Organisational inertia: the OI Scale's applicability in an Australian context

Gert Roodt &
C Kinnear
Department of Industrial Psychology,
Rand Afrikaans University, South Africa

and

Ronel Erwee,
Don Smith,
Bernadette Lynch
Bruce Millett,
University of Southern Queensland, Australia

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Correspondence to:
Professor R Erwee
Faculty of Business,
University of Southern Queensland,
Toowoomba QLD 4350 Australia
Fax (07) 46 31 1533
Erwee@usq.edu.au

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ABSTRACT

This paper investigates if the metric qualities of the South African Organisational Inertia Survey have cross-cultural equivalence in the Australian context. The underlying theoretical model and research in South Africa is discussed and problems associated with assuming cross cultural equivalence of measuring instruments are noted. The results show that a single factor structure with as high internal consistency was extracted in contrast to the South African results of two factors and a high internal consistency. The conclusion from the results is that the instrument's validity and consistency within an Australian context is confirmed A recommendation is that the model and measuring instrument used in this study need revision given recent trends in related systems and chaos theory.

ORGANISATIONAL INERTIA

Organisations are under pressure to adapt to the continuous and increasing number of changes in the external environment but in many instances fail to. The evolutionary path that the term organisational inertia has taken will not be explored here but it should be noted that inertia has featured in various guises over time in the literature, and has acquired a wide meaning in the contemporary literature. Within an organisational context the concept of inertia indicates the tendency to remain within the status quo and the resistance to strategic renewal outside the current frame of strategy change (Kinnear & Roodt 1998b, p.142). These authors note that ironically there is a momentum inherent in inertia that retards change, but also contributes to the gathering of momentum that propels organisations forward (not always in the desired direction).

Various earlier models of planned change have assisted in laying the conceptual foundations for inertia. Resistance to change is regarded as one of the concepts most closely linked with organisational inertia (Kinnear & Roodt, 1998a). For example, Lewin advocated that organisational behaviour is influenced at any time by the relative strengths of those forces pushing for and against change (Dent & Goldberg, 1999). Using force field analysis Lewin (1951) separated factors that can impede a program of change and this separation of factors for and against change provides change agents with quite different levers for change, viz strategies which attempt to limit resistance, and strategies that promote the need for change. In many situations of impending and substantial change, the most effective program are those that combine the two strategies.

Burke and Litwin as well as Burke (Erwee & Pantke, 1997; Kinnear & Roodt 1998a) developed a systems model of change in two dimensions, which they defined as transformational and transactional. The transformational dimension of organisational change deals with the external environment, the mission and strategy, leadership, and organisational culture as the primary determinants of individual and organisational performance. From the interactions among the transformational determinants of change, and individual and organisational performance it is evident that the environmental impetus for change is moderated to a large extent by leadership. The dynamics of the transactional dimension of organisational change, on the other hand, deal with management practices, structure, systems,

work unit climate, task requirements and individual skills and abilities, motivation, and individual needs and values, as the secondary determinants of individual and organisational performance. Furthermore, the transactional dimension of the Burke-Litwin model recognises that management practices collectively are the most important determinant of structure, systems and work unit climate. The distinction between two dimensions of organisational change facilitates selective change intervention in transformational variables, or in transactional variables, or in both.

The Burke-Litwin model offers a frame-breaking view of factors that have the potential to undermine desired change. For instance, Burke (1992, p.129) proposes that the transformational variables are inherently more powerful influences on the organisation's orientation to change. Larsen and Lomi (1999, p.406) support this view in their argument that various structural elements are typically linked to the development of organisational inertia, and this build-up precedes any real learning on the back of workplace experience. However, while there is widespread support in the literature for the impact of transformational variables such as leadership on the acceptance of change, there are equally compelling arguments that betrayal of psychological contract and other more transactional variables cannot be considered as lesser determinants. The appeal in separating transformational and transactional variables is moderated by Burke's attempts to weight these change dynamics. However, anecdotal evidence appears at odds with these weightings, and workplace experiences reflect the best-intentioned programs can be derailed because insufficient attention is given to the 'softer' elements of management, such as job satisfaction and motivation.

The Kinnear et al (1998b, p.143) research indicate that "organisational inertia is not the result of external forces or the strategic decisions made in a company, but rather stems from the operational level and the prevailing culture in organisations. That is how individuals and work teams deal with change in their companies and how the change process is managed". The authors conclude that organisational inertia can be mitigated through improved people-management practices during change initiatives. They recommend the testing of the instrument in culturally diverse environments.

Cross cultural equivalence of surveys

As the socio-economic, legal and political contexts differ between societies, researchers cannot assume that models and surveys piloted in South Africa have cross-cultural equivalence in an Australian context (Adler 1997). When testing a model developed in a particular context in another country, issues such as a lack of semantic equivalence across languages in a survey, a lack of conceptual equivalence of models across cultures and normative differences are relevant in interpreting results (Behling & McFillen, 1997; Du Babcock & Babcock, 1997). The implication for cross national research is that questionnaires in the English language that are reliable in one country may contain concepts or phrases that are not interpreted consistently in another English speaking country. If an instrument is being simultaneously developed in several languages, the preferred method involves de-centering (Greer & Greer 1998).

With regard to conceptual equivalence, Gray (1995), Burns, Myers and Kakabadse (1995) and Kakabadse and Myers (1996) present evidence that national cultural characteristics and other factors influence theoretical models on which surveys are based. South African

organisational cultures and structures are based on western management philosophies but as the country is undergoing rapid, if not traumatic, these models have been questioned (Christie, Lessem & Mbigi 1994). Therefore a management philosophy that incorporates South African indigenous worldviews is being developed. However a reality is that a learning orientation must prevail in organisational cultures to survive and grow competitive in the African as well as global contextual realities (Mphiti 1995).

These perspectives about the embeddedness of research in national cultures influence the development of South African surveys such as the Organisational Inertia Survey. The models by Burke & Litwin and the adapted Burke-Litwin model by Kinnear and Roodt (1998) of organisational inertia are both based on systems theory and used positivist research paradigms to construct and validate the survey. The aim of this paper is therefore to assess the cross cultural equivalence of this South African survey of Organisational inertia in an Australian context.

The research issue is therefore whether the metric properties of the OIS persist in the Australian context?

METHOD

The sample

The researchers at USQ approached the Australian Institute of Managers (AIM) to participate in the research program. Permission was obtained from the Council and the USQ project was selected as one of three projects that the Institute supported during 1999.

The researchers negotiated the sampling frame to be 2000 members completing the OIS and another equal sample completing another survey out of a database of 4021 personal and company members in Queensland and the Northern Territories. This is a convenience sample implying that the findings cannot be generalised to other managerial samples in different parts of the country.

Previous AIM research indicated that low response (8 to 10%) rates are common as members are ‘over-surveyed’. In this project 293 surveys were returned – a response rate of 15 percent. As this sample size was insufficient for the type of factor analysis envisaged, further convenience samples were sought. Two researchers negotiated with members of an MBA class in Strategic Management to complete and return the surveys and a response rate of 82 percent was achieved (29 surveys). In addition managers in a Human Resources course of a public sector firm undergoing significant changes were approached to complete the survey and a 23 percent response rate was obtained from this group. These convenience samples imply that the results cannot be generalised to other managerial samples.

The biographical characteristics of the sample are described in Table 1.

Insert Table 1 about here

It appears from Table 1 that the majority of the respondents was male; were working in the area of general management; in a middle and senior management level; were graduated and between the ages of 41 and 50.

Measuring instrument

An adapted Burke-Litwin model was constructed by Kinnear et al (1998a) to categorise and synergise the overlapping dimensions of organisational inertia found in the literature. The model served as a basis to generate 109 items with a seven point Likert scale. A sample of convenience was drawn from various management levels in South African companies in five industry sectors. A response rate of 64% was achieved as 617 questionnaires out of 963 were returned. A first order and second order factor analyses followed by an iterative item analysis were conducted. The first factor *Organisational Inertia* consist of 94 items with the majority of item-test correlations between 0,5 and 0,7, item reliabilities indices between 0,34 to 1,00 and an internal consistency (Cronbach alpha) of 0,981. The second factor consisted of 15 items with item-test correlations between 0,32 to 0,71, item reliability indices between 0,47 and 1,00 and an internal consistency of 0,88. This factor was labelled *External change forces, change strategy and imposed personal demands*. A positivist research paradigm was followed.

Permission to use the OIS in Australia was conditional on the data-analysis and factor analysis being done by the research team members in South Africa.

Research procedure

To initially increase the response rate the AIM Managing Director provided a letter of support to the project and the project was highlighted in an article in the AIM Newsletter that accompanied the mail-out. A further report on the progress of the project was prepared for the newsletter but not published due to space and time constraints. The managers involved in the Human Resource course also received a letter from the corporate office encouraging them to complete the survey. Managers in the MBA class had participated in workshops with the researchers and had the opportunity to complete surveys after the workshop.

The OIS was neatly printed in book format and respondents could answer questions on a seven point scale by merely checking / crossing the relevant answer.

To maintain confidentiality of members' personal details, USQ prepared the surveys and AIM mailed the surveys to members. The same procedure was followed for managers in the Human Resources class whereas the MBA class participants also completed the surveys anonymously.

Statistical analysis

The Statistical Consultation Service of the Rand Afrikaans University conducted the statistical analyses. For the factor analyses a procedure suggested by Schepers (1992) was used. An iterative item analysis procedure was conducted on the NP50 program of the National Institute of Personnel Research (NIPR).

RESULTS

The first factor analysis on the item inter-correlation matrix

The 109 items of the OIS were firstly inter-correlated and rotated to a simple structure by a Varimax rotation. Owing to the size and limited space, the inter-correlation matrix can not be reproduced here. According to Kaiser's (1961) criterion, (eigenvalues larger than one), 20 factors were postulated. These 20 factors explain about 72,5% of the variance in the factor space. A Principal Axis Factoring procedure was used in extracting the factors.

Only 19 factors had significant item loadings, therefore 19 Simplified Factor Scores (SFS) were calculated and inter-correlated. The inter-correlation matrix of the SFS (19 X 19) appears in Table 2.

Insert Table 2 about here

The second factor analysis on the SFS inter-correlation matrix

Four factors were postulated by using Kaiser's (1961) criterion. The eigenvalues of the unreduced inter-correlation matrix appear in Table 3. These four factors explain 59,86% of the variance in the factor space. Three of those factors were non-determined (ie. had only two or less SFS loading on them), therefore the factor structure was forced into a single factor solution.

Insert Table 3 about here

The unrotated factor matrix of the single OIS factor appears in Table 4.

Insert Table 4 about here

It appears from Table 4 that factor loadings on the single postulated factor vary between 0,155 and 0,936.

According to the iterative item analysis the OIS yielded an internal consistency (Cronbach Alpha) of 0,988. Fifteen items were omitted during the iterative item analysis. Further items were omitted after iteration 22, but with no improvement in the reliability index. The item statistics appear in Table 5.

Insert Table 5 about here

One can infer from Table 5 that the Gulliksen (1950) reliability indices vary between 0,026 and 1,653 with only 38 items having reliabilities lower than one. The item – test correlations vary between 0,017 and 0,872. The skewness coefficients vary between –0,978 and 0,761.

DISCUSSION

The results of the factor analyses and the item analysis indicate that the OIS is equally appropriate in the Australian context. The factor analyses yielded a single factor with a high internal consistency, which is slightly higher than the 0,981 of the South African sample. Only a single factor was extracted, in comparison with the two factors in the South African sample. The theoretical dimensions were replicated successfully in the Australian sample and all of them had high factor loadings. The dimension with the lowest factor load is similar

to the second factor in the South African sample namely the "external forces for change". It seems that the Australian sample perceives this dimension as an inertia-contributing factor, as opposed to the South African sample.

The internal consistency, however, hints that the construct "organisational inertia" was measured effectively in the Australian context with a minimum amount of error variance. It appears that the OIS can be used successfully in Australia and that it is not affected by a "different" culture. This can probably be ascribed to the fact that South Africa and Australia have a similar or shared "western" business culture.

Items that were omitted during the iterative item-analysis overlap largely with the items included in factor II in the SA sample or the items that were omitted in the item analysis procedure. It seems as if the items finally included in the Australian and South African samples are largely overlapping.

In future the research team will investigate how current measuring instruments and research paradigms need to be adapted to reflect the evolution of theories about organisations (Strickler & Law in Anderson 2000). Models based on chaos and complexity theories may affect research on organisational inertia and how the OIS and methodologies for organisational inertia can be adapted to reflect the emerging theoretical models. This will assist in re-assessing guidelines for managers to manage organisations that are non-linear systems in far-from equilibrium states (Millett, 1998).

References

Adler, N. (1997). *International Dimensions of Organisational Behavior*. Wadsworth Publishing Company: Belmont, California.

Behling, O. & McFillen, J.M. (1997). Translating questionnaires: personal experiences and general conclusions. *Proceedings of the 14 Th. Pan Pacific Conference*, Kuala Lumpur Malaysia, 3-5 June, p10-12.

Burke, W. W & Litwin, GH 1992. A Causal Model of Organisational Performance and Change. Journal of Management, 18 (3) 532-545.

Burns, P., Myers, A. & Kakabadse, A. (1995). Are national stereotypes discriminating, *European Management Journal*, 13(2) 212-217.

Christie P, Lessem, R. & Mbigi, L. (1994). *African Management - Philosophies, Concepts and Applications.* Press: Johannesburg.

Dent, E.B. & Goldberg, S.G., 1999, Challenging "resistance to change" *Journal of Applied Behavioral Science*, March, vol.35, no.1 P.25.

Du Babcock, B. & Babcock, R.D. (1997). An analysis of patterns of communication function in multinational corporations: an expatriate perspective. *Proceedings of the 14th Pan Pacific Conference*, Kuala Lumpur, 3-5 June, p 1-3.

Erwee, R. & Pantke, F.T. (1997). The impact of structured interventions on organisational performance. Presented as a poster and abstract in the *Best Paper and Abstract Proceedings of the Australian Industrial and Organisational Psychology 2nd biennial Conference*, Melbourne June 29, p 74 1997

Gray, S. (1995). Cultural perspectives on the measurement of corporate success, *European Management Journal*, 13(3): 269-275.

Greer, J.M. & Greer, T., (1998). Cultural issues in Instrumentation and Survey research: Problems and Prospects, The 3rd *International Conference on Management* (ICM'98), July 25-28 Shanghai, China,

Gulliksen, H. (1950). *Theory of mental tests*. New York: John Wiley.

Kaiser, H.F. (1961). A note on Guttman's lower bound for the number of common factors. *British Journal of Statistical Psychology, 14*(1), 1.

Kakabadse, A. & Myers, A. (1996). Boardroom skills for Europe. *European Management Journal* 14(2): 189-200.

Kinnear, C. & Roodt, G. (1998a). The development of an instrument for measuring organisational inertia. *Journal of Industrial Psychology, 24*(2), 44-54.

Kinnear, C. & Roodt, G. (1998b) The development of an integrative model for assessing organisational inertia. *Proceedings of the Pan-Pacific Conference XV*, Seoul June 1-3, p 142-144.

Larsen, E.R. & Lomi, A., 1999, Resetting the clock:a feedback approach to the dynamics of organisational inertia, survival and change, Journal of the Operational Research Society, April, vol.50, no.4, p.406.

Lewin, K. 1951, Field Theory in Social Science, Harper and Row, NY.

Millett, B. (1998). *Understanding Organisations: The Dominance of Systems Theory*. Working paper, Department of Human Resource Management, University of Southern Queensland .

Mphiti ,D. (1995). The Management of Change. *Entrepreneur,* 14(3): 16-17.

Perry, C., Riege, A. & Brown, L. (1998). *Realism Rules OK: Scientific Paradigms in Marketing Research about Networks*. Paper presented at the ANZMAC conference December 1998.

Schepers, J.M. (1992). *Toetskonstruksie: Teorie en Praktyk*. Johannesburg: Rand Afrikaans University publishers.

Strickler, D. & Law, B., **2000,** Fast Cycle Learning, in Anderson, M., 2000, Fast Cycle Organisational Development, South-Western College Publishing, Cincinnati.

TABLE 1 Biographical characteristics of the sample

Variable	Frequency	Percentage
Gender		
Male	248	72,9
Female	91	26,8
Missing values	1	0,3
Total	340	100
Area of work		
General Manager	140	41,2
HR / Personnel	31	9,1
Training / Education	29	8,5
Other	137	40,3
Missing Values	3	0,9
Total	340	100
Management Level		
Supervisory management	36	10,6
Junior management	17	5,0
Middle management	145	42,6
Senior management	135	39,7
Missing Values	7	2,1
Total	340	100
Highest Academic Qualific.		
Lower than 12 years	14	4,1
12 years	14	4,1
12 years and diploma	58	17,1
Undergraduate degree	106	31,2
Post-grad degree	148	43,5
Missing Values	0	0
Total	340	100
Age		
21 – 30	25	7,4
31 – 40	92	27,0
41 – 50	158	46,4
51 – 60	58	17,1
61 – 70	5	1,5
71 – 80	1	0,3
Missing values	1	0,3
Total	340	100

TABLE 2

Correlation matrix of the simplified factor scores (19 x 19)

	SFS1	SFS2	SFS3	SFS4	SFS5	SFS6	SFS7	SFS8	SFS9	SFS10	SFS11	SFS12	SFS13	SFS14	SFS15	SFS16	SFS17	SFS18	SFS19
SFS1	1,00																		
SFS2	0,813	1,00																	
SFS3	0,805	0,820	1,00																
SFS4	0,714	0,776	0,792	1,00															
SFS5	0,582	0,592	0,662	0,576	1,00														
SFS6	0,628	0,609	0,686	0,600	0,542	1,00													
SFS7	0,542	0,643	0,714	0,591	0,616	0,561	1,00												
SFS8	0,555	0,567	0,591	0,509	0,394	0,456	0,492	1,00											
SFS9	0,635	0,616	0,643	0,502	0,523	0,473	0,528	0,536	1,00										
SFS10	0,416	0,260	0,223	0,270	0,166	0,230	0,163	0,075	0,138	1,00									
SFS11	0,559	0,453	0,493	0,487	0,317	0,379	0,349	0,316	0,317	0,317	1,00								
SFS12	0,481	0,334	0,373	0,339	0,239	0,277	0,204	0,190	0,156	0,213	0,353	1,00							
SFS13	0,127	0,188	0,187	0,176	0,115	0,124	0,161	0,210	0,194	-0,069	0,197	0,179	1,00						
SFS14	0,578	0,570	0,537	0,415	0,342	0,412	0,433	0,281	0,424	0,297	0,344	0,247	0,055	1,00					
SFS15	0,536	0,541	0,599	0,521	0,478	0,492	0,388	0,308	0,432	0,083	0,307	0,265	0,153	0,343	1,00				
SFS16	0,308	0,291	0,293	0,335	0,247	0,248	0,292	0,264	0,217	0,053	0,203	0,123	0,183	0,184	0,148	1,00			
SFS17	0,192	0,112	0,125	0,069	0,059	0,143	0,184	0,062	0,109	0,159	0,234	0,075	-0,097	0,151	-0,010	0,062	1,00		
SFS18	0,113	0,128	0,110	0,103	0,120	0,084	0,151	0,139	0,058	0,055	0,131	0,130	0,142	0,057	0,114	0,062	0,062	1,00	
SFS19	-0,407	-0,436	-0,514	-0,481	-0,414	-0,462	-0,368	-0,349	-0,258	-0,109	-0,232	-0,239	-0,194	-0,228	-0,305	-0,254	0,020	-0,076	1,00

TABLE 3 Eigenvalues of the unreduced inter-correlation matrix

Root	**Eigenvalue**
1	**7,722**
2	**1,434**
3	**1,188**
4	**1,029**
5	0,940
6	0,854
7	0,781
8	0,706
9	0,654
10	0,624
11	0,568
12	0,518
13	0,442
14	0,416
15	0,349
16	0,314
17	0,203
18	0,147
19	0,110
Trace	19,00

TABLE 4 Unrotated factor matrix of the OIS

SFS	Items	Number	Factor I	h_j^2
SFS1	J6, J1, J2, J4, J5, L2, L9, L8, K2, J3, L1, H4, F7, H1, I7, I3, K3, L5, L6, K4, L3, I2, I8, K1, H7, I11, D6, G1, L7, L4	30	0,891	0,876
SFS2	D3, D8, D7, D1, D2, D4, E6, E4, E5, F6, E8, D5, E2, E3, F5, E7, C6	17	0,886	0,782
SFS3	F15, F3, G3, F14, F11, G4, F4, F10, F13, F2, G5, F12, B6, G2, B7, A12, C12, A11	18	0,936	0,887
SFS4	C3, C4, C1, C8, C11, C5, C2, F1, C9, C10, A1	11	0,829	0,710
SFS5	A3, A2, A4, A10, A5	5	0,698	0,538
SFS6	B3, B4, B5, B1, A6, F9	6	0,733	0,553
SFS7	A8, A9, A7	3	0,726	0,589
SFS8	I4, I6, I5, I9, H8,	5	0,620	0,471
SFS9	H6, H5	2	0,677	0,582
SFS10	H2, H3	2	0,299	0,321
SFS11	K6, K7	2	0,551	0,477
SFS12	I10	1	0,407	0,346
SFS13	K5	1	0,222	0,407
SFS14	E1	1	0,575	0,393
SFS15	F8	1	0,603	0,404
SFS16	A13	1	0,353	0,151
SFS17	I1	1	0,155	0,173
SFS18	C7	1	0,156	0,059
SFS19	B2	1	-0,517	0,367

TABLE 5 Item statistics of the OIS (N = 340)

Item	Item mean	Item SD	Skewness	Item reliability Index	Item-test Correlation
A1*	5,60	1,43	-1,101	0,383	0,266
A2*	6,03	1,03	-1,465	0,318	0,308
A3*	5,59	1,25	-1,051	0,526	0,422
A4	5,39	1,53	-1,061	0,812	0,531
A5	4,40	1,74	-0,391	1,261	0,724
A6	4,66	1,77	-0,560	1,148	0,650
A7	4,17	1,68	-0,292	1,277	0,763
A8	3,96	1,71	-0,053	1,061	0,620
A9	3,80	1,73	0,018	1,045	0,605
A10	4,68	1,46	-0,621	0,901	0,618
A11	3,96	1,53	-0,059	0,942	0,616
A12	4,57	1,52	-0,544	1,184	0,781
A13*	3,82	1,64	-0,034	0,547	0,349
B1*	6,12	1,21	-1,817	0,547	0,456
B2	4,99	1,80	-0,803	0,887	0,496
B3	4,70	1,55	-0,548	0,857	0,555
B4	4,81	1,29	-0,303	0,776	0,607
B5*	5,20	1,41	-1,166	0,553	0,393
B6	5,47	1,56	-1,252	0,988	0,634
B7	5,25	1,51	-1,045	0,998	0,662
C1	5,24	1,72	-1,011	1,101	0,643
C2	4,53	1,98	-0,535	1,605	0,812
C3*	6,11	1,37	-1,978	0,527	0,385
C4	5,21	1,64	-0,977	0,884	0,542
C5	3,95	1,82	-0,126	1,509	0,829
C6	3,86	1,74	-0,059	1,181	0,681
C7*	4,69	1,77	-0,591	0,235	0,133
C8	4,64	1,81	-0,585	1,407	0,777
C9	4,56	1,78	-0,337	1,433	0,804
C10	4,58	1,80	-0,440	1,339	0,745
C11	4,55	1,81	-0,507	1,357	0,748
C12	4,65	1,70	-0,532	1,121	0,660
D1	4,00	1,79	-0,058	1,319	0,737
D2	4,85	1,76	-0,655	1,336	0,726
D3	4,74	1,81	-0,493	1,412	0,781
D4	4,56	1,77	-0,370	1,447	0,817
D5	3,73	1,85	-0,014	1,345	0,728
D6	4,87	1,67	-0,760	1,182	0,712
D7	4,65	1,61	-0,499	1,176	0,733
D8	4,55	1,81	-0,516	1,370	0,759
E1	4,42	1,58	-0,169	0,896	0,567
E2	4,33	1,76	-0,145	1,313	0,747
E3	4,13	1,70	-0,050	1,207	0,710

E4	4,02	1,82	-0,053	1,327	0,729
E5	4,26	1,70	-0,197	0,960	0,567
E6	4,50	1,58	-0,338	0,970	0,616
E7	4,25	1,76	-0,336	0,885	0,505
E8	4,01	1,72	-0,167	1,086	0,632
F1	5,05	1,69	-0,834	0,976	0,578
F2	4,40	1,64	-0,419	1,120	0,682
F3	4,19	1,66	-0,242	1,226	0,737
F4	4,36	1,75	-0,257	1,296	0,742
F5	3,39	1,80	0,269	1,271	0,708
F6	4,28	1,89	-0,217	1,653	0,872
F7	3,89	1,65	0,002	1,387	0,839
F8	4,30	1,71	-0,264	1,039	0,606
F9*	4,90	1,83	-0,645	0,647	0,353
F10	4,33	1,80	-0,403	1,326	0,738
F11	4,17	1,65	-0,244	1,340	0,811
F12	4,19	1,83	-0,284	1,465	0,802
F13	4,29	1,52	-0,335	1,094	0,721
F14	4,44	1,65	-0,301	1,164	0,707
F15	4,03	1,63	-0,119	1,201	0,740
G1	4,01	1,62	-0,116	1,053	0,652
G2	3,54	1,86	0,203	1,314	0,705
G3	3,58	1,73	0,234	1,157	0,670
G4	3,97	1,77	-0,123	1,125	0,636
G5	4,31	1,76	-0,233	1,351	0,767
H1	4,28	1,75	-0,272	1,337	0,763
H2*	3,58	1,65	0,091	0,291	0,178
H3	3,21	1,78	0,275	0,718	0,404
H4	4,29	1,65	-0,191	1,296	0,787
H5	4,06	1,97	-0,218	1,264	0,642
H6	3,48	1,83	0,196	1,214	0,666
H7	4,62	1,65	-0,502	1,125	0,691
H8	3,98	2,19	-0,058	0,686	0,314
I1*	3,40	1,64	0,426	0,253	0,154
I2	4,07	1,52	-0,115	0,913	0,602
I3	4,40	1,48	-0,183	0,984	0,665
I4*	4,37	1,48	-0,603	0,026	0,017
I5	4,22	1,66	-0,487	1,033	0,624
I6	3,92	1,57	-0,210	1,132	0,724
I7	4,37	1,47	-0,458	1,066	0,723
I8	4,51	1,64	-0,473	1,295	0,790
I9	5,13	1,45	-1,097	0,733	0,505
I10	5,12	1,50	-0,691	0,713	0,476
I11	4,50	1,62	-0,325	1,210	0,749
J1	3,99	1,75	-0,138	1,361	0,780
J2	4,13	1,76	-0,269	1,383	0,787
J3*	4,36	1,74	-0,236	0,512	0,294
J4	4,19	1,58	-0,187	1,270	0,804

J5	4,43	1,78	-0,368	1,361	0,763
J6	3,82	1,76	-0,025	1,309	0,744
K1	4,72	1,91	-0,459	1,075	0,562
K2	3,99	1,59	0,014	1,113	0,699
K3	4,22	1,41	-0,162	1,010	0,717
K4	4,57	1,49	-0,407	1,053	0,708
K5*	4,33	1,76	-0,145	0,372	0,212
K6*	4,14	1,61	0,085	0,491	0,308
K7	4,13	1,39	-0,090	0,846	0,607
L1	4,21	1,62	-0,085	1,219	0,753
L2	3,83	1,75	0,301	1,167	0,666
L3	3,41	1,82	0,323	1,060	0,584
L4	3,86	1,80	0,029	1,084	0,610
L5	3,83	1,79	0,228	1,212	0,677
L6	3,06	1,66	0,761	0,986	0,597
L7	4,52	1,68	-0,306	0,746	0,445
L8	4,04	1,65	-0,054	1,200	0,730
L9	4,20	1,69	-0,188	1,385	0,822

- - items omitted during the iterative item analysis