

The Validity and Reliability of the Organizational Culture Questionnaire

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Organizational Culture: Summary Tables

Table 1 Index, scale, item

Index	Scale	Item
Involvement	Empowerment	<p>1. Most employees are highly involved in their work.</p> <p>2. Decisions are usually made at the level where the best information is available.</p> <p>3. Information is widely shared so that everyone can get the information he or she needs when it's needed.</p> <p>4. Everyone believes that he or she can have a positive impact.</p> <p>5. Business planning is ongoing and involves everyone in the process to some degree.</p>
	Team Orientation	<p>6. Cooperation across different parts of the organization is actively encouraged.</p> <p>7. People work like they are part of a team.</p> <p>8. Teamwork is used to get work done, rather than hierarchy.</p> <p>9. Teams are our primary building blocks.</p> <p>10. Work is organized so that each person can see the relationship between his or her job and the goals of the organization.</p>
	Capability Development	<p>11. Authority is delegated so that people can act on their own.</p> <p>12. The "bench strength" (capability of people) is constantly improving.</p> <p>13. There is continuous investment in the skills of employees.</p> <p>14. The capabilities of people are viewed as an important source of competitive advantage.</p> <p>15. Problems often arise because we do not have the skills necessary to do the job. (Phrasing & answer reversed)</p>
Consistency	Core Values	<p>16. The leaders and managers "practice what they preach."</p> <p>17. There is a characteristic management style and a distinct set of management practices.</p> <p>18. There is a clear and consistent set of values that governs the way we do business.</p> <p>19. Ignoring core values will get you in trouble.</p> <p>20. There is an ethical code that guides our behavior and tells us right from wrong.</p>
	Agreement	<p>21. When disagreements occur, we work hard to achieve "win-win" solutions.</p> <p>22. There is a "strong" culture.</p> <p>23. It is easy to reach consensus, even on difficult issues.</p> <p>24. We often have trouble reaching agreement on key issues. (Phrasing & answer reversed)</p> <p>25. There is a clear agreement about the right way and the wrong way to do things.</p>
	Coordination and Integration	<p>26. Our approach to doing business is very consistent and predictable.</p> <p>27. People from different parts of the organization share a common perspective.</p> <p>28. It is easy to coordinate projects across different parts of the organization.</p> <p>29. Working with someone from another part of this organization is like working with someone from a different organization. (Phrasing & answer reversed)</p> <p>30. There is good alignment of goals across levels.</p>

Table 2 (Continued). Index, scale, item

Index	Scale	Item
Adaptability	Creating Change	31. The way things are done is very flexible and easy to change. 32. We respond well to competitors and other changes in the business environment. 33. New and improved ways to do work are continually adopted. 34. Attempts to create change usually meet with resistance. (Phasing & answer reversed) 35. Different parts of the organization often cooperate to create change.
	Customer Focus	36. Customer comments and recommendations often lead to changes. 37. Customer input directly influences our decisions. 38. All members have a deep understanding of customer wants and needs. 39. The interests of the customer often get ignored in our decisions. (Phasing & answer reversed) 40. We encourage direct contact with customers by our people.
	Organizational Learning	41. We view failure as an opportunity for learning and improvement. 42. Innovation and risk taking are encouraged and rewarded. 43. Lots of things "fall between the cracks". (Phasing & answer reversed) 44. Learning is an important objective in our day-to-day work. 45. We make certain that the "right hand knows what the left hand is doing."
Mission	Strategic Direction & Intent	46. There is a long-term purpose and direction. 47. Our strategy leads other organizations to change the way they compete in the industry. 48. There is a clear mission that gives meaning and direction to our work. 49. There is a clear strategy for the future. 50. Our strategic direction is unclear to me. (Phasing & answer reversed)
	Goals & Objectives	51. There is widespread agreement about goals. 52. Leaders set goals that are ambitious, but realistic. 53. The leadership has "gone on record" about the objectives we are trying to meet. 54. We continuously track our progress against our stated goals. 55. People understand what needs to be done for us to succeed in the long run.
	Vision	56. We have a shared vision of what the organization will be like in the future 57. Leaders have a long-term viewpoint. 58. Short-term thinking often compromises our long-term vision. (Phasing & answer reversed) 59. Our vision creates excitement and motivation for our employees. 60. We are able to meet short-term demands without compromising our long-term vision.

Strategy of Data Analysis

1. Data analysis procedure

I estimated four measurement models for each index (Involvement, Consistency, Adaptability, Mission) separately. It was an item-level analysis; 15 items in each index were analyzed to check whether three scales (3 latent constructs) were extracted from 15 items. As a first step, it was to identify the presence of latent constructs (scales) in the OC questionnaire. It was to check “dimensionality” of the questionnaire.

Analysis methods: Factor analysis: exploratory factor analysis (factor loading tables) and confirmatory factor analysis (RMSEA and fit statistics)

Then for each pair of indexes, I combined them two by two and then estimated six measurement models for all indexes. It was a scale-level analysis; six scales (3 scale from each index) were analyzed to see how six scales were interrelated to each other.

Finally, I estimated a structural equation model for the indexes jointly with the measurement models.

2. My Check list: Did I do this?

Refinement Procedures	Reason	Methods	Check Here
Dimensionality	Identifying the presence of subfactors or superordinate factors in an instrument	Factor analysis: both exploratory and confirmatory factor analytic techniques are integral to this process.	Done
Item-level statistical analysis	This property should be reflected in an empirical finding that item scores are highly intercorrelated; the tendency to endorse one construct indicator should be associated with the tendency to endorse other, alternative construct indicators.	Empirical indicators of item consistency include item-total correlations; interitem correlations; alpha value changes when items are deleted; and, in the case of factor analysis, factor loadings.	Done
Content-based item-level analysis	item content be judged to represent the content domain of the construct accurately.		When the OCQ was developed
Independent sample replication	replicating measure refinements on an independent sample; the more rigorous process of conducting item-level refinements on one sample and then replicating measure performance on a second sample.	refinement or replication necessary	Done
Assessment of discriminant validity	cases were rated successful on this criterion if they reported any tests of discriminant validity, including either reports that some factors correlated with a criterion but others did not or more rigorous, convergent and discriminant validity investigations.		Done

Organizational Culture: Summary Tables

Table 3 Pearson's correlation of the 12 organizational culture scale; Numbers inside the parenthesis are coefficient alpha. (N=36542)

Scales Variable	Mean	S.D.	1	2	3	4	5	6	7	8	9	10	11	12
1. Empowerment	3.19	.73	(.77)											
2. Team	3.30	.80	.75	(.83)										
3. Capability development	3.31	.71	.66	.67	(.70)									
4. Core value	3.45	.67	.60	.61	.58	(.70)								
5. Agreement	3.12	.68	.64	.66	.63	.65	(.75)							
6. Coordination & Integration	3.00	.73	.62	.64	.58	.56	.65	(.76)						
7. Creating Change	3.06	.70	.59	.60	.59	.49	.61	.63	(.76)					
8. Customer Focus	3.36	.69	.48	.48	.48	.44	.49	.50	.53	(.73)				
9. Organizational Learning	3.06	.73	.67	.68	.66	.58	.67	.65	.67	.54	(.75)			
10. Strategic Direction	3.34	.80	.59	.59	.58	.57	.58	.59	.59	.49	.63	(.85)		
11. Goals & Objectives	3.38	.71	.62	.62	.60	.60	.61	.61	.59	.51	.64	.74	(.80)	
12. Vision	2.97	.71	.62	.62	.60	.56	.62	.62	.63	.50	.69	.73	.72	(.78)

Table 4 Descriptive Statistics and Alpha Coefficients for the Organizational Culture Questionnaire (N=36542) (After deleting the missing values: N = 36542).

4 Indexes & 12 Scales	# items	N	Mean	SD	α (Cronbach coefficient alpha for inter-items)	α (Cronbach coefficient alpha from 15 inter-items)	α (Cronbach coefficient alpha from 3 scales)
Involvement						.90	.87
Empowerment	5	36542	3.19	.73	.77		
Team Orientation	5	36542	3.30	.80	.83		
Capability Development	5	36542	3.31	.71	.70		
Consistency						.88	.83
Core Values	5	36542	3.45	.67	.70		
Agreement	5	36542	3.12	.68	.75		
Coordination and Integration	5	36542	3.00	.73	.78		
Adaptability						.87	.81
Creating Change	5	36542	3.06	.70	.76		
Customer Focus	5	36542	3.36	.69	.73		
Organizational Learning	5	36542	3.06	.73	.75		
Mission						.92	.89
Strategic Direction & Intent	5	36542	3.34	.80	.85		
Goals & Objectives	5	36542	3.38	.71	.80		
Vision	5	36542	2.97	.71	.78		

Table 5 Item-total correlations, interitem correlations, alpha value changes when items are deleted, N, Mean, S.D. (N=36542)

Index	Scale	Item	Item-Total Correlation	Alpha after deleting this item	N	Mean	S.D.
Involvement $\alpha = .9$	Empowerment $\alpha = .77$	1	.45	.76	36542	3.8	.85
		2	.60	.71	36542	3.04	1.04
		3	.59	.72	36542	2.97	1.10
		4	.57	.72	36542	3.12	1.01
		5	.53	.74	36542	3.05	1.05
	Team Orientation $\alpha = .83$	6	.58	.80	36542	3.44	1.02
		7	.70	.77	36542	3.33	1.07
		8	.62	.79	36542	3.22	1.08
		9	.64	.79	36542	3.37	1.03
		10	.57	.81	36542	3.14	1.00
	Capability Development $\alpha = .70$	11	.45	.66	36542	3.29	1.05
		12	.54	.62	36542	3.23	.95
		13	.57	.61	36542	3.27	1.09
		14	.56	.61	36542	3.47	1.00
		15	.22	.75	36542	3.27	1.11
Consistency $\alpha = .88$	Core Values $\alpha = .70$	16	.46	.65	36542	2.98	1.09
		17	.39	.68	36542	3.30	.95
		18	.59	.59	36542	3.41	1.03
		19	.35	.69	36542	3.73	.93
		20	.50	.64	36542	3.80	.93
	Agreement $\alpha = .75$	21	.56	.68	36542	3.31	.99
		22	.43	.73	36542	3.38	.95
		23	.61	.67	36542	2.92	.91
		24	.47	.72	36542	3.04	.96
		25	.50	.71	36542	3.13	1.00
	Coordination & Integration $\alpha = .76$	26	.43	.77	36542	3.21	1.01
		27	.59	.72	36542	3.02	.99
		28	.62	.71	36542	2.70	.98
		29	.52	.75	36542	2.94	1.09
		30	.60	.72	36542	3.14	.94

Table 6 Item-total correlations, interitem correlations, alpha value changes when items are deleted, N, Mean, S.D.

Index	Scale	Item	Item-Total Correlation	Alpha after deleting this item	N	Mean	S.D.
Adaptability $\alpha = .87$	Creating Change $\alpha = .76$	31	.57	.71	36542	2.77	1.06
		32	.52	.72	36542	3.29	.97
		33	.62	.69	36542	3.32	1.00
		34	.46	.74	36542	2.75	1.00
		35	.49	.74	36542	3.18	.88
	Customer Focus $\alpha = .73$	36	.57	.66	36542	3.35	.93
		37	.60	.65	36542	3.48	.94
		38	.46	.70	36542	3.01	1.06
		39	.52	.68	36542	3.43	1.02
		40	.35	.74	36542	3.51	1.00
	Organizational Learning $\alpha = .75$	41	.53	.69	36542	3.28	1.01
		42	.52	.70	36542	2.88	1.06
		43	.48	.72	36542	2.70	1.11
		44	.46	.72	36542	3.71	.97
		45	.57	.68	36542	2.73	1.06
Mission $\alpha = .92$	Strategic Direction & Intent $\alpha = .85$	46	.69	.82	36542	3.59	.98
		47	.49	.87	36542	3.19	.94
		48	.74	.81	36542	3.42	.97
		49	.79	.79	36542	3.37	.99
		50	.64	.83	36542	3.14	1.15
	Goals & Objectives $\alpha = .80$	51	.60	.76	36542	3.16	.92
		52	.58	.77	36542	3.30	.99
		53	.59	.77	36542	3.58	.90
		54	.57	.77	36542	3.57	.92
		55	.60	.76	36542	3.30	.99
	Vision $\alpha = .78$	56	.63	.72	36542	3.00	.98
		57	.63	.72	36542	3.28	.98
		58	.37	.80	36542	2.58	.96
		59	.60	.73	36542	2.89	1.01
		60	.59	.73	36542	3.10	.92

Table 7 Inter-scale alpha

	Alpha from 15 items	Alpha from 3 scales
Involvement	.90	.87
Consistency	.88	.83
Adaptability	.87	.81
Mission	.92	.89

Table 8 Relationship of each scale within and between indexes (For the best-fit model candidates)

		Organizational Culture			
Index	Scale	Involvement	Consistency	Adaptability	Mission
Involvement	Empowerment	***			
	Team Orientation	***			
	Capability Devel.	***		** (.20)	
Consistency	Core Values		***	* (-.67)	
	Agreement	* (-.75)	***	* (-.55)	* (-.37)
	Coord. & Integration		***		* (-.19)
Adaptability	Creating Change			***	
	Customer Focus			***	
	Org. Learning	** (.21)	** (.46)	***	
Mission	Strategic Direction	* (-.17)	* (-.67)	* (-.29)	***
	Goals & Objectives				***
	Vision				***

*** Three scales in each index (Within scale relationship)

** Significant positive relationship with other scales (Between scale relationship)

* Significant negative relationship with other scales (Between scale relationship)

Table 9 Relationship of each scale within and between indexes (The best-fit model)

		Organizational Culture			
Index	Scale	Involvement	Consistency	Adaptability	Mission
Involvement	Empowerment	***			
	Team Orientation	***			
	Capability Devel.	***			
Consistency	Core Values		***	* (-.51)	
	Agreement	* (-.21)	***		* (-.29)
	Coord. & Integration		***		
Adaptability	Creating Change			***	
	Customer Focus			***	
	Org. Learning			***	
Mission	Strategic Direction		* (-.25)		***
	Goals & Objectives				***
	Vision				***

*** Three scales in each index (Within scale relationship)

* Significant negative relationship with other scales (Between scale relationship)

Table 10 Rotated factor matrix: Factor loadings by maximum likelihood method for the "Involvement" scale data

Items	Factor 1	Factor 2	Factor 3	Final Communality
1	.24	.39	.23	.26
2	.31	.58	.25	.49
3	.29	.60	.26	.51
4	.36	.46	.28	.42
5	.35	.42	.31	.39
6	.43	.39	.30	.42
7	.59	.42	.28	.61
8	.61	.33	.20	.52
9	.68	.21	.24	.56
10	.40	.45	.29	.45
11	.38	.37	.31	.38
12	.31	.30	.49	.43
13	.21	.22	.69	.57
14	.29	.26	.59	.50
15	.06	.18	.20	.08
Variance explained by each factor (weighted)	4.87	4.32	3.81	

Table 11 Rotated factor matrix: Factor loadings by maximum likelihood method for the "Consistency" scale data

Items	Factor 1	Factor 2	Factor 3	Final Communality
16	.43	.27	.39	.41
17	.44	.15	.12	.23
18	.64	.28	.24	.55
19	.44	.06	.04	.20
20	.58	.10	.17	.38
21	.41	.24	.48	.46
22	.49	.21	.23	.36
23	.24	.29	.63	.54
24	.13	.24	.58	.42
25	.47	.31	.31	.41
26	.47	.32	.18	.35
27	.27	.60	.17	.47
28	.15	.70	.24	.57
29	.12	.57	.24	.40
30	.37	.54	.26	.49
Variance explained by each factor (weighted)	4.28	4.04	3.03	

Table 12 Rotated factor matrix: Factor loadings by maximum likelihood method for the "Adaptability" scale data

-- Problematic

Items	Factor 1	Factor 2	Factor 3	Final Communality
31	.58	.12	.21	.40
32	.50	.27	.21	.37
33	.65	.22	.22	.52
34	.41	.05	.34	.29
35	.51	.19	.21	.34
36	.23	.75	.11	.62
37	.15	.84	.11	.74
38	.33	.27	.40	.34
39	.18	.44	.46	.43
40	.32	.21	.19	.18
41	.55	.13	.20	.36
42	.57	.15	.19	.39
43	.33	.11	.58	.46
44	.50	.11	.18	.29
45	.47	.11	.48	.46
Variance explained by each factor (weighted)	5.02	5.13	2.42	

Table 13 Rotated factor matrix: Factor loadings by maximum likelihood method for the "Mission" scale data

Items	Factor 1	Factor 2	Factor 3	Final Communality
46	.36	.57	.33	.57
47	.34	.37	.19	.29
48	.44	.58	.35	.65
49	.33	.79	.28	.82
50	.30	.59	.31	.53
51	.44	.38	.38	.48
52	.44	.26	.43	.45
53	.15	.27	.73	.62
54	.25	.24	.56	.43
55	.53	.33	.37	.52
56	.56	.41	.31	.57
57	.51	.38	.31	.51
58	.39	.15	.05	.17
59	.58	.31	.30	.53
60	.61	.22	.20	.46
Variance explained by each factor (weighted)	6.12	8.00	4.80	

Table 14 Goodness-of-fit for measurement models (2² structure models)

Model	c²	df	RMSEA	NFI	CFI	AGFI	RMSR
Involvement * Consistency	384.25	7	.038	.997	.997	.990	.0042
Involvement * Adaptability	62.42	6	.016	1	1	.998	.0017
Involvement * Mission	463.37	7	.042	.997	.997	.987	.0064
Consistency * Adaptability	226.44	5	.035	.998	.998	.991	.0039
Consistency * Mission	329.17	5	.042	.998	.998	.987	.0035
Adaptability * Mission	625.57	7	.049	.995	.995	.983	.0053
Involvement * Consistency * Adaptability * Mission	3177.74	44	.044	.990	.990	.975	.0071

Figure 1 The hypothetical Model

Chi-square=4905.34, df=48, p=.0000, RMSEA = .053

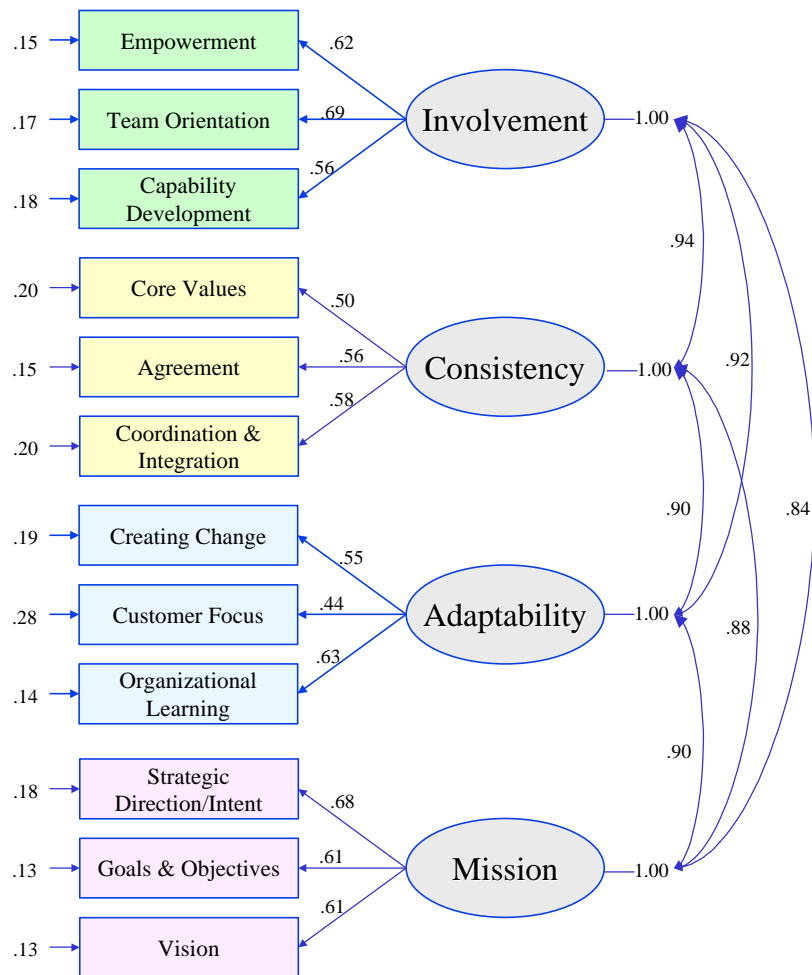


Figure 2 The best fit model:

Chi-square=3177.74, df=44, p=.0000, RMSEA = .044

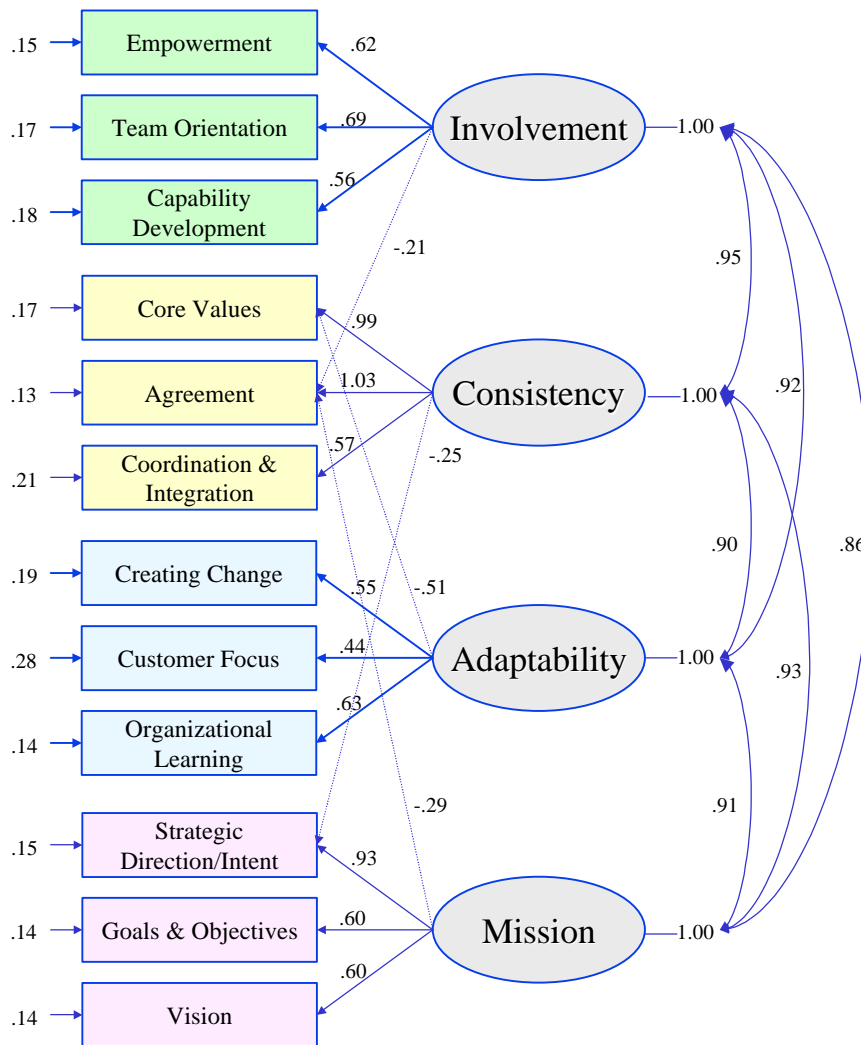


Figure 3 The best fit model:

Chi-square=3177.74, df=44, p=.0000, RMSEA = .044 (same as Figure2)

