

Self-determination Theory and Teachers' Experiences 20 mins



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Purpose of this presentation

- The topic is interesting, but the theoretical understanding is even more so
- Mokken Scale Analysis, Rasch Analysis and Factor Analysis

Theoretical Background



Teachers and the “Meso”

- Researching teachers as subjects
- Interaction of teachers with their work environment
- Ball (2013) describes this way of analyzing the interplay between the organization and its teachers. “In thinking about education policy in this way we have to both materialize the school, as architecture and organization and attend to the schooled body, the ways in which school and policy are written onto the body” (p. 29).

Basic Psychological Needs of Self-determination Theory

- Autonomy – fit with job personally
 - I feel like my decisions at my job reflect what I really want
- Competence – fit with job professionally
 - At this school, I get a chance to show how capable I am
- Relatedness – belonging at work
 - Teachers are there for each other

Nitty Gritty

- Pilot
 - 31 Items, 152 responses
 - Items inspired by previous scales
 - Administered to teachers around the world, distributed on social media
- Large scale
 - 22 Items, 204 responses
 - Administered to teachers at Intl hiring fairs

Analyses



Mokken Scale Analysis

- Quick definition
 - Non-parametric
 - Guttman related
 - Probabilistic
 - But, different item response functions are allowed for different items (so we cannot compare “item difficulty”)
 - Come out with a “Loevinger’s H” calculation – comparing the actual Guttman errors to the expected if the items were unrelated
 - If $H < .3$ the items are unscalable
 - If $.3 \geq H \geq .4$, a scale is weakly scalable
 - If $.4 \geq H \geq .5$, a scale is moderately scalable
 - If $.5 \geq H$, a scale is strongly scaleable.
 - Each item H is reported and an overall H for the scale

Mokken → Rasch - my experience

- Doing Mokken before Rasch works as a “prewash”
- Can perhaps be used as further evidence of unidimensionality
- Pilot example:

	Item Separation	Item Reliability	Variance Explained	Category Measures	Disordered Thresholds	Misfit Items/People
All items	7.69	.98	51.3% (50.4% modeled)	-3.13, -1.29, .98, 3.66)	1	0/14
After prewash	4.83	.96	52.5% (52.1% modeled)	(-3.45, -1.42, 1/14, 3.93)	0	0/10

- In general, variance explained seems to increase and it detects disordered thresholds
- BUT, it may also restrict items that are more extreme (Business Influences Scale example)

Rasch Analysis of the Final SDT Scale

Item Hierarchy (MOST DIFFICULT)

- W10 -- The board/governors/owners of the school have a strong relationship with teachers
- W17 -- The school provides staff with opportunities to actively participate in school decisions
- W4 -- The board/governors/owners of the school show that they value teachers
- W18 -- I am free to express dissenting views to administration without fear of consequences
- W9 -- There is a team spirit through all ranks in this school
- W22 -- The stress from teaching at this school is worth it
- W2 -- The school makes me feel important as a member of staff
- W6 -- The school has a culture of shared responsibility for school issues
- W20 -- My superiors allow me input into decisions that affect me
- W14 -- In my job, I am not forced to do things I am uncomfortable with
- W7 -- There is a collaborative school culture which is characterized by mutual support
- W19 -- My superiors support my actions
- W15 -- I feel like my decisions at my job reflect what I really want
- W1 -- My contributions at work are recognized
- W21 -- At this school, I get a chance to show how capable I am
- W13 -- The tasks I am required to do at work are in line with what I want to do
- W16 -- I feel like I have been doing what really interests me in my job
- W12 -- I feel like I have been doing what really interests me in my job
- W8 -- I feel included in the group I want to belong to at work
- W3 -- Other people demonstrate to me that my work is valued
- W11 -- Teachers are there for each other
- W5 -- I feel like I can relate to the other people at my job (EASIEST)

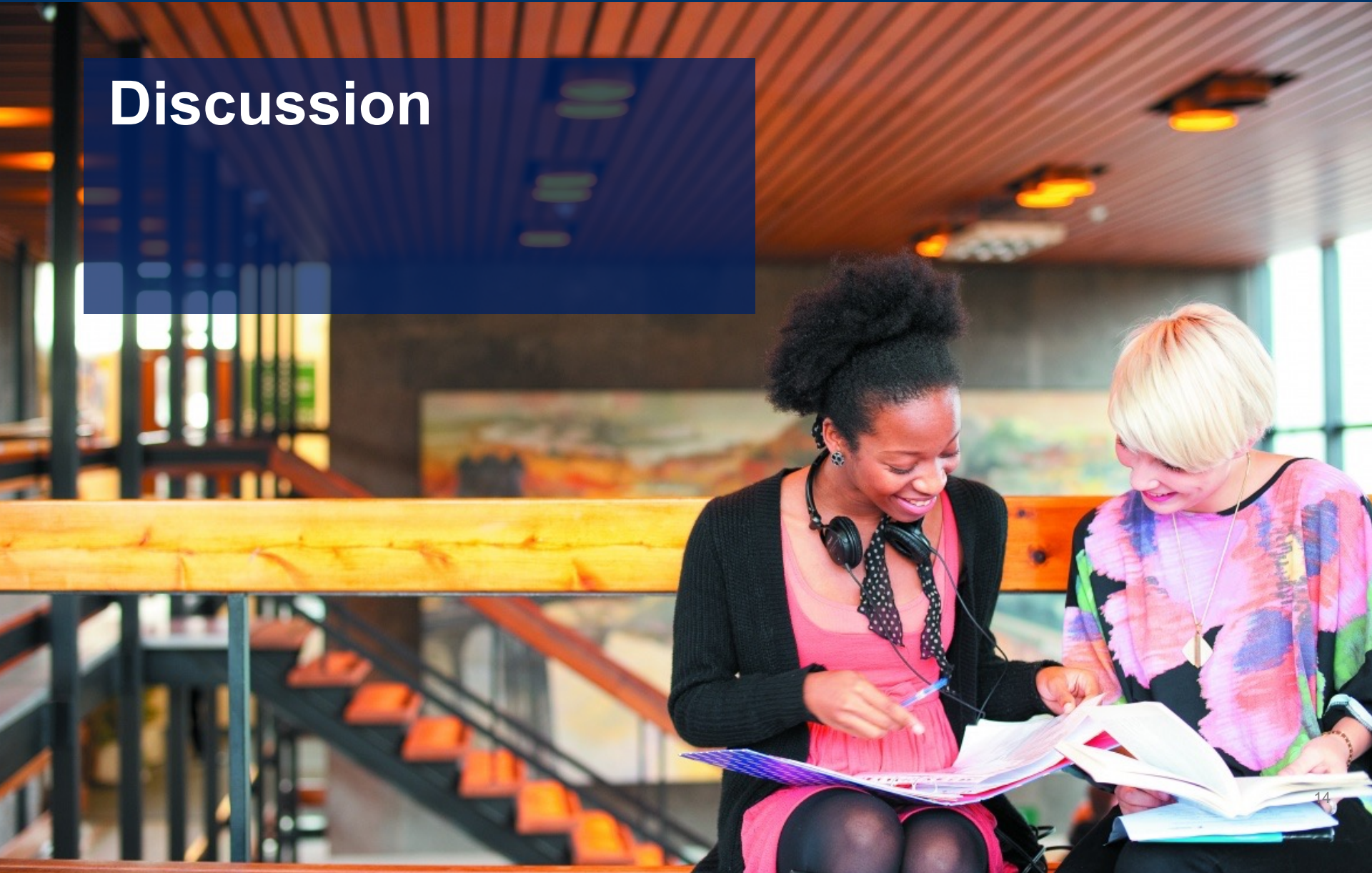
Rasch Analysis



Factor Analysis

- KMO sampling is .938, Bartlett's chi-square(231)=2928.638, $p < .01$
- Extracts three factors
 - First component explains 48.57% of variance
 - Second component 7.47%
 - Third component 5.87%
 - none load more on the 2nd or 3rd factor than they did on the first
- Rotated solution
 - Separates the "easiest" items in Rasch analysis
 - Those items load about .60, .30, .30 on the three components

Discussion



Comparing Analytical Methods

- Mokken strengths/weaknesses
 - Further evidence of 'unidimensionality'
 - But not always accepted on its own (IBO)
- Rasch definitely strengthens the analysis
 - I tend to input all items, then compare that to Mokken results to determine the usefulness
- Factor analysis ?
 - Almost useful
 - 3 factors
 - But not what we expect

Conclusion



A large, modern university interior with a high ceiling, glass walls, and multiple levels. People are seen sitting at long tables, and there are large potted plants. The scene is brightly lit with natural light from the windows.

Discussions and Questions

Thank you for attending

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