



Margit Ebbinghaus

**Output Quality
of
In-Company Vocational Education and Training**

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**Development of an Instrument for Determining the Relevance of
Major Dimensions of Output Quality**

**Interdisciplinary Congress on Research in Vocational Education and Training
SFIVET, March 25-27, 2009**

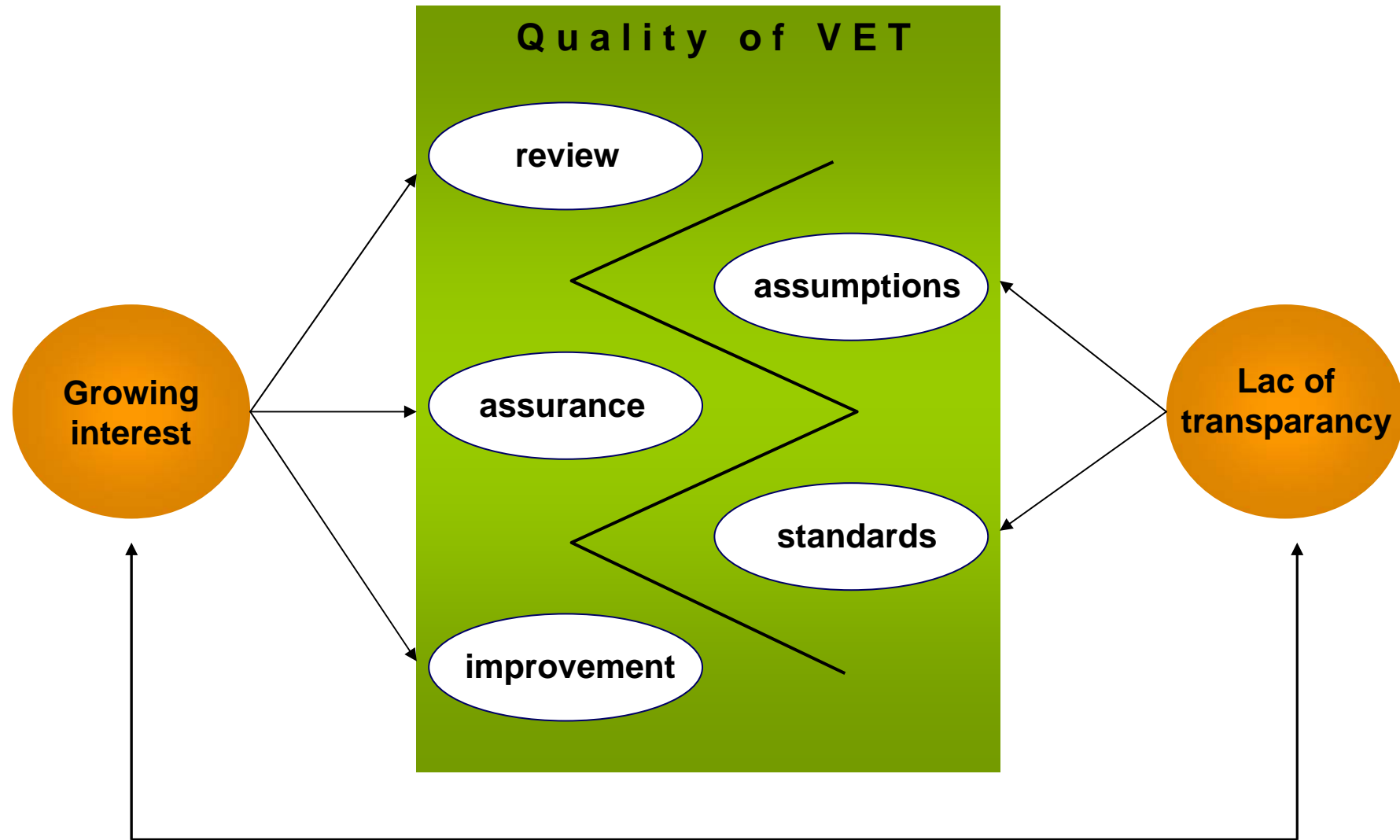


„Vocational Education and Training (VET) covers a wide range of situations, stakeholders and beneficiaries. Thus, to define quality we must consider this range of situations and interests (...).“

Odile Quintin (2008)

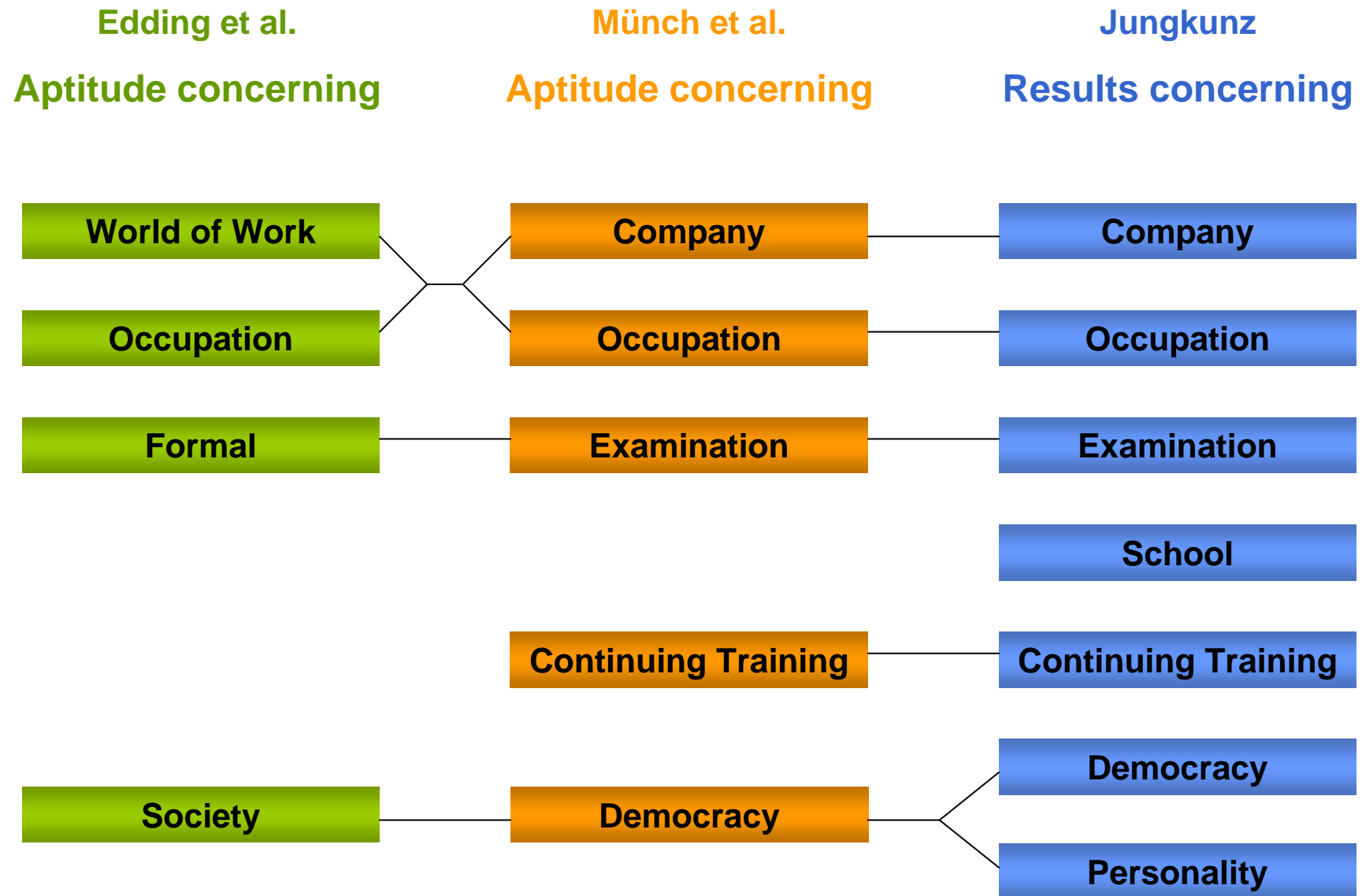


- 1. Starting Position**
- 2. Designing and Testing the Instrument**
- 3. Key Findings**
- 4. Next Steps**
- 5. Discussion**



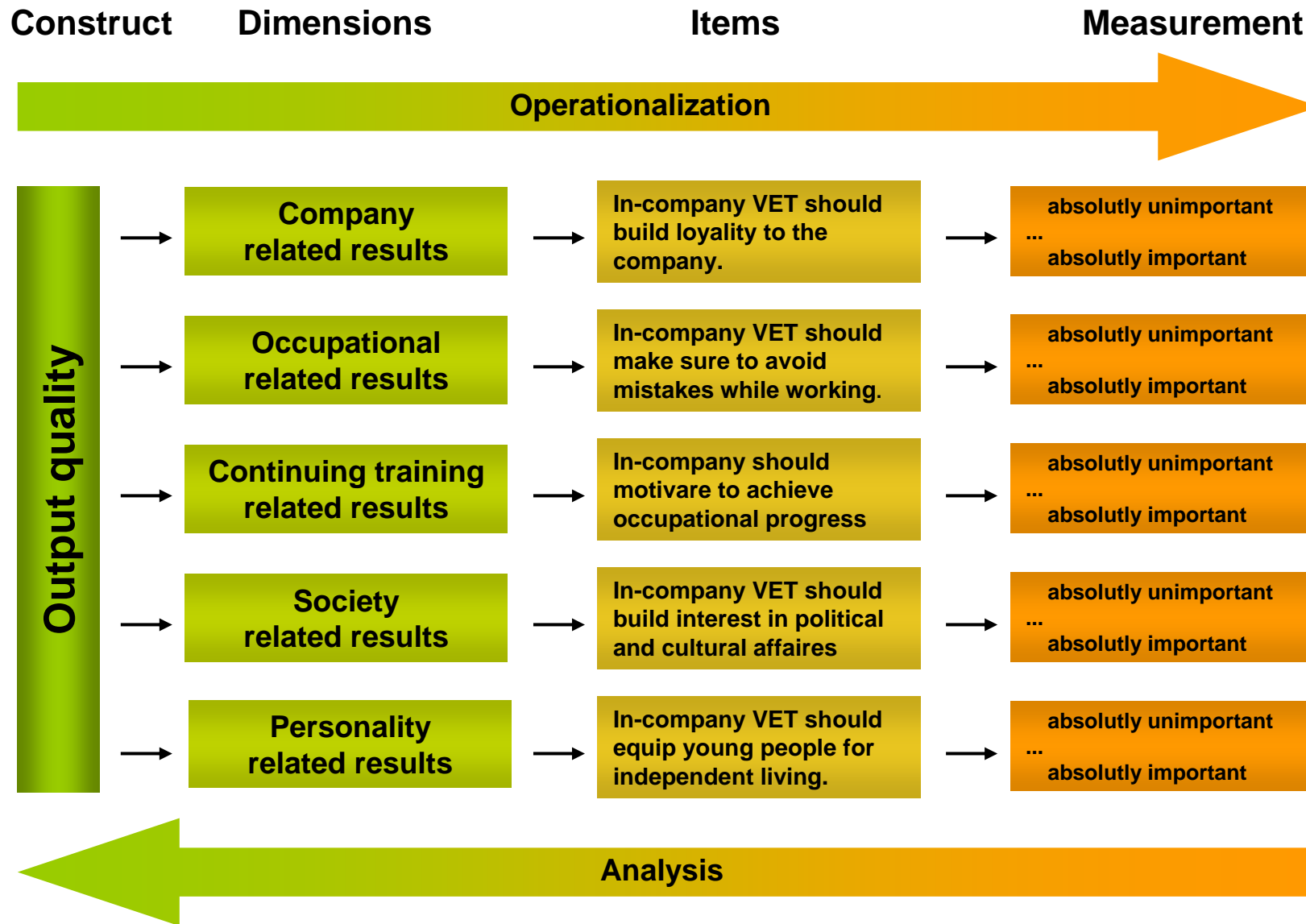


Designing the Instrument – Theoretical Basis



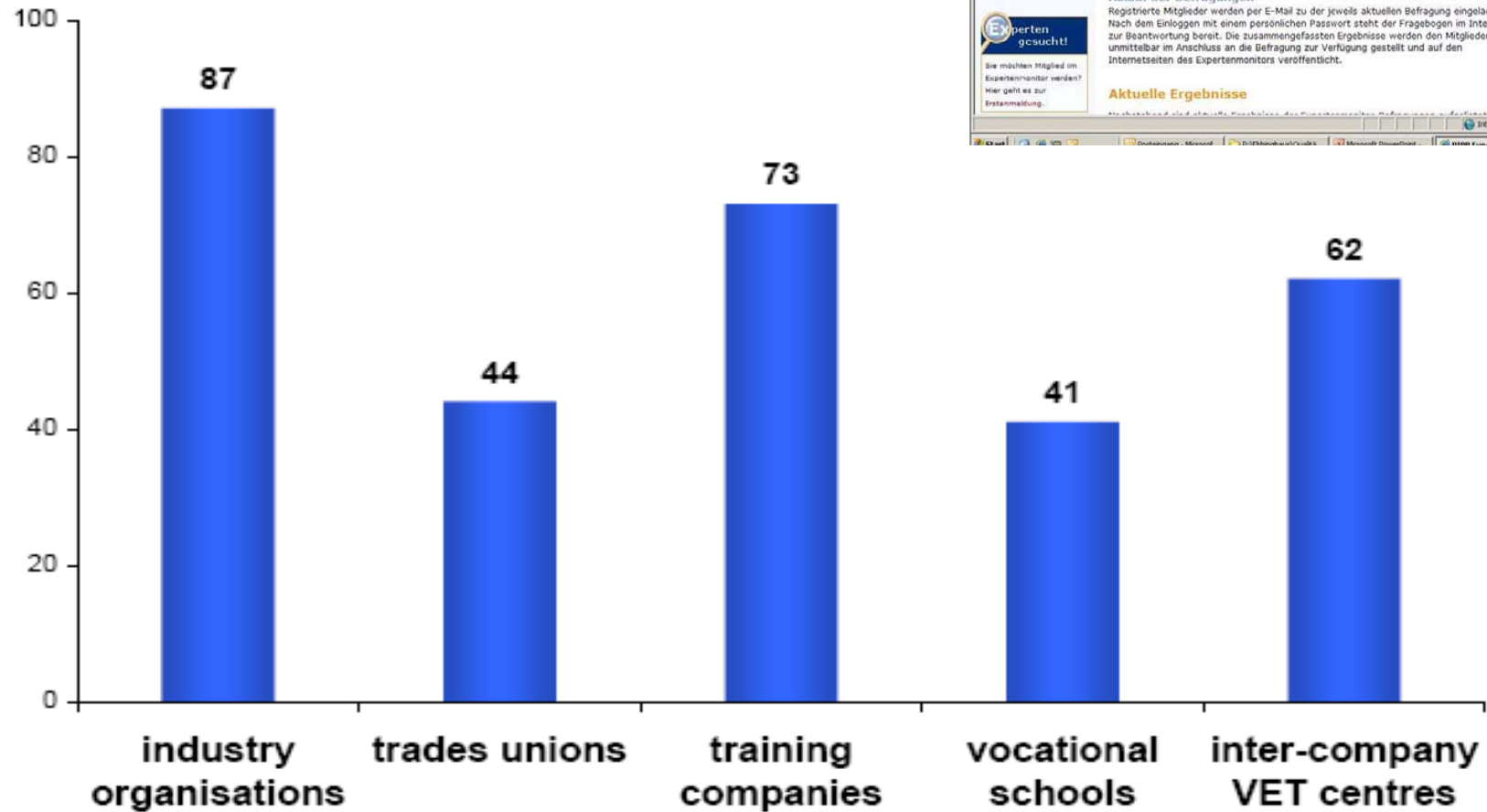


Designing the Instrument - Methodological Approach





Online Expert Survey System





Key Findings - Statistical characteristics of the theoretically designed scales

Scale / Item characteristics	Theoretically designed scales				
	Company related results	Occupational related results	Continuing learning related results	Societal related result	Personality related results
Cronbachs Alpha	,745	,611	,368	,507	,585
Discriminative power*	.274 – .535	.131 – .442	.092 – .324	.028 – .429	.266 – .413
Mean	3,06	3,16	2,79	2,80	3,22
Standard deviation	0,360	0,275	0,323	0,450	0,386

* corrected item-total correlation



PCA failed to confirm a structure of five dimensions



Rejection of the theoretically derived scales



Empirical scale construction approach



Principal Component Analysis

criteria for extraction of factors:

Eigen value > 1 -- explained variance > 5% -- interpretability

	Factor I World of work related results	Factor II Life world related results	Factor III Performance related results	Factor IV Company related results
Eigen value	6,13	3,68	1,89	1,74
explained variance	18,02	10,83	5,55	5,11
number of items	10	10	8	6
loadings	.481 – .762	.431 – .749	.351 – .592	.395 – .724
KMO = 0,827 - $\chi^2 = 2566,73$ (df = 561; p = .000)				



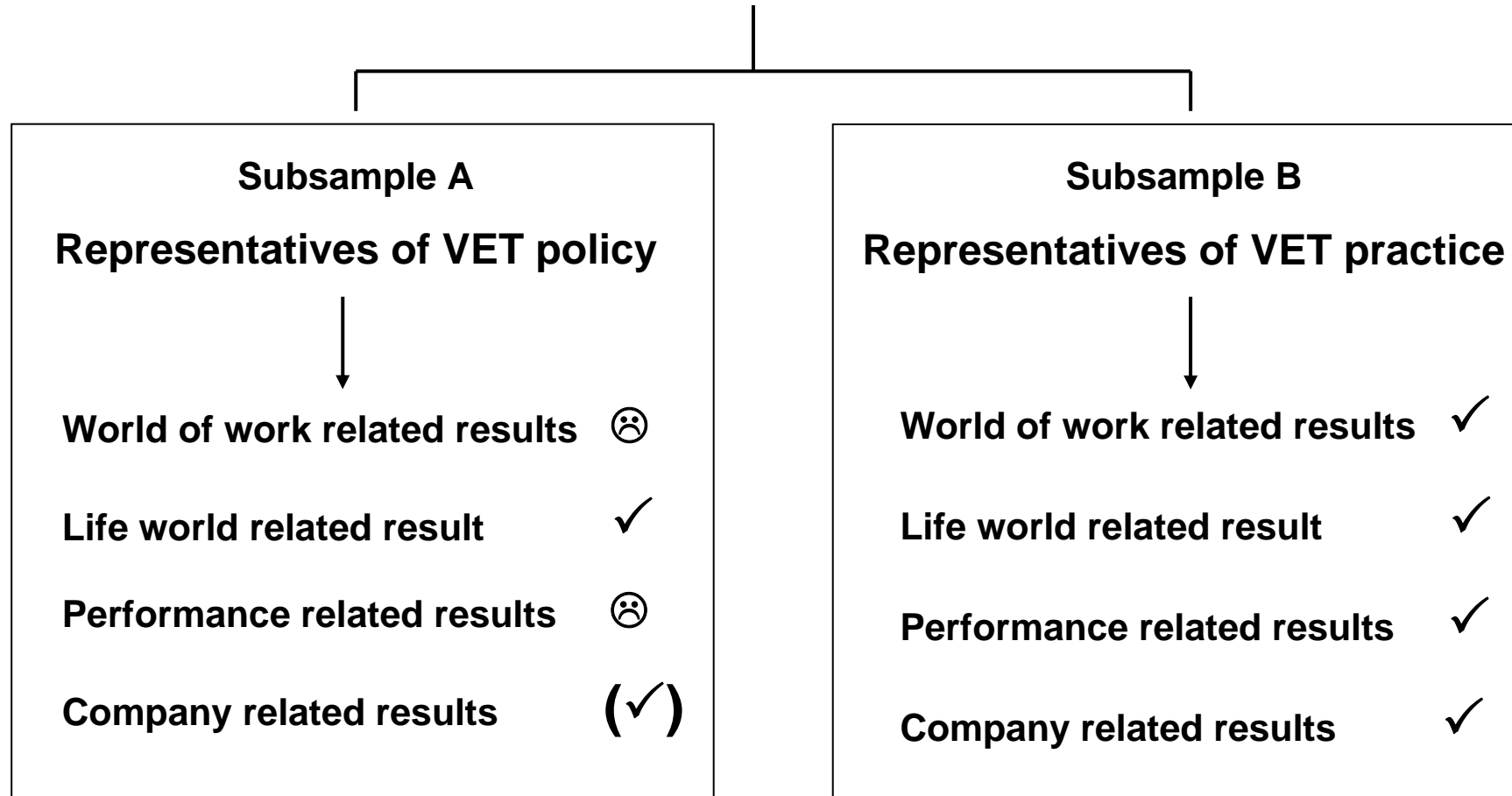
Key Findings - Statistical characteristics of the empirically constructed scales

Scale / Item characteristics	Empirically designed scales			
	World of work related results	Life related results	Performance related results	Company related results
Cronbachs Alpha	.808	.788	.642	.694
Discriminative power*	.357 - .575	.365 - .573	.187 - .472	.379 - .526
Mean	2,80	2,99	3,67	2,87
Standard deviation	0,41	0,39	0,26	0,43

* corrected item-total correlation



Principal Component Analysis - Extraction of 4 factors





Key Findings - Access to validity (I): correlations

Product-moment coefficient of correlation (Pearson)

	World of work related results	Life world related results	Performance related results	Company related results
World of work related results	1	.192 p = .00	.397 p = .00	.456 p = .00
Life world related results	.070 n.s.	1	.413 p = .00	.047 n.s.
Performance related results	.281 p = .00	.366 p = .00	1	.255 p = .00
Company related results	.411 p = .00	-.089 n.s.	.108 n.s.	1

Second-order partial coefficients of correlation

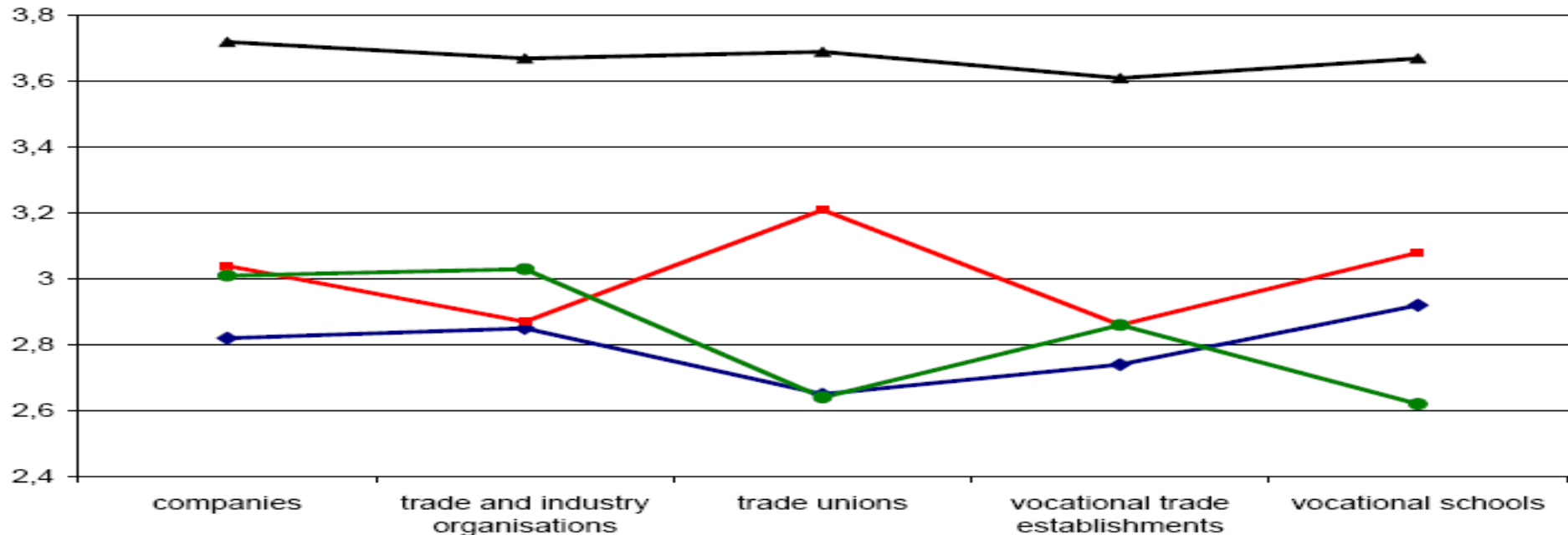
Correlation coefficients indicate small amounts of common variance.

→ The four scales capture separate facets of output quality!



Key Findings - Access to validity (II): analysis of variance

One-way analysis-of-variance		Sum of squares	Degrees of freedom	Mean square	<i>F</i>
World of work related results	between	2.15	4	.536	3.31*
	within	46.48	287	.162	
	total	48.63	291		
Life world related results	between	5.17	4	1.29	9.30**
	within	40.69	293	.14	
	total	45.86	297		
Performance related results	between	.36	4	.09	1.39
	within	20.06	308	.06	
	total	20.42	312		
Company related results	between	8.91	4	2.23	13.87**
	within	48.96	305	.16	
	total	57.87	309		





The results are encouraging to continue working on the instrument.

Therefore

- a) some items need to be reformulated and**
- b) further reviews should take place concerning**
 - different industrial / occupational sectors**
 - different company structures.**

→ Winter 2008: application within 1.350 training companies