work they do, and feel in sync with the purpose of their organization, leaders and peers, will be more loyal, productive, innovative and positive

3. Development of W.E.-Matter Model of Well-Being and Engagement

The W.E. Matter model is designed to measure the engagement and well-being of the employees and to predict the productivity within the organization. It is a multi-generational model driven by purpose, organizational engagement, and well-being. The model puts the onus of organizational engagement on managers, leaders, and employees, enabled by organization. The W.E.-Matter model has 39 theme elements, includes 5 outcome behaviors and 34 organizational themes. The 5 outcome behaviors also known as P5s measure the employee engagement level within the organization.

Following are the 5 outcome behaviors or P5's of Engagement:

- Promoter – are speaking positively about the organization.
- Persistent – will the employee going to stay with you for 3 to 5 years.
- Perseverance – are your employees motivated enough to put discretionary efforts
- Passionate – are your employees passionate about working with your organization
- Peacefulness – are they at peace with their organization and themselves.

The 39 organizational themes are clubbed into five groups/indexes

- Leadership excellence (L7)
- Manager excellence (M10)
- Organization (ORG9)
- Well-Being (WB8)
- Work from home (WFH6)

W.E.-Matter Modules and Codes

Module	Code
Leadership	Lead1
Leadership	Lead2
Leadership	Lead3
Leadership	Lead4
Leadership	Lead5
Leadership	Lead6
Leadership	Lead7

Module	Code
Manager	Mng1
Manager	Mng2
Manager	Mng3
Manager	Mng4
Manager	Mng5
Manager	Mng6
Manager	Mng7
Manager	Mng8
Manager	Mng9
Manager	Mng10

Module	Code
Work From Home	Wfh1
Work From Home	Wfh 2
Work From Home	Wfh 3
Work From Home	Wfh 4
Work From Home	Wfh 5
Work From Home	Wfh 6

Module	Code
Well-being	Wb1
Well-being	Wb2
Well-being	Wb3
Well-being	Wb4
Well-being	Wb5
Well-being	Wb6
Well-being	Wb7
Well-being	Wb8

Module	Code
Organization	ORG1
Organization	ORG2
Organization	ORG3
Organization	ORG4
Organization	ORG5
Organization	ORG6
Organization	ORG7
Organization	ORG8
Organization	ORG9

4. Reliability Test of W.E.-Matter Model

Reliability refers to consistency of measure. There are three types of Reliability: over time (test-retest reliability), across items (internal consistency), and across different researchers (inter-rater reliability). There is no such thing as perfect reliability. Even measures that we think of as accurate will always have some source of error.

It's importance

Having good test and re-test reliability signifies the internal validity of a test and ensures that the measurements obtained in one sitting are both representative and stable over time.

5. Measuring Internal Consistency Using Cronbach Alpha

Cronbach Alpha

Cronbach Alpha is the measure of internal consistency that is how closely the set of related items are as a group. It is considered the measure of scale reliability. The Cronbach's alpha score of .70 and above is good, .80 and above is better, and .90 and above is best.

To measure the correlation with each other within the category we have used Cronbach Alpha. In the given Table below, summarizes the scores of Cronbach Alpha for Engagement (P5), Leadership (lead7), Manager (mng10), Organization (ORG9), Well-being (wb8), Work from home (wfh6).

Factor	Number of Items	Cronbach Alpha
1	5	0.83
2	7	0.91
3	10	0.91
4	9	0.91
5	8	0.81
6	6	0.89

6. Case Processing Summary and Statistics of Different Scales

Engagement		N	%	Cronbach Alpha	No of Items
Case	Valid	3836	100.0	0.83	5
	Excluded	0	0.0		
	Total	3836	100.0		

Leadership		N	%	Cronbach Alpha	No of Items
Case	Valid	3836	100.0	0.91	7
	Excluded	0	0.0		
	Total	3836	100.0		

Manager		N	%	Cronbach Alpha	No of Items
Case	Valid	3836	100.0	0.91	10
	Excluded	0	0.0		
	Total	3836	100.0		

The RELIABILITY procedure uses LISTWISE deletion of cases with missing values. Thus, any case missing on any variable named in the command will be removed from the analysis. This can easily leave you with no valid cases if you have many items and a substantial amount of missing data. Here for every element, we have all the sample data as valid and no variables are eliminated

As stated above the Cronbach scores of employee engagement, well-being, work from home are greater than .80 it shows that the internal consistency/scale of reliability, that is, the related a set of items are as a group are at a better level

For leadership, manager, Organization the values are above .90 it shows that they are in the best scale of reliability. So, the overall correlation among the categories is impressive at more than .80 level and .90 level. A high correlation of elements within the category states that all the elements are pointing towards the same outcome. Hence, the internal consistency of the W.E. Matter model is good and highly reliable.

7. Validity Test of W.E.-Matter Model

Validity refers to how accurately a method measures what it is intended to measure. If research has high validity that means it produces results that correspond to real properties, characteristics, and variations in the physical or social world.

It's importance

Validity is the most important issue in selecting a test. Validity refers to what characteristic the test measures and how well the test measures that characteristic. If the test does not measure its intended goal, it is not a valid test. Factor analysis, a statistical method that can be used to collect an important type of validity evidence

8. Extraction In Factor Analysis

A factor extraction method used to form uncorrelated linear combinations of the observed variables. The first component has maximum variance. Successive components explain progressively smaller portions of the variance and are all uncorrelated with each other.

Principal component analysis

Here, data reduction is a primary concern, focusing on the minimum number of factors needed to account for the maximum portion of the total variance represented in the original set of variables. Using on the minimum number of factors needed to account for the maximum portion of the total variance represented in the original set of variables. It is also called as variable reduction technique.

9. Rotation In Factor Analysis

Rotations minimize the complexity of the factor loadings to make the structure simpler to interpret. The number of variables that load highly on a factor and the number of factors needed to explain a variable are minimized.

Kaiser-Varimax rotation

Varimax rotation (also called Kaiser-Varimax rotation) is an orthogonal method which maximizes the sum of the variance of the squared loadings, where 'loadings' means correlations between variables and factors. These factors are rotated to attain the simple structure. Here we assume that the factors are uncorrelated to find out the level of correlations between the variables.

10. Rotation Component Matrix

Code	Components					
	1	2	3	4	5	6
eng1	.753					
eng2	.523					
eng3	.717					
eng4	.759					
eng5	.676					
lead1	.728					
lead2	.693					
lead3	.678					
lead4	.763					
lead5	.696					
lead6	.710					
lead7	.738					
mng1				.622		
mng2	.585					
mng3				.443		
mng4	.499					
mng5				.309		
mng6				.327		
mng7				.706		
mng8				.404		
mng9				.723		
mng10				.725		
org1	.614					
org2	.614					
org3	.618					
org4	.606				.425	
org5	.386				.612	
org6	.479				.604	
org7	.619					
org8	.732					
org9	.628				.425	

A factor can be interpreted in terms of the variables that load high on it. Each component is interpretable and has some strong positive factor loadings. Rotated Component Matrix, shows the correlations between the variable and the factor. Because these are correlations, possible values range from -1 to +1.

The Following are some of the observation and reasons:

For instance, here the eng1, eng2, eng3, eng4, eng5 correlates more with the first component. So, it can be now be grouped together in one component in the rotated component matrix table.

There are moderate-to-strong correlations between the 5 P's, 7 Leadership, M2, M4, and component 1. Leadership overall has a high correlation with the employee engagement and hence we have observed a moderate-to- strong correlation with component 1.

There are moderate-to-strong correlations between the M10 (excluding M2 and M3) and component 4. Here M2 and M3 are alignment of goals and resources. Since Organizations are responsible for the resource allocation and ensure the alignment of goals in an organization, we observe their correlation with the Organizations component

It is also noticed that Organizations explain high variance in the components of engagement and Career Opportunities(org5), Pay-benefit linkage (org6), Benefits (org7) and delivery on promise (org9). As these elements deals with the well-being of the employees it will have some cross loadings with the well-being component.

There are moderate-to-strong correlations between the 6 WFH elements and component 3.

If the value is lower than the required value of 0.5 for one of the components, then that variable could be considered for further analysis. But if the presence of more than 0.5 (or 0.6) loading in more than one component represents that this variable represents two components, thus, it is not effective in measuring a specific category. Hence, need to be excluded. But in this case even if the variance is represented in two components, they are less than 0.7, so these can be considered as valid and effective in measuring the specific component

The most of the elements in the table show the simple structure that each factor having high loading (greater than 0.5) with the single component and rest of them being zero or nearly less.

After running the analysis our W.E. Matter model is able to explain most of the variance, in behavioral science anything above is 60% is considered as good. Thus, it shows the existing factors of W.E. Matter model like engagement, leadership, manager, Organization, well-being, work from home are sufficient to explain variances.

11. Model Fit

The correlations between the variables can be deduced from the estimated correlations between the variables and the factors.

The differences between the observed correlations (in the input correlation matrix) and the reproduced correlations (estimated from the factor matrix) can be examined to determine model fit.

12. Default Model Computation

The *Number of distinct sample moments* referred to are sample means, variances, and covariance

The *Number of distinct parameters* to be estimated are the corresponding population variances and covariance.

The *Degrees of freedom* is the amount by which the number of sample moments exceeds the number of parameters to be estimated.

Here, the Number of distinct sample moments: 990
 Number of distinct parameters to be estimated: 103
 Degrees of freedom (990 - 103): 88

Result (Default model)

Minimum was achieved

- Chi-square = 12064.590
- Degrees of freedom 887
- Probability level = .000

Here, the more these values diverge from each other, the higher the chi square score, the more likely it is to be significant, and the more likely it is we'll reject the null hypothesis and conclude the variables are associated with each other. So here the highest chi-square value shows that there is much association between the variable

13. THREE TYPES OF MODELS

- Default or proposed is the model designed.
- Independence (or null) model, which says that each measured variable is correlated exactly with each other measured variable and thus usually produces results indicative of poor fit with the data.
- Saturated model, uses the maximum available parameters and thus is guaranteed to provide a perfect fit.

14. RMR, GFI MODEL FIT

Model	RMR	GFI	AGFI	PGFI
Default Model	0.047	0.849	0.832	0.761
Saturated Model	0.000	1.000		
Independence Model	0.034	0.720	0.790	0.715

The GFI (goodness-of-fit index) GFI that is less than or equal to 1 indicates a perfect fit. Here for saturated model, it shows that the model is a perfect fit.

The adjusted goodness of fit index (AGFI) corrects the GFI, which is affected by the number of indicators of each latent variable. The GFI and AGFI range between 0 and 1, with a value of over is a good fit. We see that most of the values fall in the range of 0-1, so it is a good fit.

The RMR (root mean square residual) is the square root of the average squared amount by which the sample variances and covariance's differ from their estimates obtained under the assumption that your model is correct. The smaller the RMR is, the better. An RMR of 0 indicates a perfect fit or the value is nearly equals to zero which indicates that it is a perfect fit. For default and saturated model, the values show that it is a perfect fit.

The overall statistics shows that W.E.-Matter model was a good fit.

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