The Development and Validation of a Measure of

ORGANISATIONAL FLEXIBILITY

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Background: Rationale

- CBS offers a helpful approach to understanding flexibility as a tool for improving **personal** effectiveness and wellbeing

- CBS might offer a potentially helpful approach to developing our understanding of flexibility as a tool for improving effectiveness and wellbeing at **larger scale**

- Organisational flexibility is needed for organisations to be effective, over the short and long term, but:
  - *Lack of cohesion around theory and practice*
  - *Lack of recognition of psychological experiences*

- CBS might offer a more **theoretically and practically coherent** understanding of organisational flexibility for improving **organisational and individual effectiveness and wellbeing**

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Contextual Behavioural Science (CBS)

- Identifying variables that not only *predict* human development and wellbeing, but which can also be *influenced* as tools for improving behaviour
  - *Changing behaviour, not just explaining it*
  - *Thus, in organisations, we would want to seek to identify, develop and examine characteristics in the organisational context that we can influence, to improve organisational effectiveness and wellbeing*
- Effective Behaviour
  - *Workability towards goals, in relation to the context*

Flexibility

Psychological Flexibility

A person's ability to be consciously aware of the current situation and, based on the opportunities that are available to them in the situation, their ability to take action that is appropriate for pursuing their values

- Influencing psychological flexibility
  - *Increasing individuals' skills in connecting with their aspirational aims*
  - *Increasing individuals' skills in noticing opportunities within their context and situation*

Organisational Flexibility

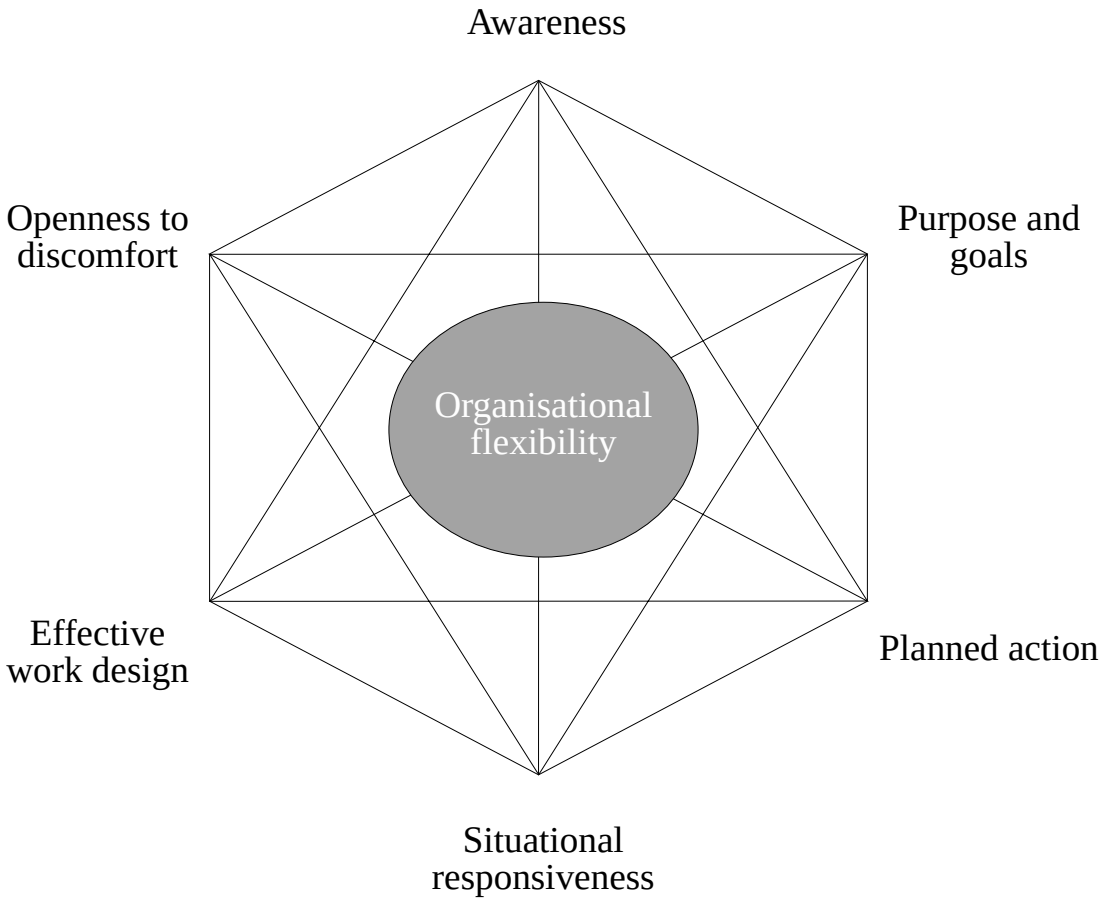
An organisation's ability to be aware of and open to noticing the features of its environment and, based on the opportunities available in the situation, its ability to take action that is appropriate for pursuing what it aspires to achieve

- Influencing organisational flexibility
  - *Increasing the organisation's connection with its aspirational aims*
  - *Increasing the organisation's ability to notice opportunities within its environment and situation, for pursuing those aims*

Organisational Behaviour (OB)

- A field of study that investigates the impact that individual, group and organisational characteristics have on organisational effectiveness (including the effectiveness and health of the individuals working within them)
- Bond identified and selected well-established, existing constructs, strategies and techniques that OB research has indicated:
  - *as focused on prediction-and-influence*
  - *we can use to predict-and-influence levers for producing flexibility in organisations, and, hence, effectiveness*
  - *support the psychological experiences of people working within the organisations, as they seek opportunities for pursuing organisational aims*

Bond's Model of Organisational Flexibility



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Measuring Organisational Flexibility

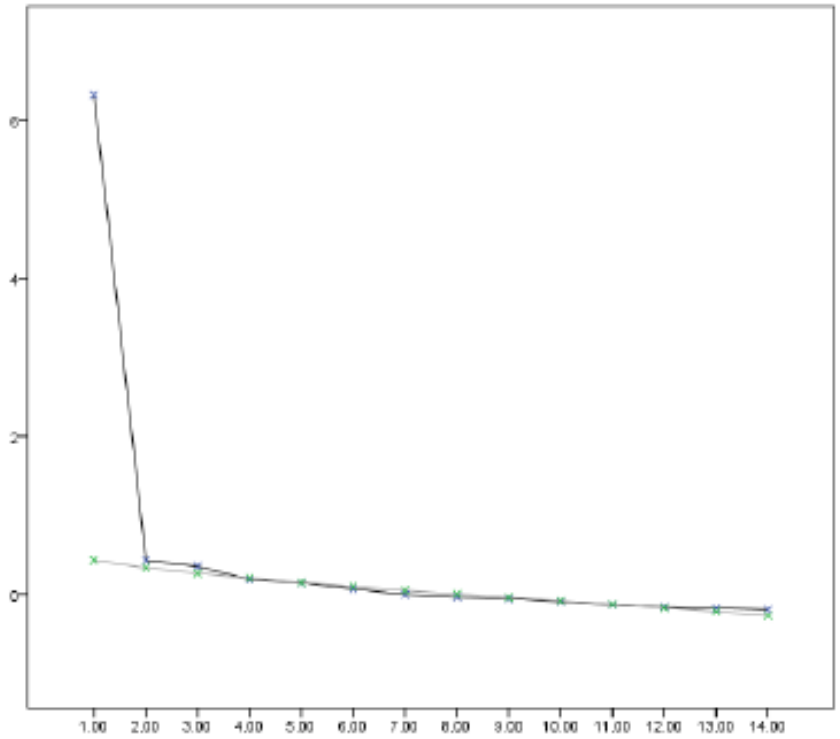
- Organisational flexibility as a single holistic behaviour (i.e. not six) - single dimension
- Organisational flexibility as a property of the organisation (i.e. org as referent)
- Measured based on individuals' perceptions of their organisation's flexibility, aggregated as shared perceptions of organisational flexibility
- Aggregation justification based on:
  - *Consensus within organisations*
  - *Variance between organisations*
- Multilevel analysis, due to clustered (i.e. non-independent) data

Empirical Studies

- Study I: Item Generation & Exploratory Factor Analysis
- Study II: Multilevel Confirmatory Factor Analysis
- Study III: Validity
  - *Construct Validity*
  - *Criterion-related & Incremental Validity*

Study I: Scale Development & Exploratory Factor Analysis

- **Item generation**
  - *33 items reflecting combinations of characteristics*
- **Sample**
  - *Individual-level sample: 303 independent workers*
- **Exploratory factor analysis (EFA)**
  - *One clearly dominant factor*
  - *Items reviewed and low performers removed*
  - *Reliable, 7-item scale*



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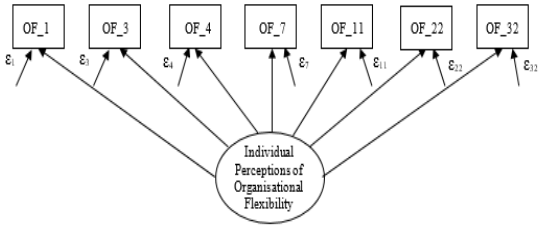
Scale: Individual Perceptions of Organisational Flexibility

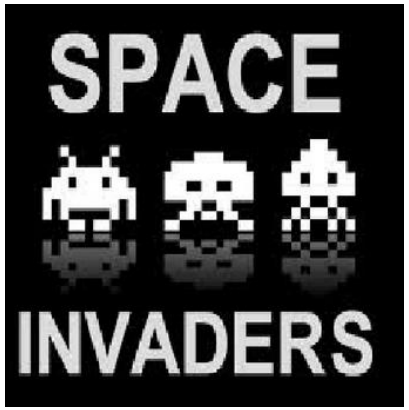
Item #	Item Description	7-item scale Factor loading	SMC
OF_4	My organisation continues doing what works, while also looking for better ways to reach its goals	.78	.60
OF_32	People in my organisation respect each other's roles and expertise, even when their views differ	.73	.53
OF_7	My organisation trusts its people to make goal-driven choices, without always having to ask for permission first	.74	.54
OF_11	My organisation's decisions are guided by its vision, even when times are tough	.74	.54
OF_1	My organisation helps people to see how their work relates to and affects the organisation's goals	.73	.53
OF_3	My organisation takes decisions based on the organisation's vision, or long-term goals, rather than on its image or brand	.71	.50
OF_22	My organisation encourages people to change the way they work together, if it helps them to be more effective	.64	.41
	Variance Explained	52.32%	
	Scale Mean	31.53	
	Scale *SD*	7.11	
	Cronbach's α for Scale	.88	
	Skew (z-score)	-2.48	
	Kurtosis (z-score)	-0.61	

Note: SMC = squared multiple correlations (i.e. communalities)



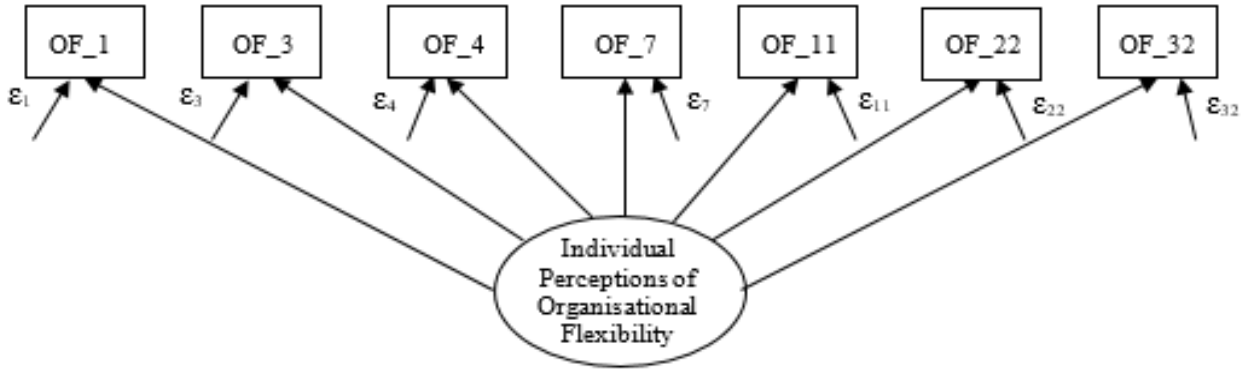
Study II: CFA

- **Sample**
  - *Two samples: 331 employees, from 31 organisations*
  - *Formal and informal sampling approaches, organisations from 1 to 380,000 employees*
- **Confirmatory factor analysis (CFA)**
  - *Individual-level only*
  - *Three competing multilevel models:*
    - Proposed Organisational Flexibility Scale (OFS)
    - Independence
    - Saturated



Individual-level only model

- *Q: With this new sample, do the individual-level observations still reflect (i.e. confirm) a single individual-level factor within organisations?*



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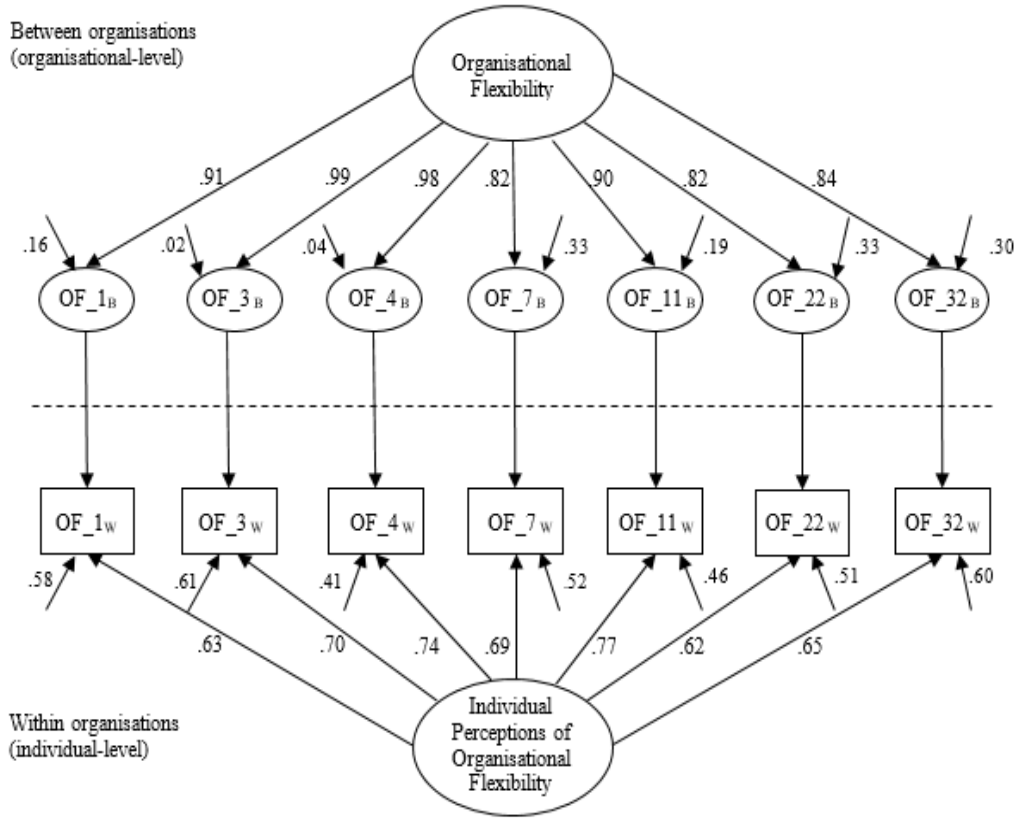
The Competing Models

- **Proposed OFS model**
- Independence model
- Saturated model



- *Q1: do the data support the aggregation of observations (based on intraclass correlations)?*
- *Q2: do the aggregated observations reflect a single factor, too?*

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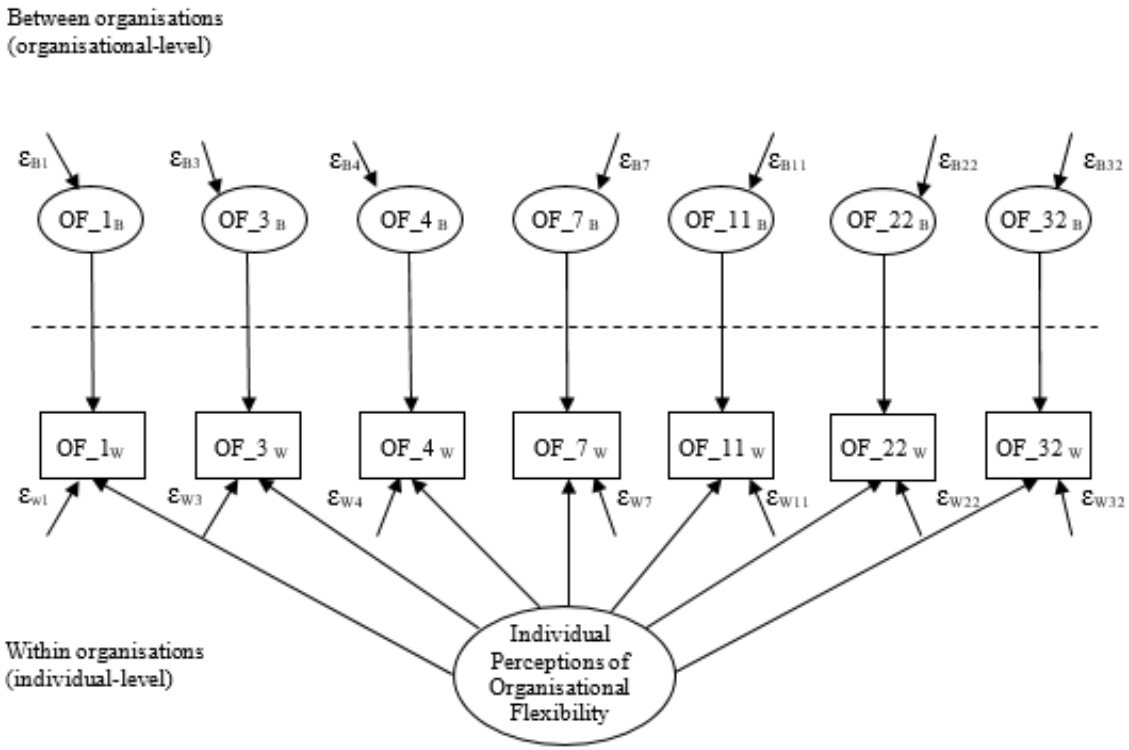
The Competing Models

- Proposed OFS model
- **Independence model**
- Saturated model

- *Q: would the model a better fit if the aggregated observations were independent of each other, rather than reflecting a single factor?*



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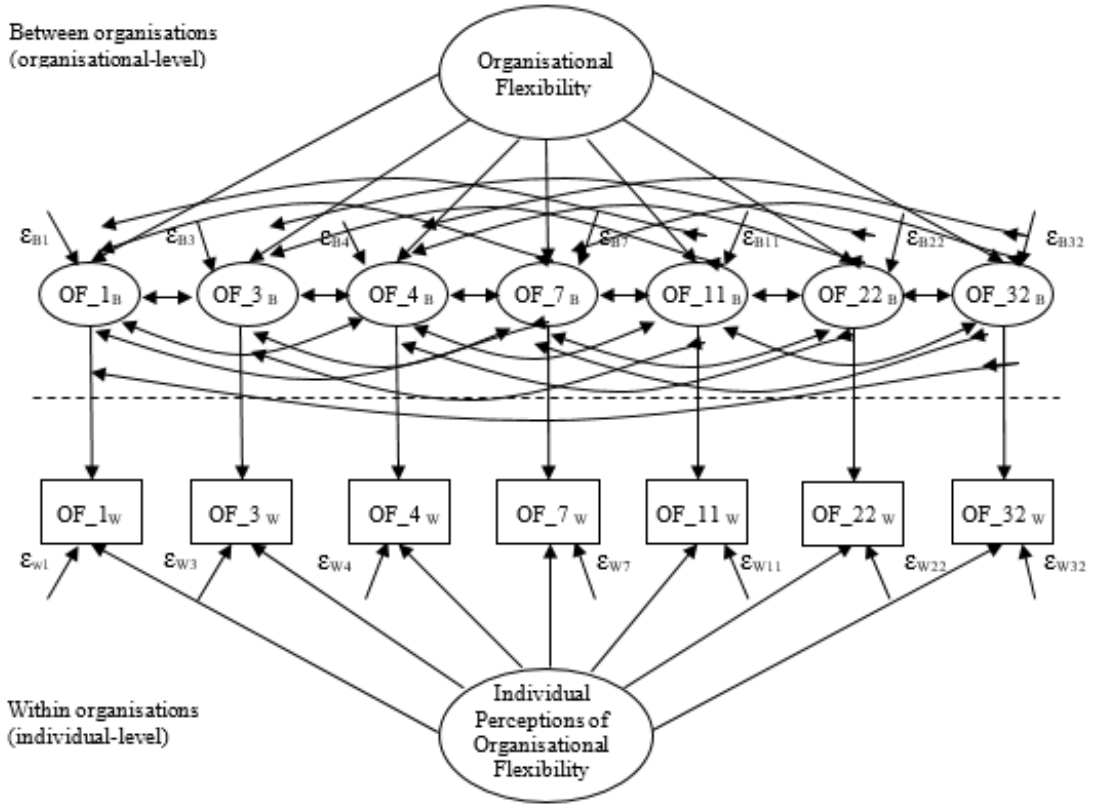
The Competing Models

- Proposed OFS model
- Independence model
- **Saturated model**



- *If we specified all the relationships between the aggregated observations, we'd be showing an 'ideal' model. But it's overly complex for statistical processing*
- *Q: Is the proposed model sufficiently similar?*

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Study II: CFA Results

- Model fit:

Hypothesised Model	χ^2	$\chi^2\Delta$	df	CFI (≥.95)	RMSEA (≤.06)	SRMR (within) (≤.08)	SRMR (between) (≤.08)
Model 1: Individual-level only	29.89**		14	0.98	0.06	0.03	n/a
Model 2: Independence	88.80***	58.91***	35	0.92	0.07	0.06	0.71
Model 3: Saturated	32.47**	56.33***	14	0.97	0.06	0.03	0.05
Model 4: Proposed OFS	47.05*	14.58	28	0.97	0.05	0.03	0.08

Notes: df = degrees of freedom, CFI = comparative fit index, RMSEA = root mean square error of approximation, SRMR = standardized root mean square residual.
$\chi^2\Delta$ is the change in chi-square statistic, relative to the preceding model.
*p <= .050, **p <= .010, ***p <= .001

- Model 4 is a significantly better fit than the independence model and not significantly different to the saturated model
- Reliability: Cronbach's α = .89
- Intraclass correlation (ICC) = 28%

ICCs
> 0% some organisational effect
> 10% low
> 20% moderate
> 30% as high
(Lee, 2000; Robson & Pevalin, 2015, Kreft & de Leeuw, 1998).

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Study III: Construct Validity

		1	2	3	3a	3b	3c
Variables		Within (individual level)					
1. Organisational Flexibility		**28%**	.20***	.67***	.64***	.36***	.53***
2. Psychological Flexibility		-	-	.12*	.16**	.14*	.01
3. Organisational Learning	Between (organisational level)	.97***	-	**37%**	.83***	.65***	.85***
3a. Shared Vision		.97***	-	.94***	**31%**	.35***	.51***
3b. Open-Mindedness		.79***	-	.90***	.77***	**17%**	.41***
3c. Commitment to Learning		.92***	-	.97***	.84***	.86***	**32%**
Mean		37.05	36.03	41.05	14.84	10.55	15.66
SD		6.85	6.58	7.23	3.40	1.81	3.44

Notes: Intraclass correlations (ICCs) in bold on the diagonal. Coefficients above the diagonal represent intercorrelations between individuals within an organisation, and below the diagonal represent intercorrelations between organisations.
p <= .050, **p <= .010, ***p <= .001

Correlations
- Small *r* >= .10
- Moderate *r* >=.30
- Large *r* >=.50 (Cohen, 1988);

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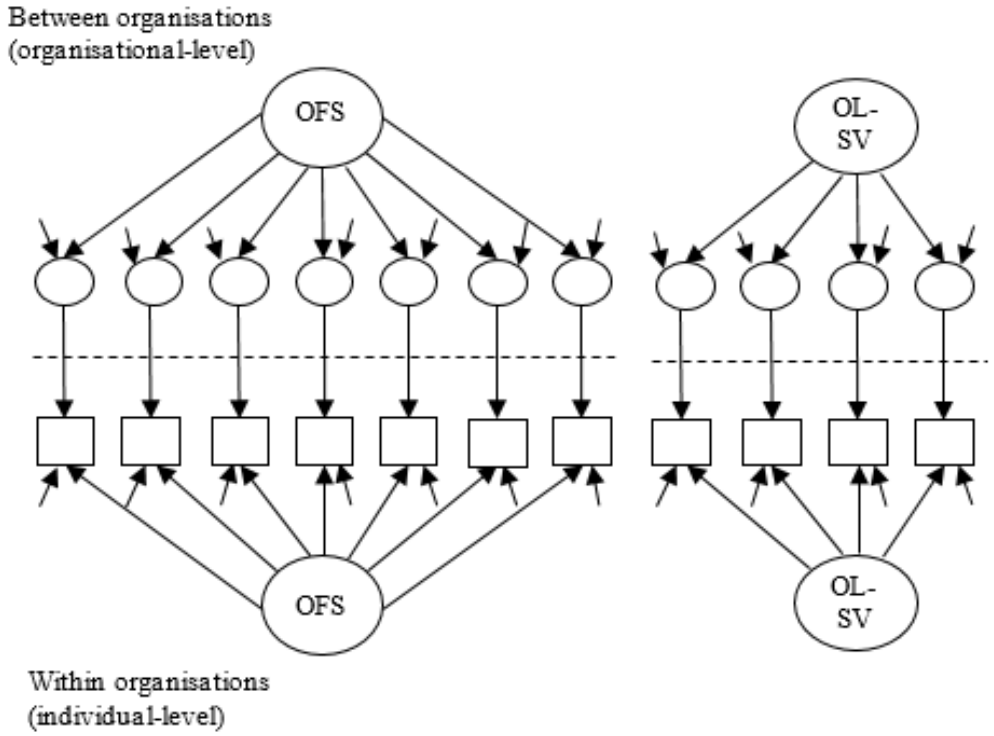
Study III: Discriminant Validity

- Three sets of competing models with Organisational Learning (and its dimensions):
  - *Independence model*
  - *Equal Factors model*
  - *Single Factor model*

Study III: Discriminant Validity

- **Model 1: Independence model**
- Model 2: Equal Factors model
- Model 3: Single Factor model

- *Q: Would it be a good model fit if we reflected the OFS factor structure as being independent of each of the organisational learning factors?*



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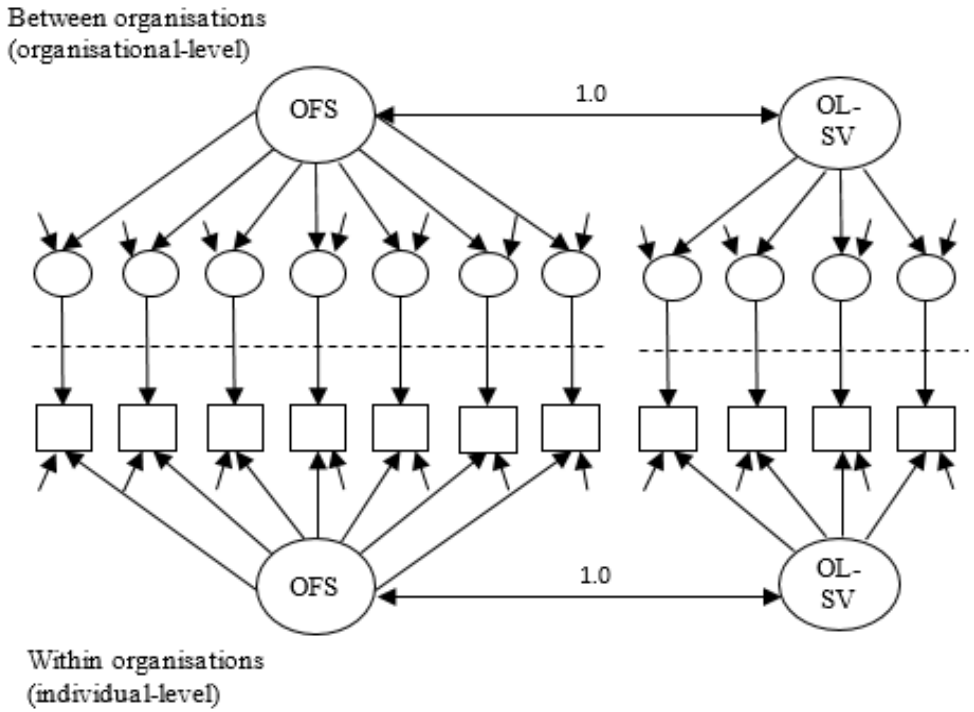
Study III: Discriminant Validity

- Model 1: Independence model
- **Model 2: Equal Factors model**
- Model 3: Single Factor model

- *Q: Would it be a better model fit if we reflected the OFS as being the same as each of organisational learning factors?*



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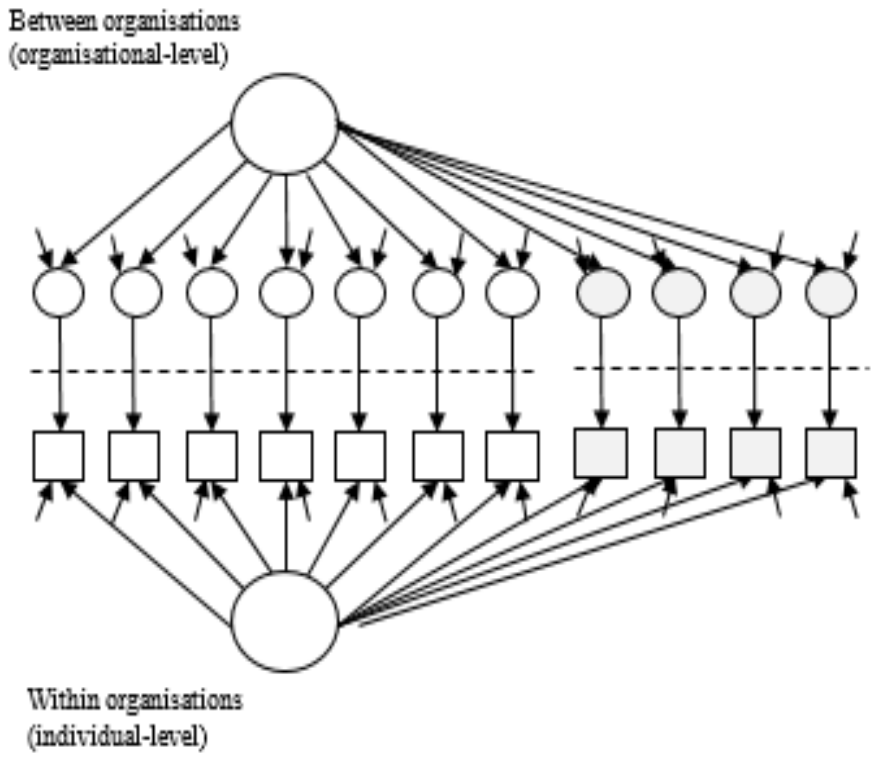
Study III: Discriminant Validity

- Model 1: Independence model
- Model 2: Equal Factors model
- **Model 3: Single Factor model**

- *Q: Would it be a better fit if we reflect the OFS items as being part of the organisational learning factors?*



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Study III: Discriminant Validity Results

Hypothesised Model	Deviance statistic	Parameters	$\chi 2\ \Delta$	CFI (≥ .95)	RMSEA (≤.06)	SRMR Within (≤.08)	SRMR Between (≤.08)
OF & Organisational Learning							
Model 1a: 4 independent factors	-7460.57	102		0.90	0.06	0.05	0.13
Model 2a: 4 equal factors	-7541.28	94	-59.87***	0.85	0.07	0.18	0.21
Model 3a: 1 single factor	-7632.00	90	-104.37***	0.79	0.09	0.07	0.15
OF & OL-Shared Vision							
Model 1b: 2 independent factors	-4759.53	57		0.93	0.07	0.04	0.07
Model 2b: 2 equal factors	-4801.56	53	-131.64***	0.88	0.09	0.14	0.13
Model 3b: 1 single factor	-4806.82	55	-209.81***	0.87	0.09	0.06	0.07
OF & OL-Open-Mindedness							
Model 1c: 2 independent factors	-4446.39	52		0.94	0.06	0.03	0.13
Model 2c: 2 equal factors	-4477.46	48	-30.41***	0.09	0.08	0.07	0.20
Model 3c: 1 single factor	-4466.59	50	-101.63***	0.89	0.08	0.05	0.15
OF & OL-Commitment to Learning							
Model 1d: 2 independent factors	-4815.74	57		0.93	0.06	0.06	0.09
Model 2d: 2 equal factors	-4871.85	53	-47.92***	0.86	0.08	0.14	0.15
Model 3d: 1 single factor	-4915.85	55	-20.92***	0.83	0.09	0.09	0.09

*p <= .050, **p <= .010, ***p <= .001
OF – Organisational Flexibility; OL – Organisational Learning

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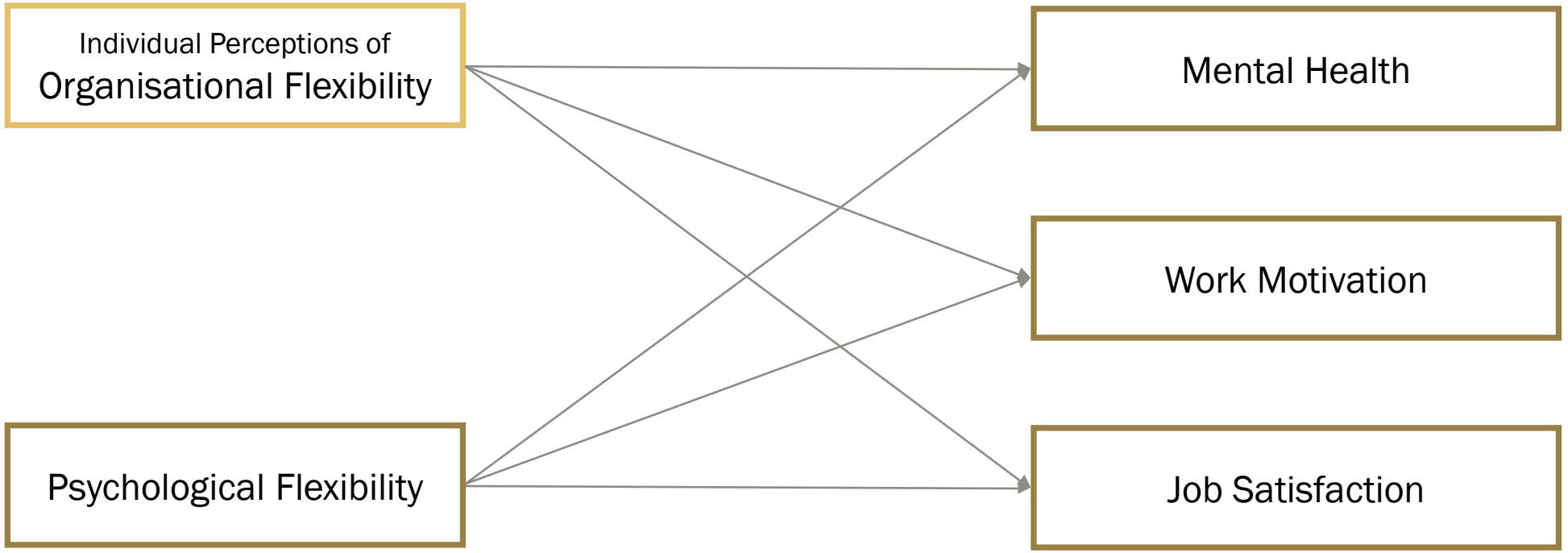
Study III: Criterion-Related and Incremental Validity among individuals within Organisations



Measures
Psychological Flexibility - WAAQ (Bond et al., 2013)
Mental Health – GHQ12 (Goldberg, 1978)
Work Motivation – Intrinsic Work Motivation (Warr, Cook and Wall, 1979)
Job Satisfaction – Job Diagnostic Survey (Hackman & Oldham, 1975)

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Study III: Criterion-Related and Incremental Validity among individuals within Organisations Results

Hypothesised Model	Model Summary			Regression coefficients		Residual Variance	
	Deviance statistic	Para-meters	$\chi 2$ Δ	Mean	Within Org Effect (*S.E.*)	Within Org	% Δ from baseline (from PF as predictor)
Mental health							
Baseline Model †	-1009.80	3		37.06		25.05	
OF as Predictor †	-2080.03	5	1070.23***	37.06	0.17 (.04)***	22.99	8.21%
PF as Predictor	-2096.92	5	1087.12***	37.07	0.18 (.03)***	23.76	5.14%
Incremental Prediction of OF	-3162.82	7	1065.90***	37.07	0.23 (.04)***	22.08	11.83% (6.69%)
Work Motivation							
Baseline Model †	-924.25	3		36.36		14.51	
OF as Predictor †	-1998.41	5	1998.41***	36.42	0.12 (.04)**	14.02	3.35%
PF as Predictor	-2016.91	5	1092.65***	36.44	0.04 (.03)	14.49	0.14%
Incremental Prediction of OF	-3085.56	7	1068.65***	36.41	0.12 (.04)**	13.94	3.94% (3.80%)
Job Satisfaction							
Baseline Model †	-1047.77	3		26.63		28.69	
OF as Predictor †	-2064.66	5	2064.66***	26.84	0.50 (.04)***	19.93	30.52%
PF as Predictor	-2139.66	5	1091.89***	26.84	0.12 (.05)*	28.15	1.90%
Incremental Prediction of OF	-3151.83	7	1012.17***	26.73	0.49 (.05)***	19.91	30.61% (28.71%)

*p <= .050, **p <= .010, ***p <= .001; OF – Organisational Flexibility, PF – Psychological Flexibility
† Results presented as per Table 12, to aid comparison
% Δ represents the proportion of variance explained by the model

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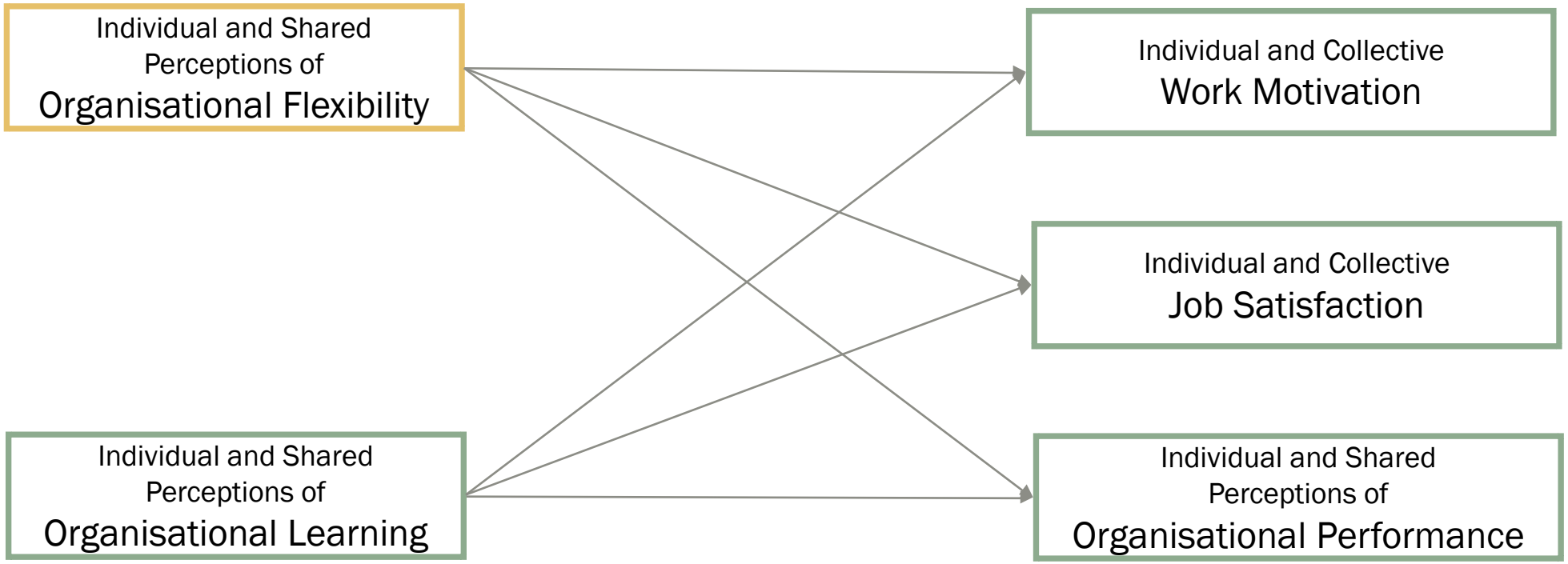
Study III: Criterion-Related and Incremental Validity within **and between** Organisations



Measures
Organisational Learning – Learning Orientation (Sinkula et al., 1997)
Work Motivation – Intrinsic Work Motivation (Warr, Cook and Wall, 1979)
Job Satisfaction – Job Diagnostic Survey (Hackman & Oldham, 1975)
Organisational Performance (Gibson & Birkinshaw, 2004)

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Study III: Criterion-Related and Incremental Validity within and between Organisations Results

Hypothesised Model	Model Summary: Deviance statistic	Model Summary: Para-meter	Regression coefficients: Mean	Regression coefficients: Within Org Effect (*S.E.*)	Regression coefficients: Between Orgs Effect (*S.E.*)	Residual Variance: Within Org	Residual Variance: % Δ	Residual Variance: Between Orgs	Residual Variance: % Δ	ICC
Work Motivation										
Baseline Model†	-924.25***	3	36.36			14.51		0.82		0.05
OF as Predictor†	-1998.41***	5	36.42	0.12 (.04)**	0.23 (.09)**	14.02	3.35%	0.09	89.15%	0.01
OL as Predictor	-2006.42***	5	36.43	0.11 (.04)**	0.18 (.07)**	14.09	2.89%	0.22	73.66%	0.02
Incremental OF	-2972.99***	7	36.41	0.09 (.07)	0.69 (.60)	13.91	4.17% (1.28%)	0.14	83.05% (9.39%)	0.01
Job Satisfaction										
Baseline Model†	-1047.77***	3	26.63			28.69		6.75		0.19
OF as Predictor†	-2064.66***	5	26.84	0.50 (.04)***	0.61 (.11)***	19.93	30.52%	1.78	73.69%	0.08
OL as Predictor	-2084.45***	5	26.89	0.46 (.05)***	0.41 (.1)***	26.05	9.22%	6.22	7.93%	0.19
Incremental OF	-3031.29***	7	26.62	0.35 (.05)***	2.41 (.72)***	23.55	17.92% (8.70%)	2.73	59.56% (51.63%)	0.10
Organisational Performance										
Baseline Model†	-952.28***	3	19.40			15.56		6.81		0.30
OF as Predictor†	-1937.03***	5	19.76	0.43 (.03)***	0.67 (.09)***	9.09	41.60%	1.10	83.83%	0.11
OL as Predictor	-1961.62***	5	19.75	0.41 (.03)***	0.44 (.08)***	9.79	37.08%	2.76	59.43%	0.22
Incremental OF	-2896.30***	7	19.78	0.29 (.03)***	2.16 (.52)***	8.14	47.71% (10.63%)	0.05	99.34% (39.91%)	0.01

*p <= .050, **p <= .010, ***p <= .001; OF – Organisational Flexibility, OL – Organisational Learning
% Δ represents the proportion of variance explained by the model

Implications, limitations, future

- **Implications**
  - *Individual AND shared perceptions of organisational flexibility as predictors of individual and organisational effectiveness and wellbeing*
  - *The Organisational Flexibility Scale (OFS) offers a measure of organisational flexibility as a tool to help CBS and organisational researchers and practitioners*
- **Limitations**
  - *Sample size and range – acceptable but need for deeper and broader*
  - *Construct validity measures – limited range of robust organisational-level constructs*
- **Future**
  - *Prediction-and-influence* – utility of the measure in interventions
  - *Practical application – development of protocols*
  - *Prediction: further validity studies for greater precision, scope and depth*
    - Precision: opportunities for assessing the OFS in relation to new Prosocial measures
    - Scope: opportunities for assessing broader range of organisations and specific contextual needs
    - Depth: opportunities for assessing coherence with other domains e.g. evolutionary science and economics

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