

Using Item Response Theory to Assess Measurement Equivalence of 360° Performance Ratings Across Organizational Levels

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In A. Meade (Chair) *Applications of IRT to Measurement in Organizations*.
Symposium presented at the annual conference of the Society for
Industrial-Organizational Psychology, Orlando, Florida, April 11, 2003.

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Background

- ▶ 360° performance ratings have become the norm in organizations
 - § Primary value lies in opportunity to compare ratings from different sources
 - § Comparison implicitly assumes measurement equivalence

Background

- ▶ Research has only recently begun testing the assumption of measurement equivalence
 - § Race
 - § Language translations
 - § Mode of administration (paper vs. electronic)
 - § Geographic distance
 - § Time
 - § Rater – ratee relationship (rating source)

Crossing Organizational Levels

- ▶ Previous research on equivalence of rating sources does not address organizational levels
- ▶ Theoretical bases for possible inequivalence across levels
 - § Differing skill requirements (Katz, 1955; Mann, 1965)
 - § Application of structure (Katz & Kahn, 1978)
 - § Interactive Complexity Theory (Streufert & Swezey, 1986)
 - § Stratified Systems Theory (Jacobs & Jaques, 1987)
- ▶ Need for new research that disentangles rating source from organizational level

Method

- ▶ Archival database of *Benchmarks*[®] ratings
 - § $N = 85,342$ raters / 8434 ratees
 - § Only peers with unambiguous level used ($N = 3783$ raters / 974 ratees)
 - § Response scale collapsed to four points
- ▶ EFA used to empirically derive factors
- ▶ CFA used to test between-factors equivalence
- ▶ DFIT used to test within-factor equivalence

Results—EFA

- ▶ EFA suggested 3 factors (83% of variance)
 - § *Decisive Action Orientation*
 - ▶ "is action oriented"
 - § *Relationship Orientation*
 - ▶ "has a warm personality that puts people at ease"
 - § *Working Through Others*
 - ▶ "focuses more on managing other people to accomplish a task than on personally finishing everything the workgroup does"
- ▶ Highest loading 4 items from each factor used in subsequent analyses

Results—CFA

	CFI	NNI	RMSEA	χ^2 / df
All Peers (<i>N</i> =26,536)	.95	.93	.075	149
Lowest Level (<i>N</i> =617)	.94	.93	.075	4.46
Middle Level (<i>N</i> =2211)	.95	.94	.072	12.4
Highest Level (<i>N</i> =348)	.94	.92	.079	3.15

Results—DFIT

- ▶ All possible pairwise comparisons among levels were tested (3)
- ▶ 36 item-level tests conducted (NCDIF)
 - § None was significant
- ▶ 9 scale-level tests conducted (DTF)
 - § None was significant

Interpretation

- ▶ Conclusions
 - § These 3 scales function equivalently at each of these three organizational levels
 - § These 3 scales can be meaningfully compared
- ▶ Limitations / Future Research
 - § Constructs not explicitly chosen to reflect dimensions thought to vary across levels
 - § Small number of constructs
 - § Small number of items per construct