

# **Workplace Empowerment Incorporating Stability Overtime: Replication & Extension**

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*This paper reviews and replicates Spreitzer's (1995) study entitled "Psychological empowerment in the workplace: Dimensions, measurement, and validation." We extended this work and present alternative solutions and insights. We propose seven alternative hypotheses and sub-hypotheses resulting in 14 alternative hypotheses to Spreitzer's work (presented in the appendix for convenience).*

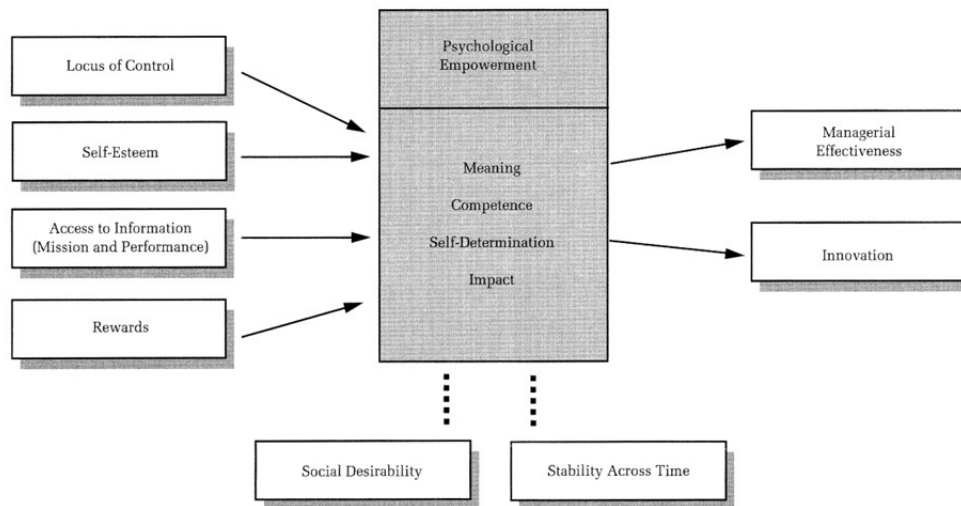
*Keywords: psychological empowerment, automotivation, personality traits, organization performance, innovation, information*

## **INTRODUCTION**

Spreitzer, in her 1995 research entitled "Psychological empowerment in the workplace: Dimensions, measurement, and validation," presented an introduction to the validation of psychological empowerment in the workplace as a multidimensional construct (Spreitzer, 1995). The model below in Figure 1 (Spreitzer, 1995) presented evidence of the validity of a nomological network of workplace psychological empowerment.

Psychological empowerment was initially proposed as a four-factor measurement model that addressed meaning, competence, self-determination, and impact. The author also identified four exogenous (i.e., locus of control, self-esteem, access to information, and rewards) and two endogenous (i.e., managerial effectiveness and innovation) variables and two controls (i.e., social desirability and stability across time). However, upon further review, we found data were not provided for one exogenous variable (i.e., reward) or one control (i.e., stability across time). Hence, we have included stability over time as a control variable in our extension.

**FIGURE 1**  
**PARTIAL NOMOLOGICAL NETWORK FOR PSYCHOLOGICAL**  
**EMPOWERMENT FOR IN THE WORKPLACE**



Source: Spreitzer, 1995

## THEORY

### Definition of Psychological Empowerment Construct

In this section, we will present the definition of psychological empowerment construct and its effects on the exogenous variables. As Spreitzer has stated, investigating psychological empowerment constructs in the workplace has been deemed important by organizational researchers and practitioners alike. Given that the paper was published in 1995, succinctly defining a psychological construct and its building blocks and understanding its implications in the workplace must have had a considerable impact at that time of intense global competition (Drucker, 1998).

The author developed two hypotheses with regards to defining the transient psychological empowerment construct. These hypotheses proposed that the construct must have four distinct dimensions contributing to its overall impact.

**Hypothesis 1a:** *There are four distinct psychological empowerment dimensions.*

**Hypothesis 1b:** *Each dimension contributes to the overall impact of the construct (i.e., psychological empowerment in the workplace).*

### Effects of Exogenous Variables on the Psychological Empowerment Construct

Spreitzer proposed four exogenous variables affecting psychological empowerment in the workplace. Two of these were personality trait markers with significant implications for how one might perceive him or herself in the workplace. The implications of these two personality trait markers, self-esteem and locus of control, are described in Hypotheses 2a, 2b, and 2c. The other two exogenous variables, information sharing (as described in Hypotheses 2d and 2e) and rewards (see Hypothesis 2f), are related to management approaches and have implications for employees' perceptions of empowerment.

**Hypothesis 2a:** *Self-esteem is positively related to the psychological empowerment construct.*

**Hypothesis 2b:** Locus of control is positively related to psychological empowerment.

**Hypothesis 2c:** The personality trait markers of self-esteem and locus of control are different from the overall psychological empowerment construct.

**Hypothesis 2d:** The management approach measure “access to information about the mission of the organization” is positively related to psychological empowerment.

**Hypothesis 2e:** The management approach measure “access to information about the performance of the organization” is positively related to psychological empowerment.

**Hypothesis 2f:** The individual performance reward system is positively related to psychological empowerment.

### Effects of the Psychological Empowerment Construct on Endogenous Variables

Spreitzer (1995) identified two outcomes impacted by the psychological empowerment construct. These endogenous variables are effectiveness and innovation. Empowerment has significant implications for managerial effectiveness and innovation with regard to employees’ execution of their jobs and in getting managers to be engaged in their work with increased meaningfulness and focus (Bowen & Lawler, 1992).

**Hypothesis 3a:** Psychological empowerment is positively related to managerial effectiveness.

**Hypothesis 3b:** Psychological empowerment is positively related to innovative behavior.

## RESEARCH DESIGN

### Sample Description

Spreitzer utilized two data sources for her analysis. One dataset was comprised of mid-level managers from a Fortune 50 industrial organization, and the other was made up of employees of an insurance company who were not managers. Each dataset was used to test elements of the hypotheses postulated by Spreitzer (1995). The first dataset, which contained responses from 363 respondents, was used to test Hypotheses 1a, 1b, 2a through 2d, 3a, and 3b; the second set of samples, responses from 128 respondents, were used to test Hypotheses 2e and 2f.

Years of position tenure, educational level, sample size, and gender across the two groups were all different, as shown in Table 1. Which may have had implications for the findings of the research.

**TABLE 1**  
**INDUSTRIAL AND INSURANCE SAMPLE DATA INFORMATION**

	<b>Industrial Sample</b>	<b>Insurance Sample</b>
<b>Sample Size (N)</b>	393	128
<b>Position</b>	Middle Managers	Non-managers: 83%
<b>Gender</b>	Men: 93%	Women: 84%
<b>Mean Age (yrs.)</b>	46	40
<b>Years with the Company</b>	13	15
<b>Position Tenure (yrs.)</b>	3	
<b>Education Level</b>	At least college degree: 70%	High school graduate: 54%
<b>Other Demographic Data</b>	White: 85%	

## **Measures**

### *Exogenous Variables*

Spreitzer identified four exogenous variables.

### *Self-esteem*

Spreitzer defined self-esteem as “a general feeling of self-worth” (Spreitzer, 1995, p. 1446). Self-esteem was expected to have an impact on empowerment and manifested in the form of job-related competence and a “can-do” attitude in the work environment (Bandura, 1977).

### *Locus of Control*

Spreitzer defined locus of control as “the degree to which people believe that they, rather than external forces, determine what happens in their lives” (1995, p. 1446).

### *Information*

Spreitzer (1995) asserted that two types of information were highly influential on empowering people in the workplace. These information types were:

- 1) Information about the mission of an organization; and
- 2) Information about organizational performance.

### *Reward*

Reward was defined as an incentive that recognizes individual contributions to enhance personal competence and active involvement in decision-making.

## **Mediator**

We surmise that Spreitzer identified one mediator: the psychological empowerment construct with its underpinning four building blocks.

### *Psychological Empowerment*

The psychological empowerment construct made up of four distinct factors acts as the mediator. The four factors of the construct are meaning, competence, self-determination, and impact.

### *Meaning*

Meaning is the purpose of the work.

### *Competence*

Competence is equivalent to self-efficacy.

### *Self-determination*

Spreitzer defined self-determination as “an individual’s sense of having a choice in initiating and regulating actions” (1995, p. 1443).

### *Impact*

Impact is the intensity of one’s ability to influence outcomes in a workplace context.

## **Dependent/Outcome Variables**

The author (Spreitzer) identified two outcome variables.

### *Effectiveness*

Effectiveness was defined by Spreitzer as “the degree to which a manager fulfills or exceeds work role expectations” (1995, p. 1448).

### *Innovative Behavior*

Innovative behavior was the ability to create something new and different that alters the status quo in terms of product or service offerings, process, or orientation (Woodman, Sawyer, & Griffin, 1993).

### **Controls**

Two controls (i.e., social desirability and stability across time) were identified in Spreitzer (1995) as shown in Figure 1, with social desirability as a control. In our extension, we included stability over time as an additional control variable. In the next section, we will review the analytical approach.

## **ANALYTICAL APPROACH**

Spreitzer’s (1995) results were replicated using an SPSS-based exploratory factor analysis to test the adequacy of the data, and then a confirmatory factor analysis (CFA) in AMOS to develop model estimates for the industrial and insurance samples. After verifying the goodness-of-fit of the measurement model, we created a structural model that allowed us to test our hypotheses. At each critical node, we have checked the model’s fitness. We report our findings in detail in the following sections.

### **Exploratory Factor Analysis (EFA)**

A maximum likelihood estimation with a promax rotation was used to examine the factor structure. This method was chosen to evaluate the variances among the different items and the correlations among factors, while remaining consistent with the CFA. We investigated four factor solutions for both the industrial and insurance samples.

For the industrial sample, the four factors explained 64.40% of the variance in the model, whereas for the insurance sample, 69.46% of the variance was explained. We then examined the factor loadings and cross-loadings of the items. The items were considered acceptable if: (a) they had high loadings for their primary factor (i.e.,  $> .40$ ) and (b) low cross-loadings for any other factor (i.e., cross-loading differences were greater than 0.2 (Hinkin, 1998). After suppressing factor loadings less than 0.2, we reviewed the primary loading factors for both samples. The primary loadings for the four factors extracted from the industrial sample were greater than .40, as illustrated in Table 2, whereas the primary loadings for the four factor solutions from the insurance sample exhibited a Heywood case for one item (sdetr3), with a loading that was greater than 1 (see Table 3).

**TABLE 2**  
**PATTERN MATRIX FOR THE INDUSTRIAL SAMPLE**

	Industrial Sample (n = 393)			
	Meaning	Impact	Competence	Self-Determination
<b>Cronbach <math>\alpha</math></b>	<b>0.87</b>	<b>0.88</b>	<b>0.81</b>	<b>0.81</b>
mean1	.773			
mean2	.893			
mean3	.839			
comp1			.799	
comp2			.827	
comp3			.702	
sdetr1				.878
sdetr2				.559
sdetr3				.706
imp1		.642		
imp2		.810		
imp3		.979		
% Variance explained	38.35	10.27	10.17	5.61
% Total variance explained	64.40			
Extraction Method: Maximum Likelihood. Rotation Method: Promax with Kaiser Normalization. Rotation converged in 5 iterations.				

**TABLE 3**  
**PATTERN MATRIX FOR THE INSURANCE SAMPLE**

	Insurance Sample (n = 128)			
	Competence	Impact	Meaning	Self-Determination
<b>Cronbach <math>\alpha</math></b>	<b>0.84</b>	<b>0.85</b>	<b>0.85</b>	<b>0.79</b>
mean1			.700	
mean2			.776	
mean3			.946	
comp1	.956			
comp2	.908			
comp3	.539			
sdetr1				.605
sdetr3				1.013
imp1		.840		
imp2		.787		
imp3		.758		
% Variance explained	18.71	26.61	12.72	11.42
% Total variance	69.46			
Extraction Method: Maximum Likelihood. Rotation Method: Promax with Kaiser Normalization. Rotation converged in 5 iterations.				
sdetr2 was not included in insurance sample				

Bartlett's test of sphericity for the industrial sample was significant ( $c^2 = 72.75$ ,  $df = 24$ ,  $p = 0.000$ ), indicating sufficient intercorrelations. Conversely, the insurance sample indicated problems ( $c^2 = 14.99$ ,  $df = 17$ ,  $p = .596$ ). Commonalities for both samples were all above 0.30, further confirming that each item shared some common variances with the other items; however, the insurance sample sdetr3 was extremely high, an indication of a Heywood case, where its factor loading is greater than 1.

The factors extracted for the industrial sample met both convergent and discriminant validity thresholds, with clean factor loadings greater than 0.4 (Hair, Tatham, Anderson, & Black, 2006), and factor correlations less than 0.7. However, there was a problem (as stated above) with a Heywood case.

### Confirmatory Factor Analysis (CFA)

CFAs for the four factor first- and second-order solutions were developed. To ensure CFA reliability, the convergent and discriminant validities were tested for both sample groups. Tables 4 & 5 summarize the full scope reliability and validity requirements. The industrial sample met all the criteria for reliability and validity, as shown in Table 4, whereas the insurance sample did not meet the convergent validity threshold with AVE values less than 0.5 for impact items, as presented in Table 5.

**TABLE 4**  
**RELIABILITY AND VALIDITY TEST RESULTS FOR THE INDUSTRIAL SAMPLE**

Convergent Validity		Discriminate Validity		Reliability	
CR > .7		MSV < AVE		$\alpha > .7$	
CR > AVE		ASV < AVE		CR > 7	
	Cronbach's $\alpha$	CR	AVE	MSV	ASV
Meaning	0.87	0.901	0.752	0.213	0.261
Competence	0.81	0.823	0.612	0.18	0.248
SelfDetr	0.81	0.781	0.544	0.292	0.418
Impact	0.88	0.865	0.684	0.266	0.418

**TABLE 5**  
**RELIABILITY AND VALIDITY TEST RESULTS FOR THE INSURANCE SAMPLE**

Convergent Validity		Discriminate Validity		Reliability	
CR > .7		MSV < AVE		$\alpha > .7$	
CR > AVE		ASV < AVE		CR > .7	
	Cronbach's $\alpha$	CR	AVE	MSV	ASV
Meaning	0.85	0.899	0.751	0.172	0.222
Competence	0.84	0.891	0.739	0.104	0.161
Self Determination	0.80	0.723	0.568	0.137	0.181
Impact	0.85	0.714	0.455*	0.153	0.222

\* Convergent validity concern: AVE < 0.5

To further ensure the fitness of the CFA, we tested for common method bias (CMB). We observed that both sample groups had CMB effects with the impact items for the industrial samples, as well as Meaning 3 and all of the competence items for the insurance samples. These measurement concerns were addressed by introducing measurement and structural corrections in the SEM. A comparison of the factor loading and goodness-of-fit statistics for the first- and second-order CFAs and the extended three-factor solution we proposed by combining the impact and self-determination factors with autonomous motivation (auto-motivation), as described by Gange and Deci (2005), is presented in Table 6. Autonomous motivation combines the intrinsic and extrinsic factors that affect work performance, which we postulated encompassed impact and self-determination, the two factors of the psychological empowerment construct. We surmised that following Self-Determination Theory, impact and self-

determination could be combined to form autonomous motivation, which would then embody the key features of these two factors (Dworkin, 1988).

All of the CFAs for both the industrial and insurance samples had CMIN/df values less than 3, and as shown in Table 6, all CFAs had good CFI values (0.96 to 0.97). The AGFI and SRMR values were higher for the industrial sample than the insurance sample, whereas the insurance sample had better PCLOSE values for the three factor structures. Note that the first order four-factor solution replicated the goodness-of-fit statistics identified by Spreitzer (1995) (i.e., AGFI, SRMR, and NCNFI) with close proximity.

**TABLE 6**  
**FACTOR LOADING AND GOODNESS-OF-FIT STATISTICS FOR CFA**

Construct Items	Industrial Sample			Insurance Sample		
	1st Order CFA	2nd Order CFA	NP CFA*	1st Order	2nd Order CFA	NP CFA*
	$\lambda$ (t-value)			$\lambda$ (t-value)		
<b>Meaning</b>						
Meaning1	0.75	0.75	0.75	0.71	0.71	0.71
Meaning2	0.86 (16.87)	0.87 (16.86)	0.86 (16.86)	0.81(8.69)	0.81 (8.64)	.81 (8.70)
Meaning3	0.88 (17.07)	0.88 (17.01)	0.88 (17.05)	0.94 (9.14)	0.94 (9.07)	.93 (9.16)
<b>Competence</b>						
Comp1	0.74 .52	0.75	0.75	0.93	0.94	0.94
Comp2	0.91(14.52)	0.91(14.47)	0.91 (14.54)	0.93 (12.73)	0.92 (12.60)	.92 (12.65)
Comp3	0.65 (12.35)	0.65 (12.47)	0.65 (12.46)	0.60 (7.21)	0.58 (7.16)	.58 (7.18)
<b>Self-Deter.</b>						
Sdetr1	0.77	0.78	0.78	0.74	0.73	0.75
Sdetr2	0.86 (12.24)	0.68 (12.18)	0.68 (12.17)	/	/	/
Sdetr3	0.90 (13.14)	0.75 (13.07)	0.75 (13.09)	0.86 (4.94)	0.88 (4.72)	.86 ((4.86)
<b>Impact</b>						
Imp1	0.73	0.73	0.73	0.84	0.84	0.84
Imp2	0.87 (16.39)	0.86 (16.34)	0.86 (16.34)	0.76 (8.85)	0.76 ((8.06)	.76 (8.83)
Imp3	0.90 (16.68)	0.90 (16.71)	0.90 (16.72)	0.82 (9.4)	0.82 (9.38)	.82 (4.86)
<b>Empowerment</b>						
F1		0.63 (9.93)	0.87 (8.99)*		0.73 (5.5)	0.76 (4.41)
F2		0.56 (8.54)	0.69 (9.69)		0.5 (4.53)	0.81 (5.15)
F3		0.82 (12.15)	0.60 (8.62)		0.59 (3.90)	0.50 (4.42)
F4		0.76 (11.40)	0.83 (8.36)		0.64 (5.38)	0.60 (3.23)
			0.78			0.71
<b>Goodnes of Fit Statistics</b>						
Chi-square (df)	120.17 (48)	134.87 (50)	130.95 (49)	55.61 (38)	58.78 (40)	57.09 (39)
p-value	0.00	0.00	0.00	0.03	0.03	0.03
CFI	0.97	0.96	0.97	0.97	0.97	0.97
AGFI	0.92	0.92	0.92	0.88	0.88	0.88
TLI	0.96	0.95	0.95	0.96	0.96	0.96
SRMR	0.03	0.04	0.04	0.06	0.07	0.07
RMSEA	0.06	0.07	0.07	0.06	0.06	0.06
PCLOSE	0.08	0.03	0.03	0.29	0.28	0.29

\*F1: Auto  $\leftarrow$  Empower, F2: Meaning  $\leftarrow$  Empower, F3: Comp  $\leftarrow$  Empower

### Multi-Group Measurement Invariance

To ensure that the measurement model was invariant and appropriate for SEM, we ran a multi-group measurement invariance test. We used Hypothesis 4 to test for measurement invariance.

**Hypothesis 4:** *The building blocks of the psychological empowerment construct (i.e., meaning, impact and self-determination) are invariant.*



After performing a Chi-square difference test using the unconstrained model as the baseline, we compared it to the fully constrained model (M3) with constrained first-order (M1) and second-order (M2) loadings, which resulted in all significant p-values (see Table 7). This indicates that the measurement model was invariant and Hypothesis 4 was supported.

**TABLE 7**  
**MULTI-GROUP MEASUREMENT INVARIANCE**

<b>Model</b>	<b>DOF difference</b>	<b>Chi<sup>2</sup> - difference (p)</b>
Model 1: 1st order loadings constrained	7	9.949 (.191)
Model 2: 2nd order loadings constrained	4	.934 (.294)
Model 3: All loadings constrained	11	13.5704 (.258)

**PE Construct Test – First-order Factor Structure**

The first-order nomological network with good model fit statistics (as presented in Table 8: meaningfulness, competence, and impact) was significant for the dependent variable’s effectiveness. The outcomes of innovativeness, competence, self-determination, and impact were in both cases significant after controlling for social desirability. The coefficients, t-, and p-values are presented in Table 8, and the goodness-of-fit statistics are presented in Table 9. For meaningfulness, the building block of the psychological empowerment construct, only the availability of information was significant. For competence, self-determination and three exogenous variables (i.e., self-esteem, locus of control, and information) were significant, while the control variable of social desirability did not have an impact. For impact, both self-esteem and information were significant; the other two were insignificant. Self-determination not having an impact on effectiveness seemed contrary to what the author elucidated.

Similar to Spreitzer (2015), to determine the impacts of not accounting for structure and measurement errors, we postulated Hypothesis 5, which compared the first-order factor structure with our measurement and structural error correction (i.e., the baseline model identified as Figure 1) and the factor structure with the structural and measurement corrections illustrated in Figure 2.

***Hypothesis 5:** Correcting for structural and measurement errors for the first-order factor solution will make a difference in the fidelity of the results.*

The test of this hypothesis indicated that there was no difference between the two options with similar BCC and BIC values (Byrne, 2010); hence, we used the model without error correction as the preferred baseline model.

**Nomological Network Validity: Antecedent and Consequence Hypotheses**

The coefficients and p-values for the width model are presented in Table 10. As shown in the Table, all of the antecedent and consequent hypotheses were significant and supported except Hypothesis 2b, where locus of control was negatively related to empowerment with a coefficient of -0.22. This might have been an artifact of the construct where the excess locus of control resulted in a lower level of empowerment.

**TABLE 8**  
**COEFFICIENTS AND P-VALUE FOR 1ST ORDER PE CONSTRUCT**

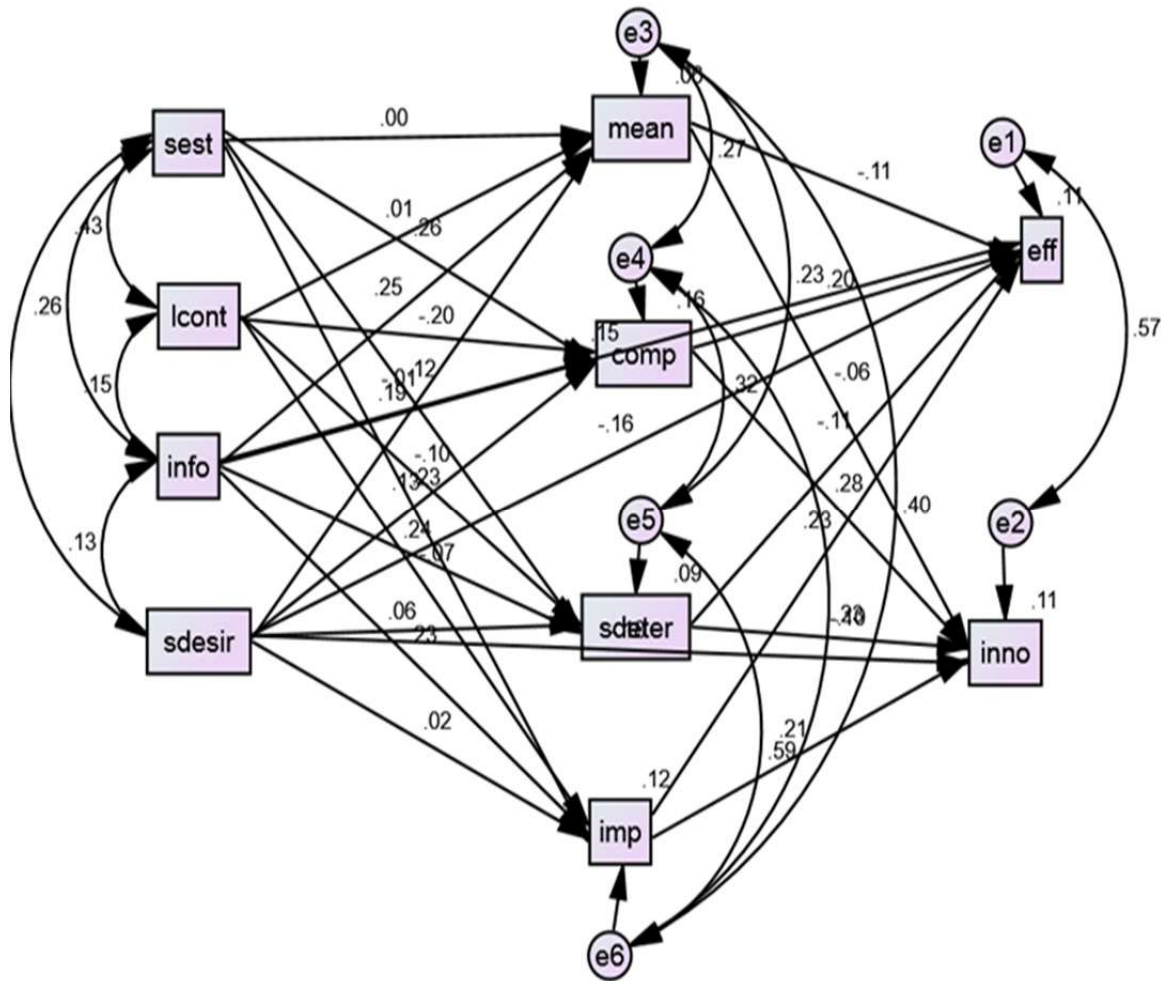
DV	IV	Coefficients	T-Value	p-Value
Effectiveness				
	Meaning	-0.11	-2.04	0.040
	Competence	0.20	3.73	***
	Self-Determination	-0.11	-1.76	0.080
	Impact	0.23	3.49	***
	Social Desirability	-0.16	-3.27	0.001
Innovation	Information	0.15	3.48	***
	Meaning	-0.06	-1.15	0.249
	Competence	0.28	5.21	***
	Self-Determination	-0.10	-1.62	0.106
	Impact	0.21	3.21	0.011
Meaning	Social Desirability	-0.18	-3.67	***
	Self-Esteem	0.00	0.06	0.951
	Locus of Control	0.01	0.20	0.843
	Information	0.25	4.90	***
Competence	Social Desirability	-0.01	-0.26	0.800
	Self-Esteem	0.26	4.88	***
	Locus of Control	-0.20	-3.79	***
	Information	0.19	4.02	***
Self-Determination	Social Desirability	0.13	2.72	0.01
	Self-Esteem	0.12	2.23	0.03
	Locus of Control	-0.10	-1.82	0.07
	Information	0.24	4.89	***
Impact	Social Desirability	0.06	1.15	0.25
	Self-Esteem	0.23	4.09	***
	Locus of Control	-0.07	-1.29	0.195
	Information	0.23	4.65	***
	Social Desirability	0.02	0.38	0.705

\*\*\* < .001

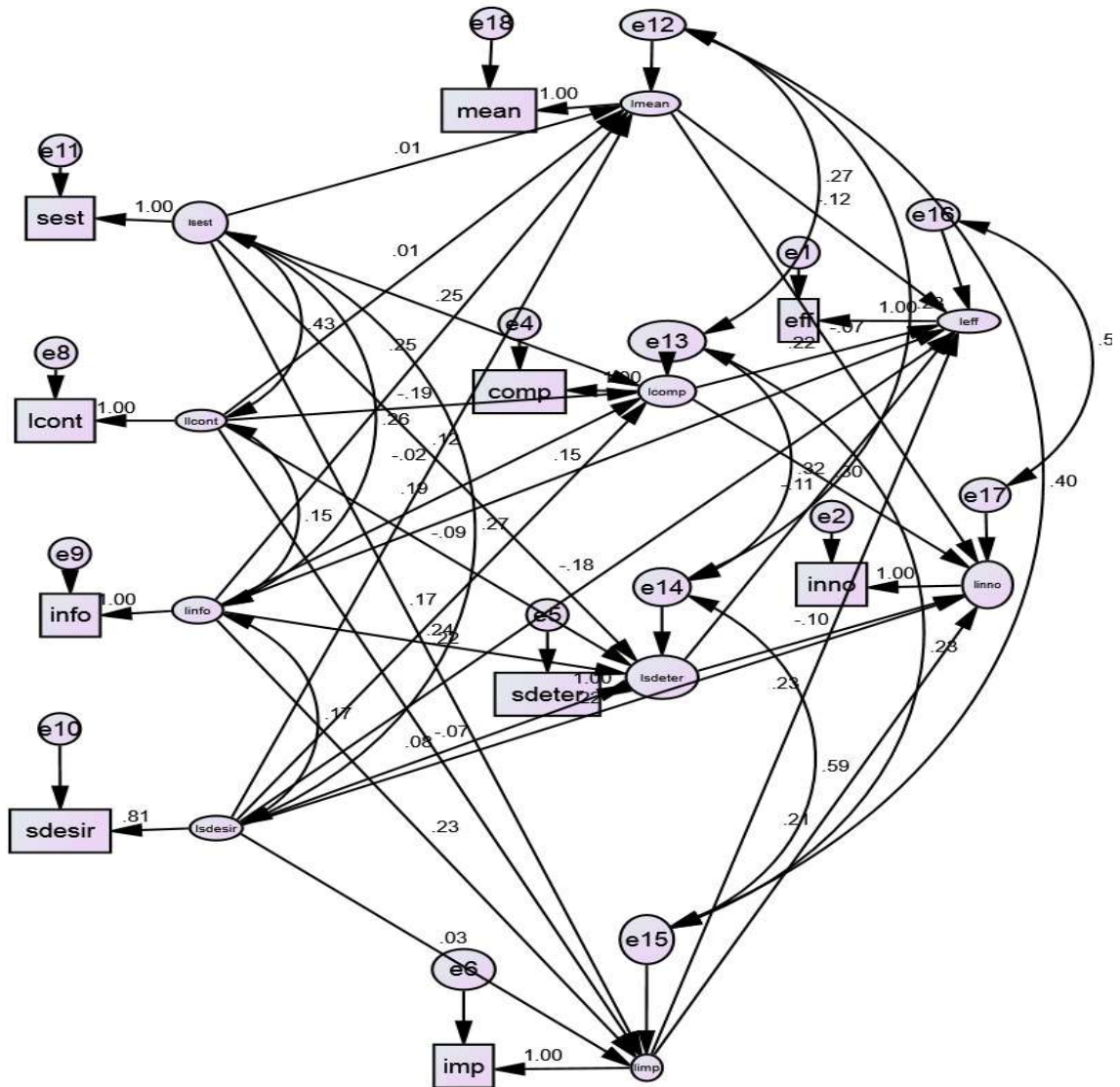
**TABLE 9**  
**GOODNESS-OF-FIT 1ST ORDER FACTOR STRUCTURE**

Chi-Square (df)	15.590 (6)
p-Value	0.02
CFI	0.99
AGFI	0.93
TLI	0.91
SRMR	0.03
RMSEA	0.06
PCLOSE	0.24

**FIGURE 1**  
**FIRST-ORDER FACTOR STRUCTURE**  
**(W/O STRUCTURAL AND MEASUREMENT ERROR CORRECTIONS)**



**FIGURE 2**  
**FIRST-ORDER FACTOR STRUCTURE**  
**(WITH STRUCTURAL AND MEASUREMENT ERROR CORRECTIONS)**



**TABLE 10**  
**COEFFICIENTS AND P-VALUE FOR 1ST ORDER PE CONSTRUCT**

Hypothesis	DV	IV	Coefficients	T-Value	p-Value	Hypothesis Supported?
	Empowerment					
2a		Self-Esteem	0.42	2.72	0.006	Yes
2b		Locus of Control	-0.22	-2.29	0.022	No
2d		Information	0.24	2.44	0.015	Yes
		Social Desirability	0.18	1.82	0.069	
	Effectiveness					
		Information	0.11	2.36	0.018	
3a		Empowerment	0.40	2.37	0.018	Yes
		Social Desirability	-0.26	-3.44	***	
	Innovation					
		Empowerment	0.44	2.45	0.014	Yes
3b		Social Desirability	-0.29	-3.80	***	

To select the more appropriate option between the first-order without correction and second-order with structural and measurement error correction solutions, we tested Hypothesis 6 to identify the better solution for the psychological empowerment construct.

**Hypothesis 6:** *There is one and only one second-order factor structure for the four empowerment dimensions.*

The two options were not nested; hence, we used BCC and BIC comparisons to select the best solution. The first-order model without correction had BCC and BIC values of 116.42 and 308.31, respectively, whereas the second-order factor with structural and measurement error correction had BCC and BIC values of 122.88 and 263.87, respectively. Based on these figures, we surmised that the latter option was the best alternative supporting Hypothesis 6. The model had very good fitness statistics with CMIN/df = 2.57, CFI = 0.96, and SRMR = 0.04.

## EXTENSION

Based on the work of Gange and Deci (2005), we postulated that self-determination and impact combined to create a new construct, what the above-mentioned authors called autonomous motivation. We surmised that this factor captured self-determination and impact in its intrinsic and extrinsic motivation attributes. The combination of the two factors into one comprehensive factor was postulated to make the resultant factor more parsimonious; this is supported by EFA loadings that showed cross loading between the two factors. We used Hypothesis 7 to test the validity of our assertions:

**Hypothesis 7:** *The impact and self-determination constructs can be combined to create one factor, identified as autonomous motivation that will be more parsimonious.*



**TABLE 11**  
**GOODNESS-OF-FIT FOR 2ND ORDER FACTOR STRUCTURE**

Chi-Square (df)	48.81 (19)
p-Value	0.00
CFI	0.96
AGFI	0.93
TLI	0.91
SRMR	0.04
RMSEA	0.06
PCLOSE	0.15

## CONCLUSION

In this research, we replicated Spreitzer's analysis (1995) and extended it by developing an alternative factor structure to make it more parsimonious. Overall, the author successfully captured workplace psychological empowerment construct. Structural and measurement errors seemed to have little impact on the fidelity of the findings, and our model, which accounts for both of the above-mentioned errors, improved upon the author's model slightly.

## FUTURE RESEARCH

Since it has been quite some time since Spreitzer conduct this research, we surmise it will be valuable to test the validity of her model and our extension model in the near future with the original survey instrument and current data. Furthermore, due to significant socio-technical paradigm shifts in the past two decades that have ushered the deployment of considerable numbers of decision support systems and analytical tools, it is probable that underpinnings of workplace empowerment may have changed significantly. With increasing utilizations of ubiquitous sensor, Internet of Things (IOT), AI, big data analytics, co-robots and other Industry 4.0 elements, it will be valuable to test Spreitzer's empowerment construct and possibly develop a new construct that captures the implications these elements.

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## APPENDIX

**Hypothesis 1a:** *There are four distinct psychological empowerment dimensions.*

**Hypothesis 1b:** *Each dimension contributes to the overall impact of the construct (i.e., psychological empowerment in the workplace).*

**Hypothesis 2a:** *Self-esteem is positively related to the psychological empowerment construct.*

**Hypothesis 2b:** *The locus of control is positively related to psychological empowerment.*

**Hypothesis 2c:** *Personality trait markers, self-esteem, and the locus of control are different from the overall psychological empowerment construct.*

**Hypothesis 2d:** *The management approach measure “access to information about the mission of the organization” is positively related to psychological empowerment.*

**Hypothesis 2e:** *The management approach measure “access to information about the performance of the organization” is positively related to psychological empowerment.*

**Hypothesis 2f:** *The individual performance reward system is positively related to psychological empowerment.*

**Hypothesis 3a:** *Psychological empowerment is positively related to managerial effectiveness.*

**Hypothesis 3b:** *Psychological empowerment is positively related to innovative behavior.*

**Hypothesis 4:** *The building blocks of the psychological empowerment construct (i.e., meaning, impact, and self-determination) are invariant.*

**Hypothesis 5:** *Correcting for structural and measurement errors for the first-order factor solution makes a difference in the fidelity of the results.*

**Hypothesis 6:** *There is one and only one second-order factor structure for the four empowerment dimensions.*

**Hypothesis 7:** *The impact and self-determination constructs can be combined to create one factor – autonomous motivation – that yields more parsimonious results.*