

# **The impact of individual-level and organisational-level evidence-based management on employees' motivation and health**

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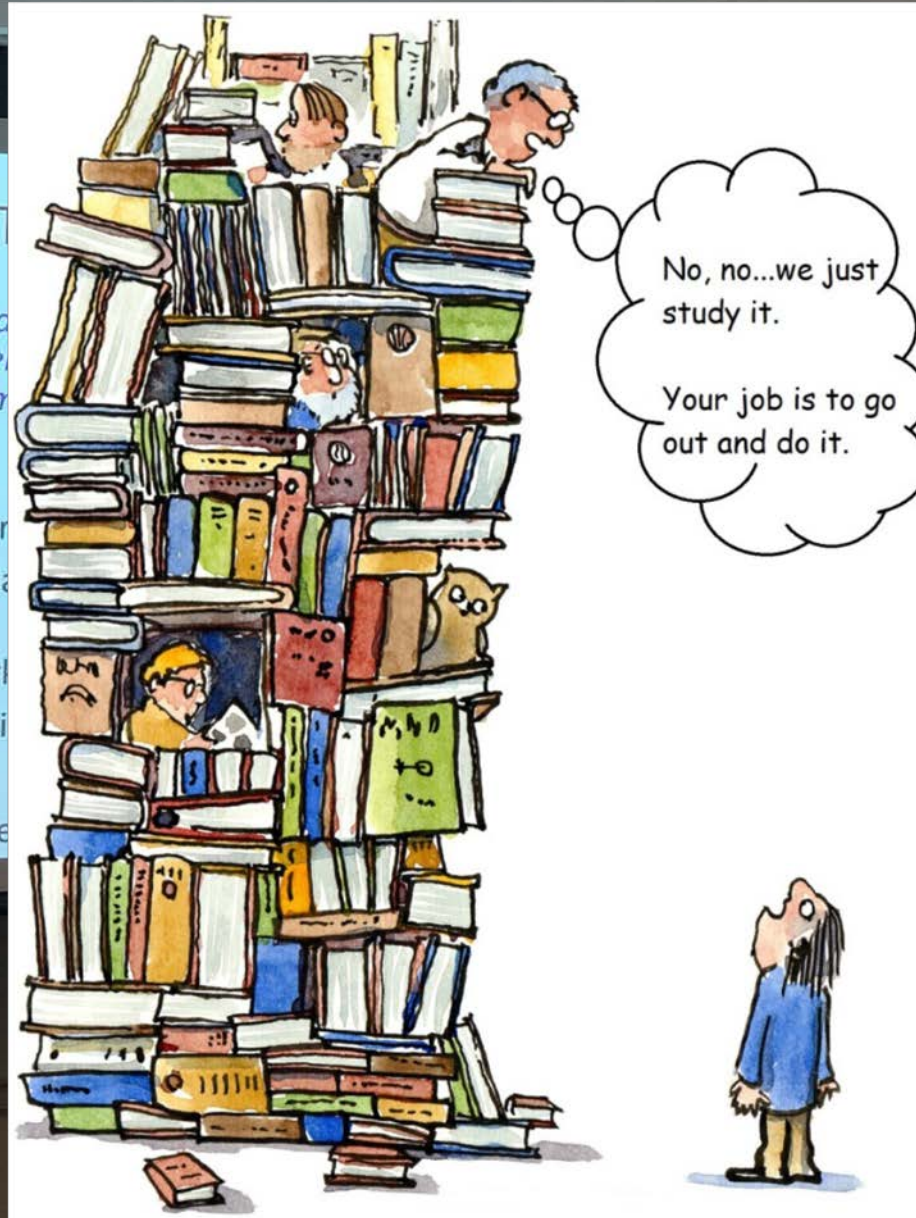


# Evidence-based Management

## Challenges:

*Academics characterised with theory, excessive about practical problems*

- Data capture/storage/tr
- Timing – lag between data quickly
- Complexities when working
- Privacy – Negative starting point
- Time/resources reality
- Competition for the research



## Challenges: The P

*Academics characterised as... over with theory, excessively mathematical about practical problems, and*

- Data capture/storage/transfer –
- Timing – lag between data capture quickly
- Complexities when working with
- Privacy – Negative starting point
- Time/resources reality
- Competition for the research \$\$

## Evidence-based Management (EBMgt)

- Term EBMgt introduced in the management literature by Walshe and Rundall (2001).
- Made popular by Pfeffer and Sutton (2006).
- Related terms and concepts:
  - 'great divide' (Anderson, 2007; Rynes, 2007)
  - 'research-practice gap' (z.B. Latham, 2007).
- Two questions were primarily addressed :
  - (1) Why do organizations not act in a rational and knowledge-based manner (knowing-doing gap)?
  - (2) Why do organizations – when they do behave in a rational manner – make use of 'false' knowledge ('dangerous half truths and absolute nonsense')?

# Evidence-based Management

## EBMgt – Ideal vs. Real

- What happens if managers/principals are confronted with a decision problem (e.g., increase of stress-related absenteeism)

### Ideal

- Evaluation of the problem
- Valid data
- Balance pros and cons
- Evaluation of results

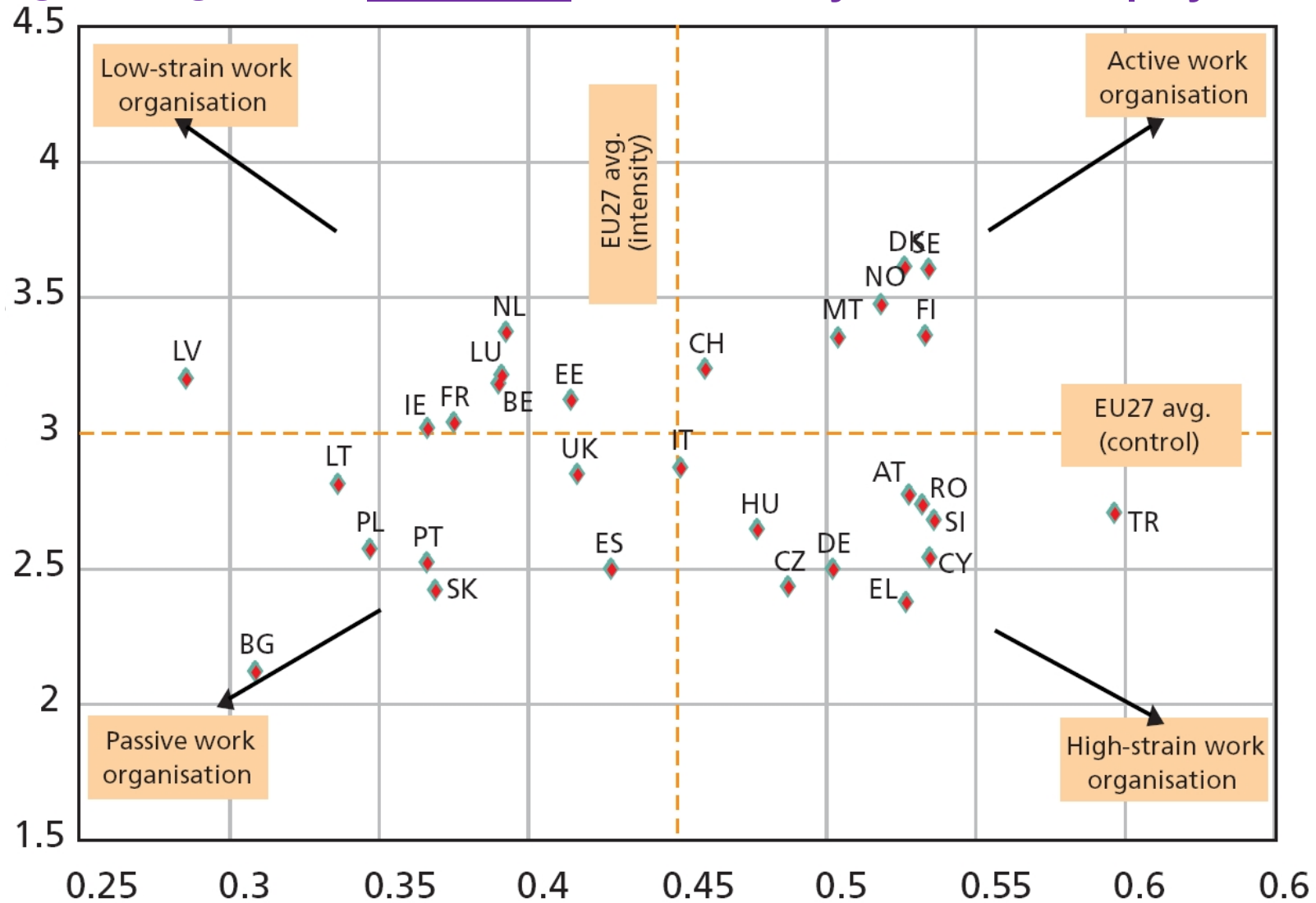
### Reality

- Limited resources
- Satisficing solutions
- Limited knowledge
- Hope
- Change cynicism & resistance to change

- **Example:** Stress at work has increased during recent years (Study of the Industrial Society UK; cf. Briner, 2007).
  - 53% respondents (responding on behalf of their organisation) agreed.
  - 68% claimed that permanent fatigue was the major symptom
  - BUT: 76% had never systematically analysed stress in their organization.
  - 76% reported increased absenteeism to be the most serious consequence.
  - BUT: 93% had never analysed stress as cause of absenteeism.

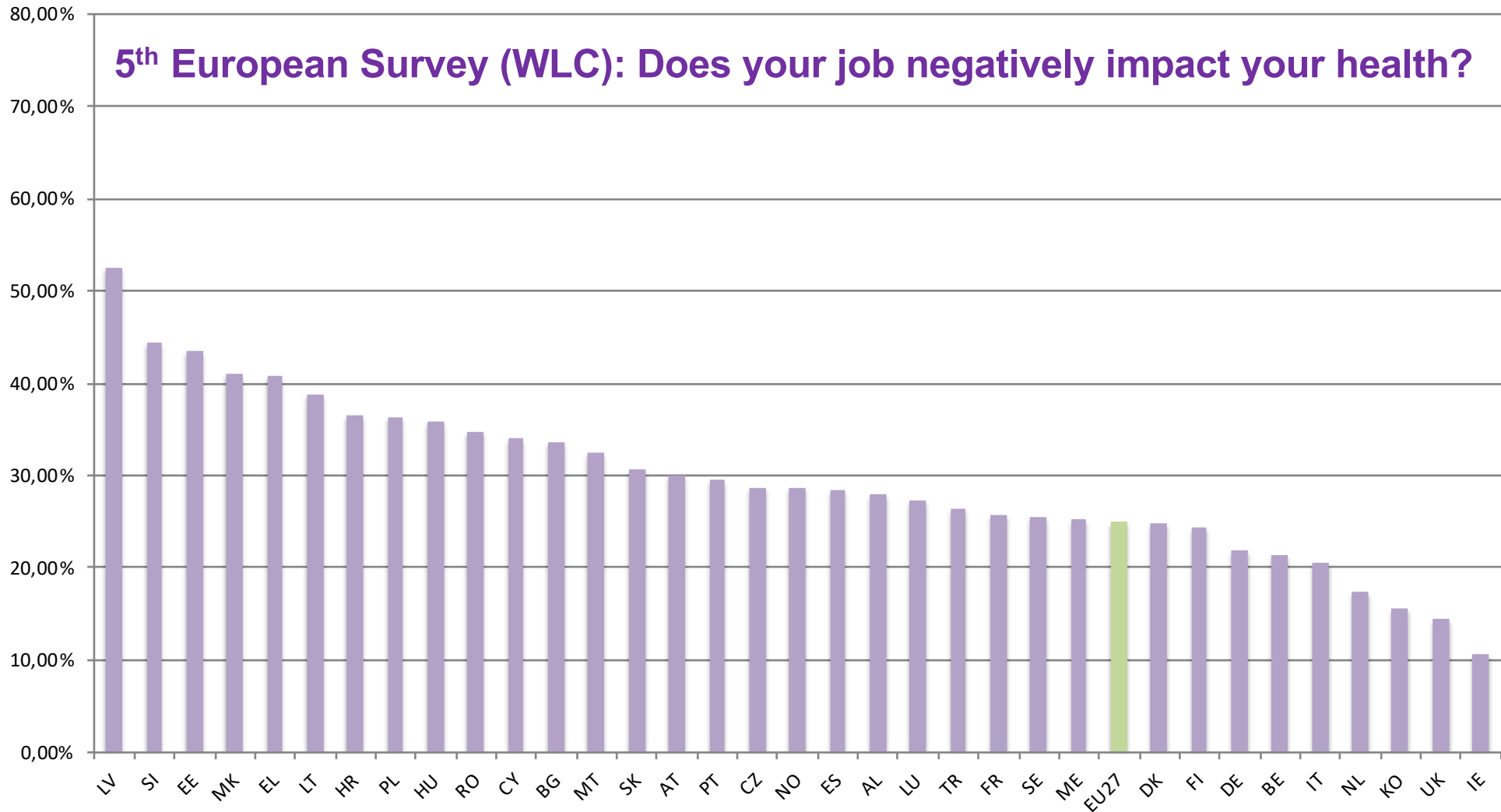
# Evidence-based Management

## Managers Ignore the Evidence or Do They Not Value Employee Health?



# Evidence-based Management

## Maganers do not Recognize Evidenze – Employees Do Neither





# Evidence-based Management

## Evidence vs. Evidence Substitutes (Pfeffer & Sutton, 2006)

### Evidence-substitute-based practice

- doing what (seems to have) worked in the past
- following deeply held, unexamined ideologies
- uncritical 'benchmarking' of what winners do

### Evidence-based practice

- build a culture in which people are encouraged to tell the truth
- be committed to "fact-based" decision making
- Look for the risks and drawbacks in what people recommend

## Theoretical Background: Evidence-based management & core-self evaluations

- **Theoretical distinction** (Pfeffer & Sutton, 2006):
  - evidence-based management (research results)
  - ‘substitute-based’ management (everything else)
- **Theoretical extension** (Briner et al., 2009):

evidence = research results +

  - practitioner’s expertise and judgment
  - local context
  - stakeholders’ feedback

Most claims on the potential benefits of evidence-based management and the negative effects of evidence-substitute-based management sound reasonable – but they are not evidence-based!!



## Study 1: Departments in local authorities (employees & supervisors)

### Sample

- $N = 53$  departments/local authorities
- 1.659 employees & 269 supervisors
- gender:
  - employees: 68.3% female
  - supervisors: 41.4% female
- average age
  - employees: 42.35 years (SD = 10.76)
  - supervisors: 47.58 years (SD = 8.39)
- average tenure (current position)
  - employees: 3.71 years (SD = 1.21)
  - supervisors: 4.17 years (SD = 1.17)

## Study 2: Public schools (teachers & principals)

### Sample

- $N = 168$  German schools
- sample size
  - teachers:  $1.387 < N < 2.545$
  - principals:  $260 < N < 297$
- gender
  - teachers: 61.9 % female
  - principals: 35.5% female
- average age
  - teachers: 44.25 years (SD = 10.47)
  - principals: 51.77 years (SD = 8.10)
- tenure (position)
  - teachers: 14.40 years (SD = 9.73)
  - principals: 1.47 years (SD = 0.50)

# Evidence-based Management

EFA of Teacher (N = 2.021), Employee (N = 1.659), Principal (N = 262) & Supervisor Data (N = 269)

Content	<u>Employees</u>			<u>Teachers</u>			<u>Principals</u>			<u>Supervisors</u>		
	F1	F2	F3	F1	F2	F3	F1	F2	F3	F1	F2	F3
Before important innovations are introduced, we explicitly search for verified (e.g., scientific) evidence of their efficacy in our authority.	.55					.63			.63	.68		
Our authority executives have direct contact to researchers to improve the quality of their decisions.			.71			.78			.80			.73
When it comes to important decisions the expertise of consultants is requested in our authority.			.55			.72			.65			.46
In our authority, innovations are proved by scientific studies.			.66			.74			.69			.63
Our authority conducts development projects and research projects together with university students and doctoral students.			.55			.57			.69			.53
When it comes to important decisions, figures based on experience are of great relevance in our authority.	.53			.68			.52			.30		
By recognizing inconvenient truths and facts we can learn a lot about errors and their prevention.	.56			.46			.51			.51		
Before our authority implements new methods and rules, we analyze their efficacy.	.60			.61			.54			.65		
In our authority information is retrieved from various sources before processes are re-designed.	.55			.57			.51			.57		
Before adopting procedures from other authorities, we analyze if our framework conditions are similar.	.60			.72			.68			.58		
Before adopting procedures from other authorities, we ask ourselves why it was successful there.	.70			.66			.69			.51		
Before we introduce new methods, we try to imagine possible shortcomings, even if we favor the idea.	.78			.76			.67			.57		

# Evidence-based Management

EFA of Teacher ( $N = 2.021$ ), Employee ( $N = 1.659$ ), Principal ( $N = 262$ ) & Supervisor Data ( $N = 269$ )

Content	<i>Employees</i>			<i>Teachers</i>			<i>Principals</i>			<i>Supervisors</i>		
	F1	F2	F3	F1	F2	F3	F1	F2	F3	F1	F2	F3
The majority of decisions made in our authority are based on personal experiences.		<b>.57</b>		-.45	<b>.57</b>			<b>.55</b>			<b><u>.74</u></b>	
In our authority we trust the gut feeling when it comes to important decisions.		<b>.60</b>			<b>.69</b>			<b>.60</b>			<b>.65</b>	
The statement 'We always did it this way' is the basis for many decisions in our authority.		<b>.44</b>			<b>.51</b>			<b>.43</b>			<b>.34</b>	
In our authority the content of advanced training frequently is less important than exchanging experiences with colleagues.		<b><u>.36</u></b>			<b>.50</b>			<b>.51</b>				
Based on broad experiences, in our authority correct decisions are made intuitively.		<b>.43</b>			<b>.47</b>			<b>.74</b>			<b>.66</b>	
Decisions are based on the personal beliefs of our executives.		<b><u>.35</u></b>		-.48	<b>.47</b>			<b>.65</b>			<b><u>.39</u></b>	
Decisions in our school are made based on what is done in other authorities.				-.45	<b>.42</b>							

# Evidence-based Management

## Descriptive Statistics

No.	Scale	M	SD	1	2	3	4	5	6	
<i>individual level</i>										
1	internal evidence (P)	4.15	.47							
2	external evidence (P)	2.95	.69	.37**						
3	substitute orientation (P)	2.89	.48	-.10+	-.17**					
4	internal evidence (T)	3.44	.72							
5	external evidence (T)	2.60	.78				.61**			
6	substitute orientation (T)	2.86	.53				-.27**	-.33**		
<i><u>school level (aggregated data)</u></i>										
1	internal evidence (P)	4.13	.35							alpha
2	external evidence (P)	2.94	.55	.35**						ICC
3	substitute orientation (P)	2.89	.36	-.09	-.19*					ICC
4	internal evidence (T)	3.52	.32	.06	-.05	-.03				
5	external evidence (T)	2.86	.40	-.02	.19*	-.10	.60**			
6	substitute orientation (T)	2.64	.25	-.10	-.16*	.17*	-.32**	-.31**		

Note: \*\*  $p < .01$ , \*  $p < .05$ , +  $p < .10$ .  $N = 291$ – $292$  for principals in the top panel,  $N = 2,450$ – $2,483$  for teachers in the top panel,  $N = 148$ – $154$  for schools in the bottom panel.

## Motivating Potential of Evidence-based Management (Individual Level)

- **Meaningful Rationale:** Employees' internalised motivation & satisfaction (Deci et al., 1994; Gagné & Deci, 2005).
- **Reasonable Arguments for Goals:** Feelings of hopelessness & aggression towards goals set (Rehman, Nabi, & Shahnawaz, 2018). “
- **Rational Persuasion:** Task commitment (Lam, O'Donnell, & O'Donnell, 2015; Yukl, Chavez, & Seifert, 2005; Yukl et al., 1999; Yukl, Kim, & Falbe, 1996; Yukl et al., 2008).
- **Mutual Reasoning/Critical Discussions:** Cognitive evaluations of goals' attractiveness and attainability (Vroom, 1964; Yukl et al., 1999)
- **Participation in Process Design:** Sense of autonomy (Gagné & Deci, 2005; Gastil, 1993, 1994a)
- **Unreasonably Behaving Supervisors:**  
Job satisfaction (Ashforth, 1997; Chi & Liang, 2013; Tepper, 2000; Tepper et al., 2009; Zellars, Tepper, & Duffy, 2002);  
feeling of aggression toward supervisor (S. Fox & Spector, 1999)



## Motivating Potential of Evidence-based Management (Individual Level)

- **Consultation and Rational Persuasion** (downward Influence tactics): Task commitment and compliance (Falbe & Yukl, 1992; Yukl et al., 2005, 2008; Yukl & Tracey, 1992).
- **Obliging Behaviours of Leaders:** Perceived as destructive (Aasland, Skogstad, Notelaers, Nielsen, & Einarsen, 2010; Einarsen et al., 2007), resulting in feelings of helplessness and frustration (Ashforth, 1997)



## Motivating Potential of Evidence-based Management (Individual Level)

- **Internal Evidence-Orientation** = teachers are involved when it comes to decisions about possible changes
    - feel that their knowledge and judgment is important and meaningful
    - have a sense of control and responsibility

=> essential ingredients of pos. affect & **job satisfaction** (Hackman & Oldham, 1980)

  - feel efficacious regarding several facets of school development
- => high level of **role-breadth self-efficacy** (Parker, 1998)
- feel esteemed
- => building block of proactive work style and **personal initiative** (e.g., Frese, 1997)

## Motivating Potential of Evidence-based Management (Individual Level)

- **External Evidence-Orientation** = searching for verified evidence e.g., by collaborating with researchers
  - externally supervised scientific studies, systematic evaluations and feedback of achievements can make teachers feel **efficacious**
  - abandoning innovations that perform poorly reduces teacher's negative affect and may increase **satisfaction**
  - perceiving that researchers are investing considerable effort to support the school could enhance **self-esteem**

## Motivating Potential of Evidence-based Management (Individual Level)

- **Evidence Substitute-Oriented** = principals trusting gut their feeling, decision making based on traditions, school governance based on 'beliefs'
  - feeling that one's knowledge is regarded as useless threatens **self-esteem**
  - seemingly irrational decisions make teachers feel out of control and **dissatisfied**
  - continuing with unquestioned traditions does not contribute to **personal initiative**

## Motivating Potential of Evidence-based Management (School Level)

- Effects of **aggregate** school-level evidence-based management above and beyond **individual** perceptions:
  - not every teacher is present when decisions affecting the school are made
  - positive motivational consequences for all teachers should nevertheless occur via improved outcomes at the level of
    - students (e.g., performance)
    - colleagues (e.g., job satisfaction),
    - teachers themselves (e.g., working conditions)
    - school (e.g., processes and procedures).

**Method:** Multi-level assessment of generic types of EBSM (2,573 teachers, 168 schools)

### Measures

- **Job Satisfaction**
  - single item *'We are interested in how satisfied you are with your work in general'*
- **Role-breath self-efficacy (alpha = .85)**
  - three items from a scale developed by Parker (1998)
  - *'How confident would you feel designing new procedures for your work area?'*
- **(Collective) Personal Initiative (alpha = .80)**
  - adapted from the 7-item measure of self-reported initiative by Frese et al. (1997)
  - *'Teachers in our school actively approach problems'*
- **Work Engagement (alpha = .93)**
  - 9-item version of the Utrecht Work Engagement Scale (Schaufeli et al., 2006)
  - *'At my job, I feel strong and vigorous'*

## Evidence-based Management

### Results: The motivation potential of individual & aggregate perceptions of EBSM

Table 2. Multi-level regression of job satisfaction on EBSM (Teacher  $N = 2013$ ; School  $N = 152$ )

Level	Fixed Effect	Coefficient	Standard Error	T-ratio	$p$
2					
	constant	4.91	0.04	130.04	0.000
	Ext. Evid.-orient. (School Level)	.22	0.14	1.59	0.117
	Int. Evid.- orient. (School Level)	.37**	0.19	2.01	0.044
	Substitute-orient. (School Level)	-.12	0.30	-.38	0.702
	Gender (1 = f, 2 = m)	.10	0.32	.31	0.755
	Age	-.01	0.01	-.71	0.477
1					
	Ext. Evid.-or.	.10*	0.04	2.36	0.018
	Int. Evid.-or.	.57**	0.04	15.43	0.000
	Substitute-or.	-.15**	0.05	-3.11	0.002
	Gender (1 = f, 2 = m)	-.16*	0.06	-2.48	0.013
	Age	.00	0.00	.11	0.914

Note: \*\*  $p < .01$ , \*  $p < .05$ , +  $p < .10$ . All Level 1-predictor variables were group-mean centred.

## Evidence-based Management

### Results: The motivation potential of individual & aggregate perceptions of EBSM

Multi-level regression of role breath self-efficacy on EBSM (Teacher  $N = 1057$ ; School  $N = 124$ )

Level	Fixed Effect	Coefficient	Standard Error	T-ratio	$p$
2					
	constant	3.64	0.01	163.31	0.000
	Ext. Evid.-orient. (School Level)	-.05	0.08	-.68	0.498
	Int. Evid.- orient. (School Level)	.29**	0.10	2.86	0.004
	Substitute-orient. (School Level)	-.04	0.11	-.33	0.745
	Gender (1 = f, 2 = m)	.29**	0.10	2.79	0.005
	Age	-.00	0.01	-.35	0.800
1					
	Ext. Evid.-or.	.11*	0.04	2.47	0.014
	Int. Evid.-or.	.13**	0.05	2.77	0.006
	Substitute-or.	-.05	0.04	-1.11	0.266
	Gender (1 = f, 2 = m)	.02	0.06	.35	0.726
	Age	.00	0.03	.87	0.383

*Note:* \*\*  $p < .01$ , \*  $p < .05$ , +  $p < .10$ . All Level 1-predictor variables were group-mean centred.



## Evidence-based Management

### Results: The motivation potential of individual & aggregate perceptions of EBSM

Multi-level regression of personal initiative on EBSM (Teacher  $N = 2027$ ; School  $N = 152$ )

Level	Fixed Effect	Coefficient	Standard Error	T-ratio	$p$
2					
	constant	3.61	0.02	192.60	0.000
	Ext. Evid.-orient. (School Level)	.23**	0.08	3.11	0.002
	Int. Evid.- orient. (School Level)	.53**	0.10	5.56	0.000
	Substitute-orient. (School Level)	-.23*	0.11	-2.04	0.041
	Gender (1 = f, 2 = m)	-.01	0.11	-.10	0.922
	Age	.00	0.01	.01	0.992
1					
	Ext. Evid.-or.	.12**	0.02	5.32	0.000
	Int. Evid.-or.	.36**	0.02	14.86	0.000
	Substitute-or.	-.08**	0.03	-3.21	0.001
	Gender (1 = f, 2 = m)	.04	0.03	1.56	0.119
	Age	.00**	0.00	3.53	0.000

*Note:* \*\*  $p < .01$ , \*  $p < .05$ , +  $p < .10$ . All Level 1-predictor variables were group-mean centred.

## Evidence-based Management

### Results: The motivation potential of individual & aggregate perceptions of EBSM

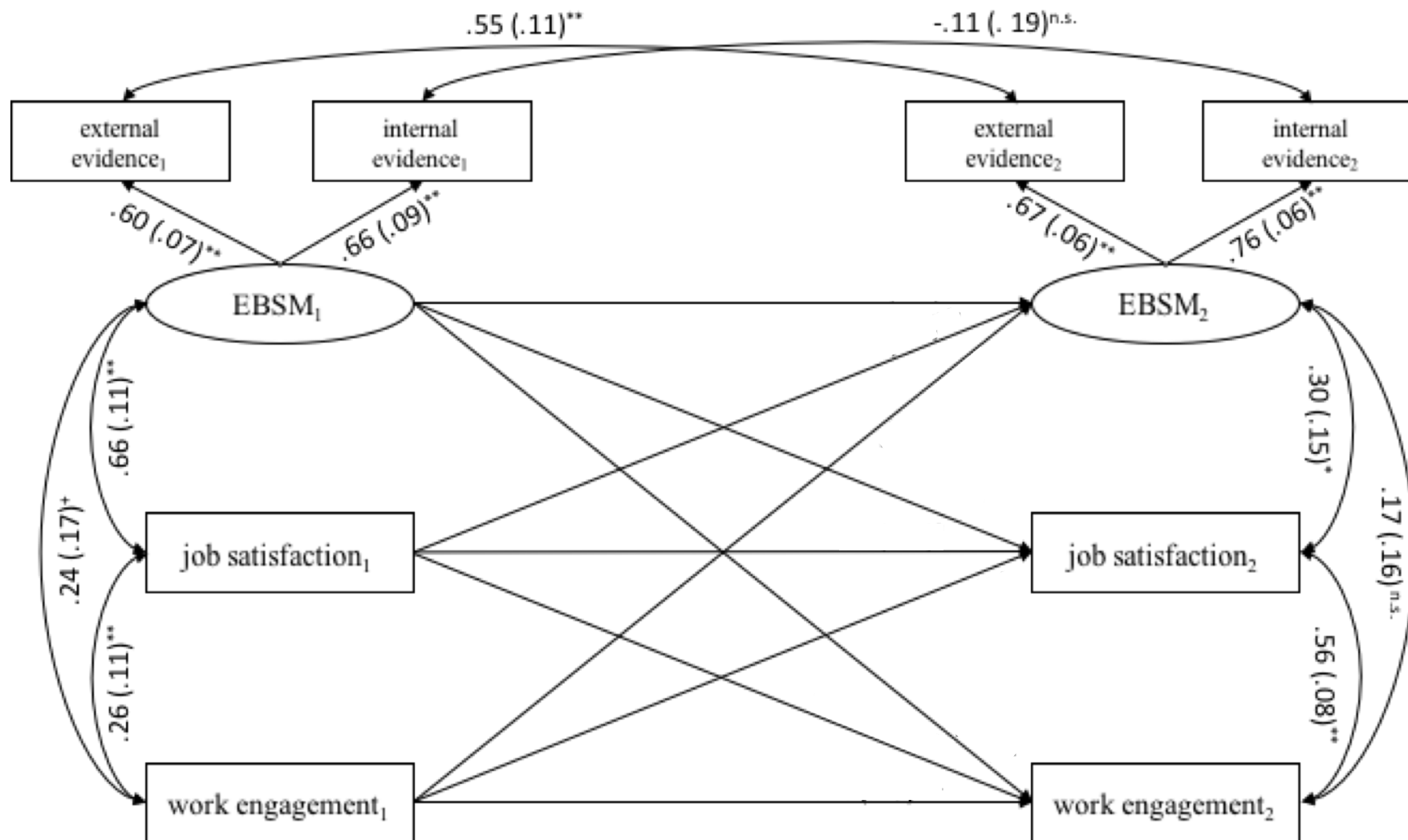
Multi-level regression of work engagement on EBSM (Teacher  $N = 2027$ ; School  $N = 152$ )

Level	Fixed Effect	Coefficient	Standard Error	T-ratio	$p$
2					
	constant	4.92	0.03	169.39	0.000
	Ext. Evid.-orient. (School Level)	.01	0.11	.07	0.946
	Int. Evid.- orient. (School Level)	.35**	0.13	2.65	0.008
	Substitute-orient. (School Level)	.04	0.15	.28	.0778
	Gender (1 = f, 2 = m)	-.17	0.15	-1.14	0.254
	Age	.00	0.01	.42	0.675
1					
	Ext. Evid.-or.	.22**	0.06	4.56	0.000
	Int. Evid.-or.	.16**	0.06	2.59	0.001
	Substitute-or.	.11	0.07	1.54	0.124
	Gender (1 = f, 2 = m)	-.10	0.06	-1.62	0.105
	Age	-.11**	0.04	-3.83	0.000

Note: \*\*  $p < .01$ , \*  $p < .05$ , +  $p < .10$ . All Level 1-predictor variables were group-mean centred.

## Evidence-based Management

### Cross-lagged Panel Model of Aggregated EBM, Job Satisfaction, and Engagement



## Discussion

- Organizational changes and school reforms may undermine motivation and well-being
- Evidence-based approaches are likely to foster motivation and well-being.
- Internally evidence-oriented management has the strongest effects.
- There is no natural law prescribing that evidence internally gathered using studies conducted by employees is less valid than research evidence gathered by us (researchers).
- Necessary precondition for making internal evidence the most valid evidence
  - better educate employees/managers in social science methods.
  - empower organizations/branches/units in order to make gathering of internal evidence possible
- People with social science skills may also be more open to externally gathered evidence because they can give more meaning to it ....

**Is it All about Participation &  
Research Co-Production  
rather than Evidence per se?**