

Similarities and differences in measuring overexcitabilities and sensory processing sensitivity



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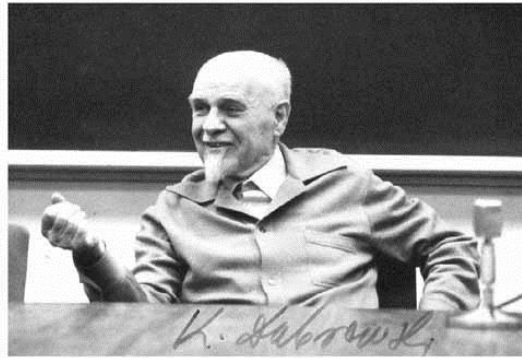
*FIRST INTERNATIONAL SCIENTIFIC
CONFERENCE ON HIGH SENSITIVITY OR
SENSORY PROCESSING SENSITIVITY:
EVIDENCE AND PROOF OF CONCEPT*

Theory of Positive Disintegration



- Kazimierz Dabrowski (1964)
- Positive disintegration:
 - Theory of personality development
 - Psychological tension and anxiety necessary for growth
- Developmental potential indexed by overexcitabilities
 - *Psychomotor OE*: augmented capacity for being active and energetic
 - *Sensual OE*: enhanced differentiation and aliveness of sensual experience
 - *Intellectual OE*: avidity for knowledge and the search for truth
 - *Imaginational OE*: power of thought creation, expressed through vividness of imagery
 - *Emotional OE*: great depth and intensity of emotional life

Kazimierz Dabrowski (1902-1980)



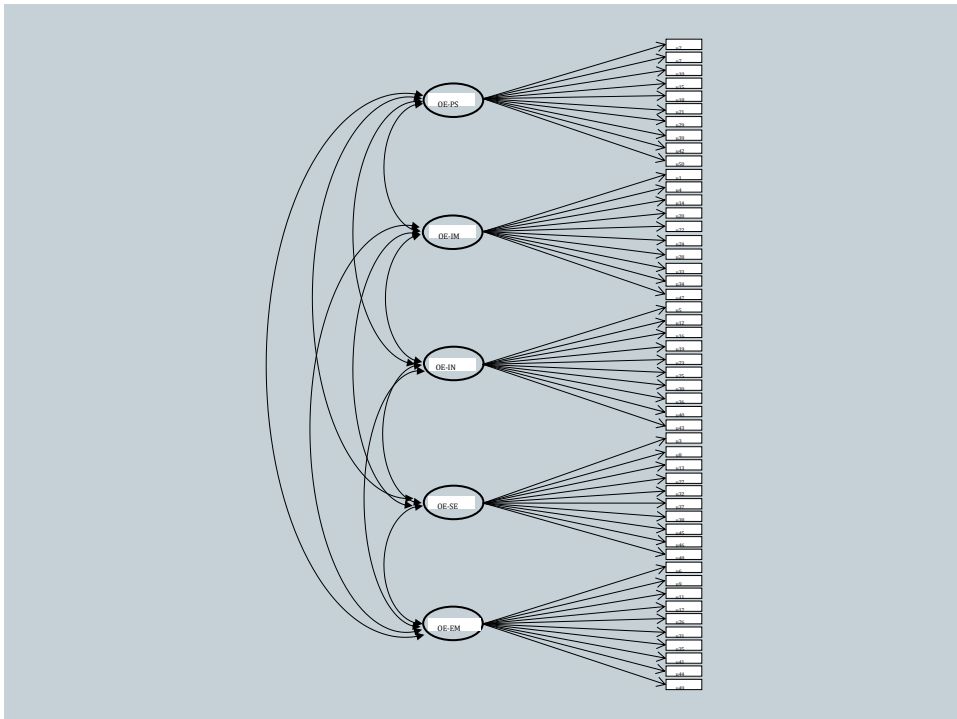
Overexcitabilities questionnaire (OEQ-II)

- Piechowsky: to test hypothesis that OE is more prevalent among gifted individuals, construction of OE-Q (open ended questionnaire)
- OEQ-II: 50 items self-rating questionnaire (10 for each OE)
- Factorial validity based on CFA: only moderate fit
 - But, based on ICM (no cross-loadings)
 - ICM is very parsimonious, but too restrictive in personality research
 - ESEM: alternative approach (Asparouhov & Muthen, 2009): gain in absolute fit outweighed loss in parsimony for big five

Items OEQ-II



- 10. I love to be in motion **1** **2** **3** **4** **5**
- 45. I enjoy the sensations of colors, shapes, and designs
- 24. I find myself mixing truth and fantasy in my thoughts
- 16. I question everything--how things work, what things mean, why things are the way they are
- 41. I can feel a mixture of different emotions all at once



Test of factorial structure of OEQ-II and measurement invariance (gender and IQ)

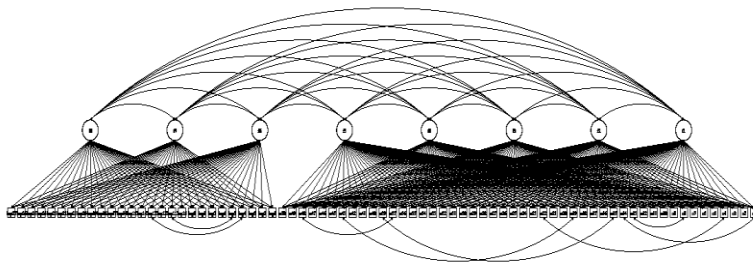
- In several studies differences were reported on OE's between gifted and non-gifted Ss, and between males and females.
- Do these differences reflect latent factor ('real') differences, or do groups interpret the items differently?
 - Fairness of a test!
- Different levels of measurement invariance:
 - Configural invariance: factor structure is same over groups
 - Weak or metric MI: factor loadings are equal over groups
 - Strong or scalar MI: also item intercepts (or thresholds) are equal
 - Strict MI: also unique item variances are equal

Paper in Psychological Assessment, 2014 Van den Broeck, Hofmans, Cooremans, & Staels

- 641 adolescents, 11-15 years old (M = 13,3), 56.6% girls, 43.4% boys (entire classes, no selection bias!)
- OEQ-II, Raven (> Pc 80 and < Pc 60: 'gifted' vs. nongifted)
- ICM: CFI = .877, RMSEA = .048
- ESEM: CFI = .939, RMSEA = .037
- Support for (partial) strict MI over gender and IQ groups:
 - Gifted group higher on intellectual and sensual OE
 - Girls scored higher on emotional and sensual OE than boys
 - Substantial correlations between emotional, intellectual, imaginal and sensual OE's (.23 to .50)
- Psychometrically fine instrument!

Relationship between concepts of OE and HSP?

- New study: 526 adolescents, 11-15 years old (M = 13.01), 48.5% girls, 51.5% boys (entire classes)
- OE factor structure was confirmed (good fit-indices)
- HSP: 3-factor solution superior to 1- and 2-factor solutions
 - 3 factors comparable to Smolewska's: LST, EOE, AES (good fit)
 - Inter-factor correlations: LST-EOE: .33 and EOE-AES: .28
 - To obtain decent fit: 2 item-correlations were allowed
 - ✦ Do you tend to be more sensitive to pain? WITH Do you startle easily?
 - ✦ Do you find yourself needing to withdraw... WITH Does your nervous system sometimes feel so frazzled that you just have to get off by yourself?
 - Scale reliabilities low: LST (.63), EOE (.62), AES (.47) using congeneric model



Factor correlations between OE and HSP

	OEint	OEim	OEse	OEem	OEpm
LST	.203	.335	.325	.534	-.165
EOE	.528	.457		.346	.326
AES	.368		.692	.391	

- Correlations are quite substantial: indicative of common underlying process
- Maybe helpful when a reconstruction of the HSP-scale would be considered
- Are there reasons to consider such a reconstruction?

Is SPS a continuous or categorical construct?

- Doubts in Aron, Aron, & Jagiellowicz (2012) about dimensional nature of HSP-scale
 - Influence of related concepts?
 - Item construction?
 - Factor-analytical methods
- Is SPS continuously distributed at the latent level or is it a taxon?
 - A fundamental divide between people with high SPS and the rest?
- Can we examine this issue empirically? Yes, we can! (but with hurdles)

Our research strategy



1. Build a model that fits a one-factor solution
2. Compare models on a continuum from completely continuous to completely categorical

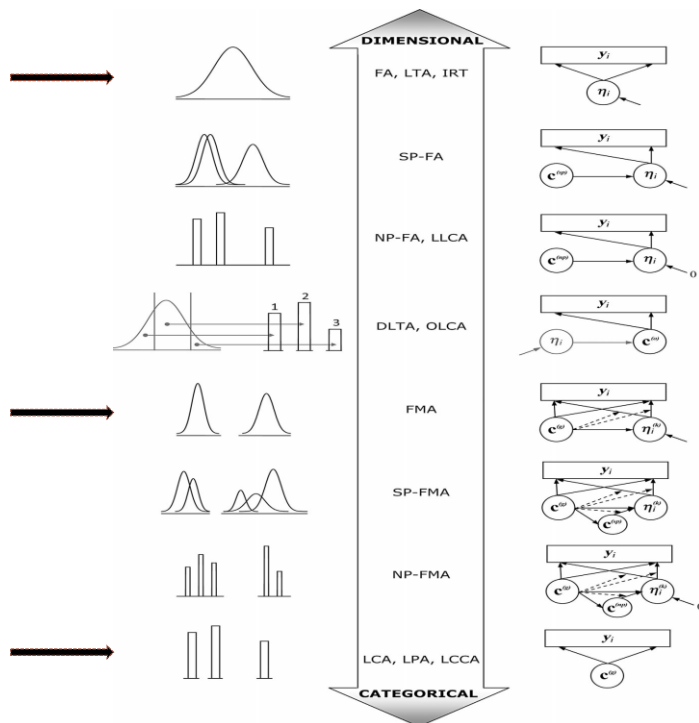
Building a 1-factor model



- Based on our previous sample (N = 526): no selection!
- Four 'bad' items with low factor loadings were removed:
 - ✦ Are you particularly sensitive to the effects of caffeine?
 - ✦ Are you conscientious?
 - ✦ When people are uncomfortable in a physical environment do you tend to know what needs to be done to make it more comfortable (like changing the lighting or the seating)?
 - ✦ Do you make a point to avoid violent movies and TV shows?
- Based on modification indices, we added item correlations till the fit was good (post hoc!)
 - 11 covariances out of 253 were added
 - CFI = .91 and RMSEA = .047, p (RMSEA < .05) = .825

Characteristics of this 1-factor model

- Reliability of the adapted scale was good:
 - Congeneric model fitted best: rel. = .825
- Best items:
 - Are you easily overwhelmed by strong sensory input?
 - Do you find it unpleasant to have a lot going on at once?
- Worst items:
 - Do you startle easily?
 - Do you notice and enjoy delicate or fine scents, tastes, sounds, works of art?
- Scale is not measurement invariant (neither metric nor scalar) for gender, thus comparisons between boys and girls are not valid!



Model comparisons

		LogL	N par	BIC	Entropy	% sm cl
FA	1-factor CFA	-17483.0	80	35467.07	/	
FMA	2 class-1factor	-17279.97	151	35505.72	0.666	32%
FMA	2 class-1factor WMI	-17304.28	129	35416.54	0.643	31.4%
FMA	3 class-1factor	-17155.03	222	35700.54	0.765	15.4%
LCA	2 class LCA	-17769.25	70	35976.94	0.768	45.7%
LCA	3 class LCA	-17616.83	94	35822.43	0.833	9.9%
LCA	4 class LCA	-17548.42	118	35835.92	0.829	9.1%

Conclusions

- SPS is a great concept, supported by theoretical considerations and empirical studies
- OE is scientifically a more isolated concept
- OEQ-II however has fine psychometric qualities
- HSP-scale: there is work to be done
- Issue of dimensionality is still unresolved, but with larger sample and better psychometric qualities of the HSP-scale, it is feasible
- Future directions: see Aron et al. (2012), and also behavioral studies examining the cognitive implications!