Self-Disclosure in Online Interaction: A Meta-Analysis

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Self-disclosure

Self-disclosure is defined as
what individuals verbally communicate about themselves,
including thoughts, feelings, and experiences.

- People disclose information for a variety of purposes:
  - establishing legitimacy,
  - authentication,
  - trust,
  - providing personalized services,…

AUTHENTICATION
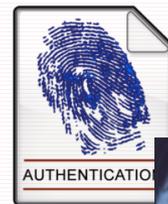
Online self-disclosure

important in electronic commerce and online relationship building:

- signifies **trust** and **acceptance** of the privacy assurance

- in absence of face-to-face interaction companies have to rely on such feedback behavior

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Online self-disclosure

is of particular interest in human-computer interaction

e.g.,

- personalized recommender systems
- "one click" purchasing
- e-recruitment

However, not all users are willing to disclose personal information.

Major barrier: **privacy concern**

Still, paradoxically…

…many users appear to provide personal information abundantly in the online setting
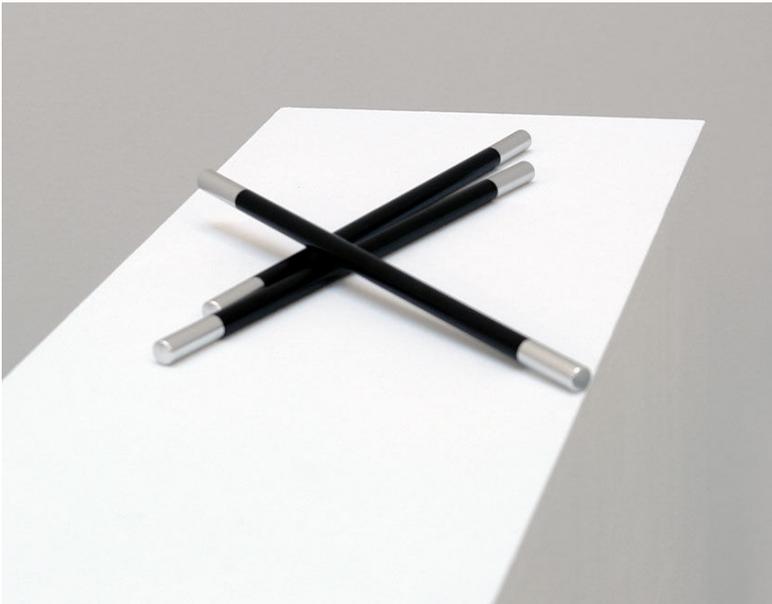
particularly in the context of online social networks
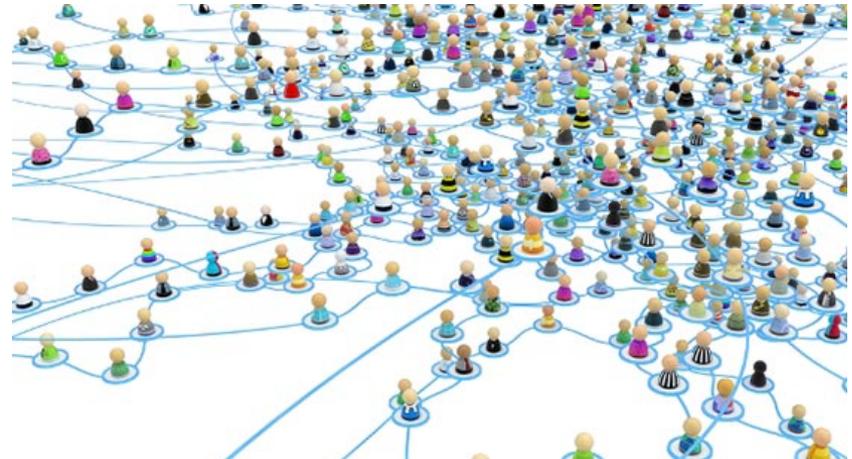
The specific objective

Identify the most influential factors that shape self-disclosure

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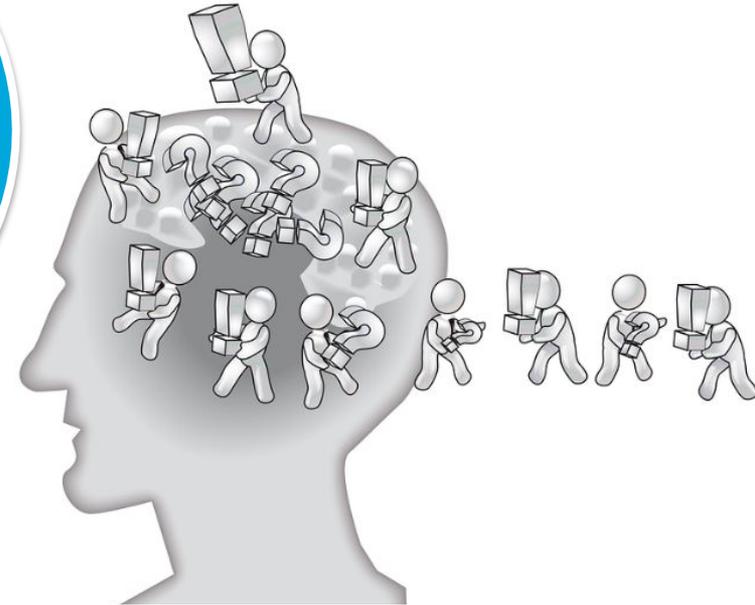
Can a user's self-disclosure be manipulated?

And to what extent...?

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# Many studies on online self-disclosure

Very specific variables!

The scope is tremendous:

- gender
- education
- social anxiety
- reward
- anonymity
- trust
- privacy
- ...

...but each study provides only puzzle pieces

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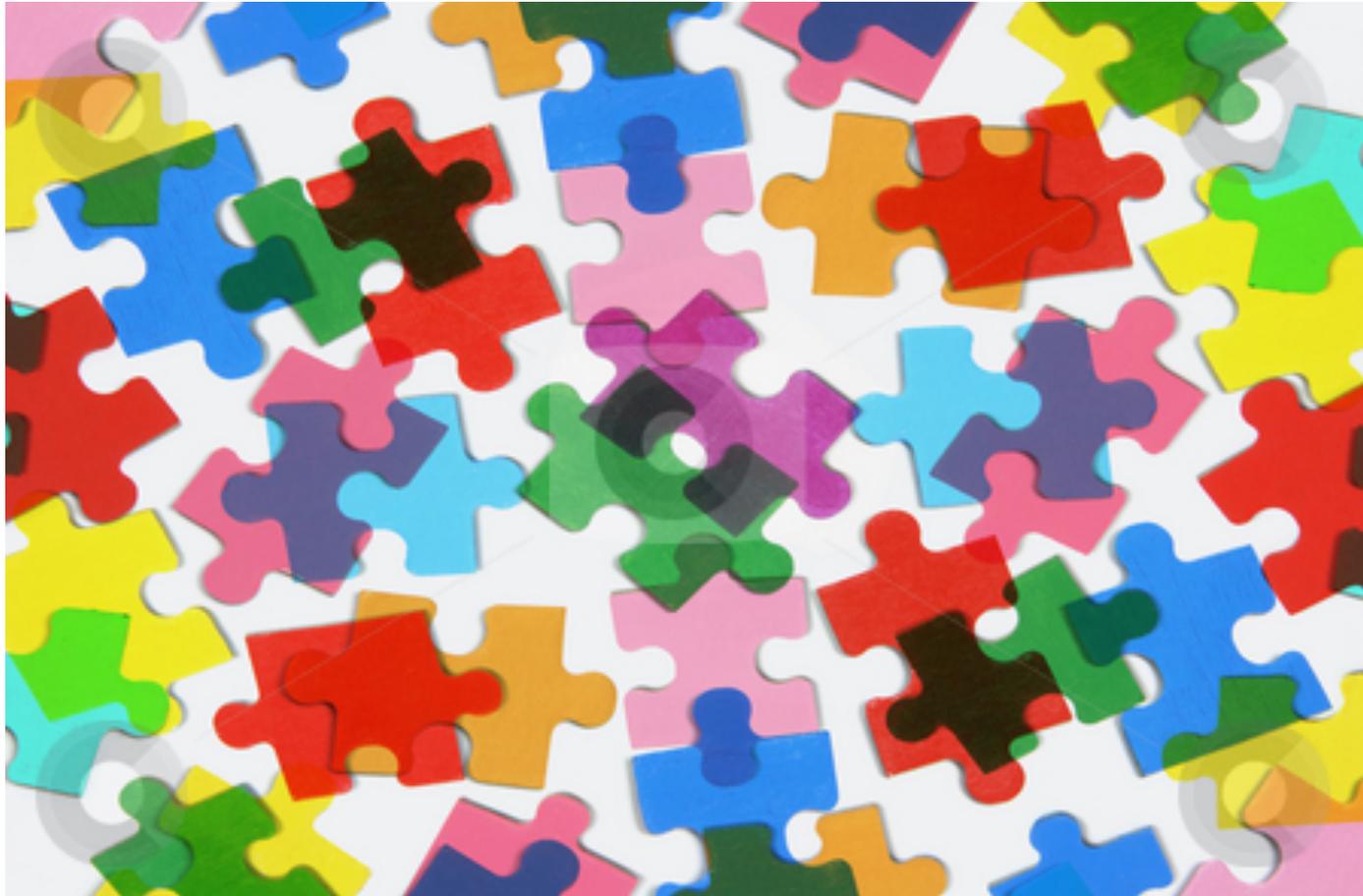
Goal

➢ bring these pieces together
➢ use existing research findings in the field

Statistical meta-analysis

A statistical meta-analysis represents a **systematic aggregation of the findings** of previous studies regarding the extent to which one or several **predictors affect a dependent variable**, based on so-called **effect sizes**.

self-disclosure

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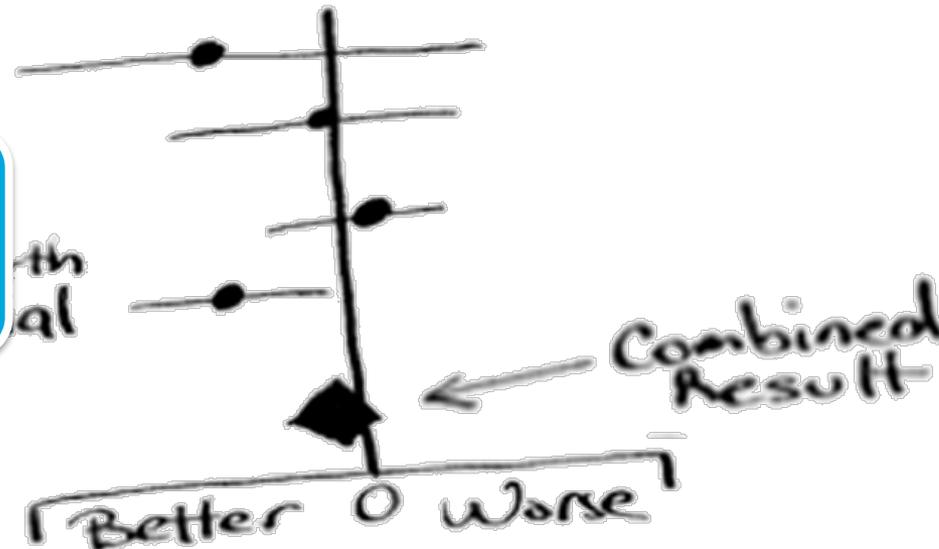
Criteria for inclusion/exclusion

A study was **included** if it fulfilled **all** of the following criteria:

- disclosure as a result of one or more influencing factors;
- self-disclosure in **online setting**;
- empirical, quantitative study;
- adequate data for the computation of effect sizes.
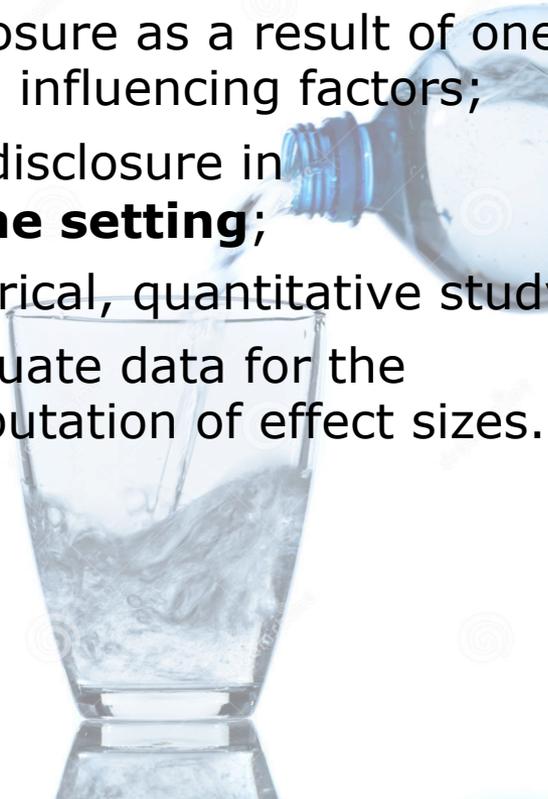
A study was **excluded** if **at least one** of the following criteria were met:

- investigated solely the effects of disclosure on other factors or outcomes;
- disclosure of **health issues**;
- disclosure in the field of **dating**;
- **corporate disclosure**;
- disclosure in offline settings;
- qualitative study;
- data for computing effect sizes not available.
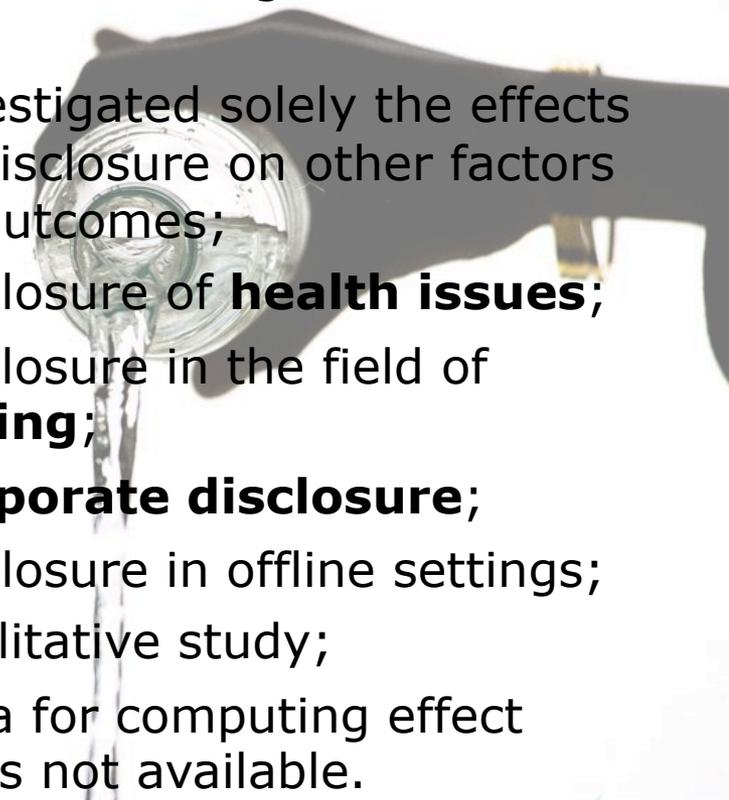
Sample

48 studies on online self-disclosure

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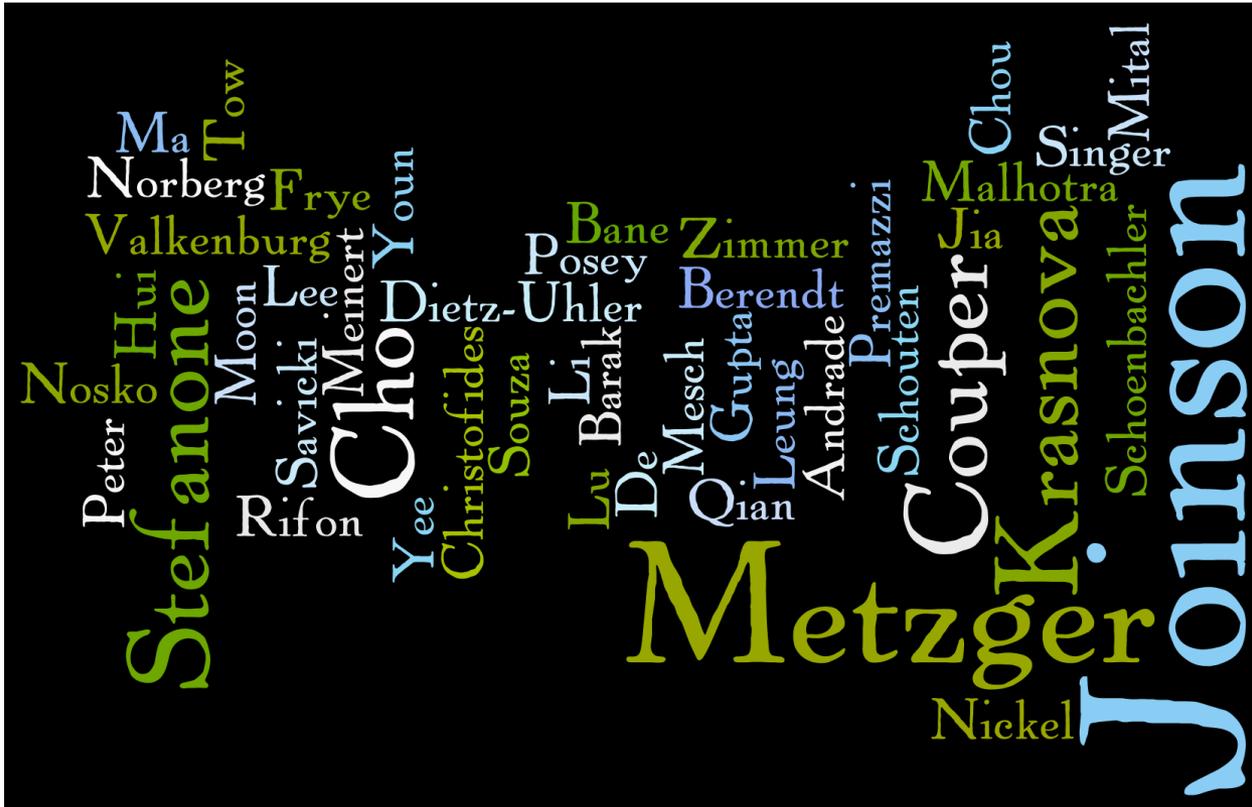
Puzzle pieces –
very specific variables

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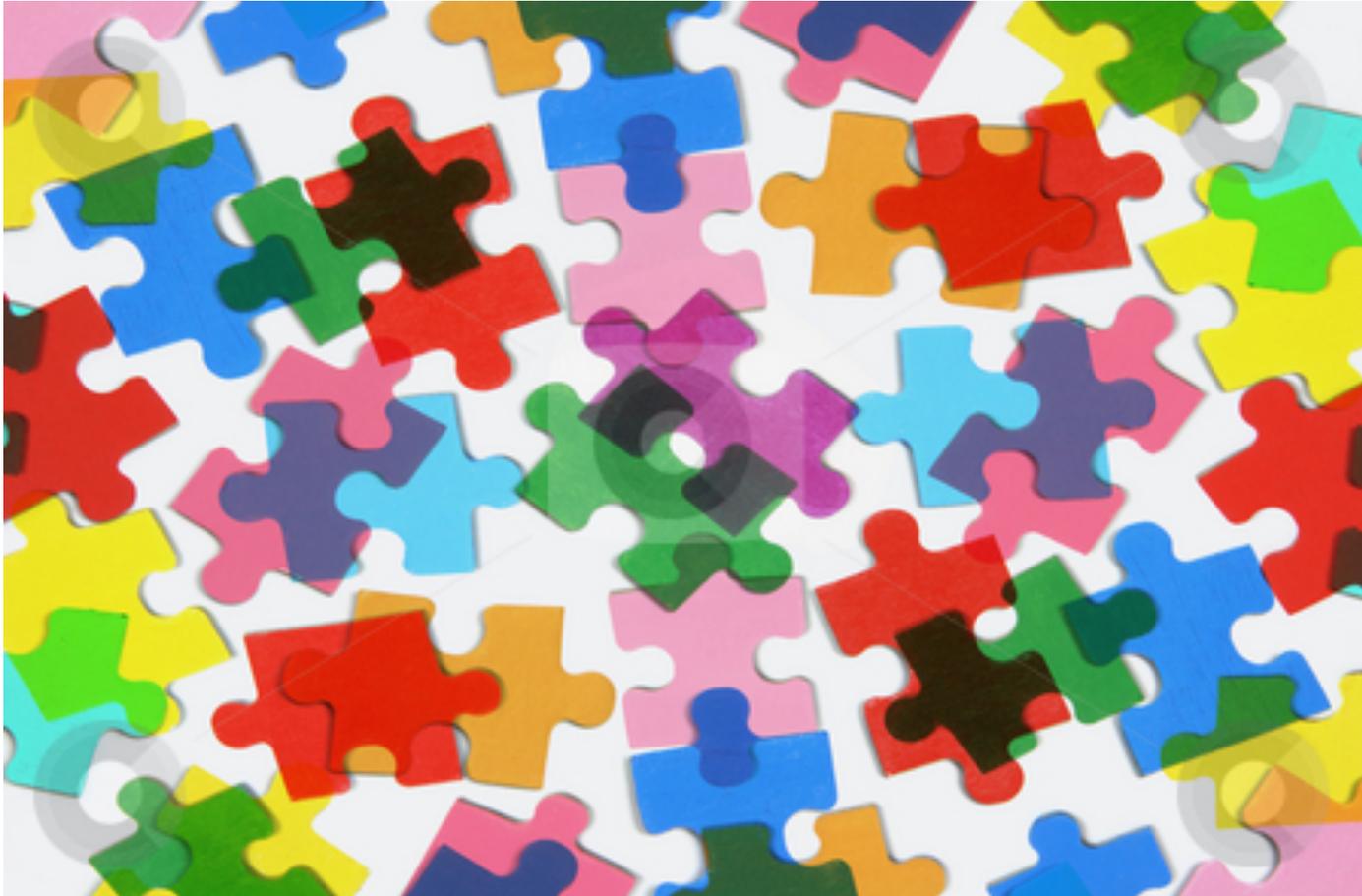
Categorization of independent variables

Demographics
- e.g., sex, age, or education

Environmental factors
- peer-related variables (e.g., peer pressure)
- provider-related variables (e.g., reputation of a company)

Person-based variables
- inherent to a person and his/her perceptions
- e.g., self-esteem, personality traits, or perceived risk

System-based variables
- controlled by a system or inherent to system
- e.g., privacy priming or reward provided for disclosed info

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Effects on self-disclosure
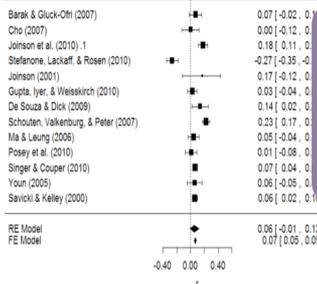
demographics — RE .06 / FE .07
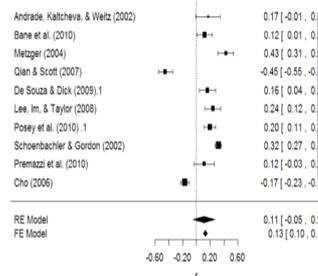
environmental factors — RE .11 / FE .13
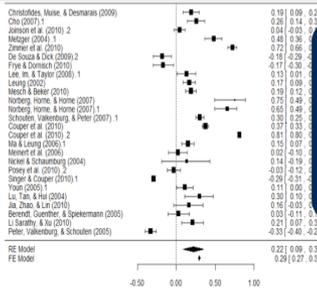
person-based variables — RE .22 / FE .29

system-based variables — RE .18 / FE .10

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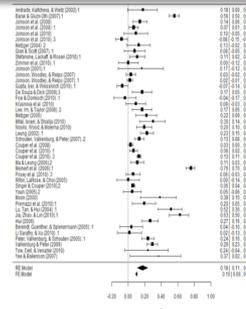
Findings

Finding 1

the identified effect sizes appear rather low

- but... results clearly suggest that person- and system-based variables do influence user self-disclosure to some extent

Finding 2

system-based variables, **which can be purposefully designed**, are at least a moderately effective key to "**shape**" user self-disclosure

- e.g.,
  - system functionality and usefulness
  - system type that asks to disclose one's data (e.g., social media platform, web shop, or registration for a game)
  - providing a reward for disclosing one's information

Finding 3:
Methodical findings in brief

considerable heterogeneity among the effect sizes in each category

large degree of heterogeneity among the studies' findings for each predictor category

almost the entire identified variation in effects on self-disclosure is due to heterogeneity between studies

but:
predictor category makes a considerable difference for the effect on self-disclosure

Next steps

categorization in its current form might not be the "golden nugget" for explaining this heterogeneity

→ rethink categorization

included studies referring to both attitude and behavior → "privacy paradox" not considered

→ considering the two variables separately in analysis

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Take away messages

- person- and system-based variables do influence user self-disclosure

- system-based variables, which can be purposefully designed, are at least a moderately effective key to "shape" user self-disclosure

- considerable heterogeneity between studies

- rethink categorization

- considering "privacy paradox", considering the two variables separately in analysis

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Additional Information

Intercoder agreement

- Initial intercoder agreement
  - overall agreement of 81%
  - Fleiss-Kappa of .77 (= "substantial agreement")

  - Environmental factors: low Kappa (.43)
  - all other categories: "almost perfect agreement" (Kappa values > .80)

- In the instances where some disagreement emerged, the coders discussed the study in question until **complete consensus** could be established.

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publication	n	categories
Andrade, Kaltcheva and Weitz [22]	114	e, s
Bane, Cornish, Erspamer and Kampman [58]	307	e
Barak and Gluck-Ofri [39]	480	d, s
Berendt, Günther and Spiekermann [59]	206	p, s
Cho [24]	260	d, p
Cho [60]	881	e
Christofides, Muise and Desmarais [31]	343	p
Couper, Singer, Conrad and Groves [28]	3671	s
Couper, Singer, Conrad and Groves [61], study 1	1831	p, s
Couper, Singer, Conrad and Groves [61], study 2	6400	p, s
De Souza and Dick [62]	263	d, e, p, s
Frye and Dornisch [33]	214	p, s
Gupta, Iyer and Weisskirch [16]	809	d, s
Hui, Tan and Goh [63]	331	s
Jia, Zhao and Lin [64]	105	p, s
Joinson [65]	49	d, s
Joinson, Paine, Buchanan and Reips [37], study 1	515	s
Joinson, Paine, Buchanan and Reips [37], study 2	1189	s
Joinson, Reips, Buchanan and Schofield [6], study 1	181	s
Joinson, Reips, Buchanan and Schofield [6], study 2	759	d, p, s
Joinson, Woodley and Reips [66], study 1	1144	s
Joinson, Woodley and Reips [66], study 2	3544	s
Krasnova, Spiekermann, Koroleva and Hildebrand [67]	259	s
Lee, Im and Taylor [14]	259	e, p, s
Leung [68]	576	p, s
Li, Sarathy and Xu [69]	182	p, s
Lu, Tan and Hui [70]	95	p, s
Ma and Leung [27]	591	d, p, s
Meinert, Peterson, Criswell and Crossland [34]	261	p, s
Mesch and Beker [71]	790	p
Metzger [3]	213	d, e, p, s
Metzger [4]	189	e, p, s
Mital, Israel and Agarwal [72]	131	s
Moon [20]	60	s
Nickel and Schaumburg [40]	39	p
Norberg, Horne and Horne [54], study 1	23	p
Norberg, Horne and Horne [54], study 2	68	p
Nosko, Wood and Molema [25]	400	s
Peter, Valkenburg and Schouten [73]	600	p, s
Posey, Lowry, Roberts and Ellis [29]	529	d, e, p, s
Premazzi, Castaldo, Grosso, Raman, Brudvig and Hofacker [23]	178	e, s
Qian and Scott [30]	242	e, s
Rifon, Larose and Choi [35]	210	s
Savicki and Kelley [74]	2692	d
Schoenbachler and Gordon [75]	1338	e
Schouten, Valkenburg and Peter [10]	1203	d, p, s
Singer and Couper [76]	7210	d, p, s
Stefanone, Lackaff and Rosen [77]	452	d, s
Tow, Dell and Venable [78]	51	s
Valkenburg and Peter [79]	812	s
Yee and Bailenson [80]	32	s
Youn [81]	326	d, p, s
Zimmer, Arsal, Al-Marzouq and Grover [32]	264	p, s

Forest plot: demographic predictors

Barak & Gluck-Ofri (2007)		0.07 [-0.02 , 0.16]
Cho (2007)		0.00 [-0.12 , 0.12]
Joinson et al. (2010) .1		0.18 [0.11 , 0.25]
Stefanone, Lackaff, & Rosen (2010)		-0.27 [-0.35 , -0.18]
Joinson (2001)		0.17 [-0.12 , 0.43]
Gupta, Iyer, & Weisskirch (2010)		0.03 [-0.04 , 0.09]
De Souza & Dick (2009)		0.14 [0.02 , 0.26]
Schouten, Valkenburg, & Peter (2007)		0.23 [0.17 , 0.28]
Ma & Leung (2006)		0.05 [-0.04 , 0.13]
Posey et al. (2010)		0.01 [-0.08 , 0.10]
Singer & Couper (2010)		0.07 [0.04 , 0.09]
Youn (2005)		0.06 [-0.05 , 0.17]
Savicki & Kelley (2000)		0.06 [0.02 , 0.10]
RE Model		0.06 [-0.01 , 0.12]
FE Model		0.07 [0.05 , 0.09]

-0.40   0.00   0.40

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Forest plot: person-based predictors

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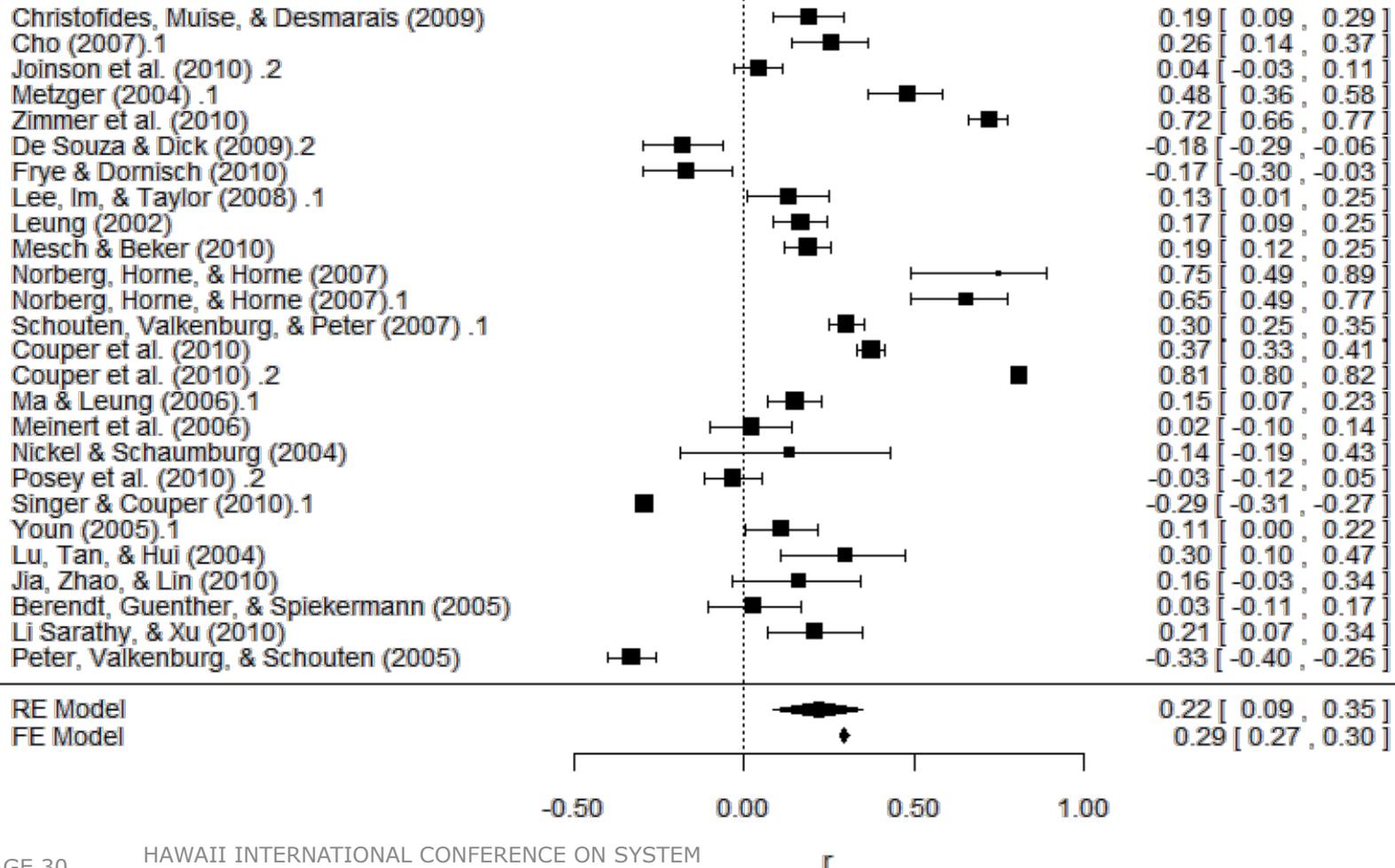
Forest plot: system-based predictors
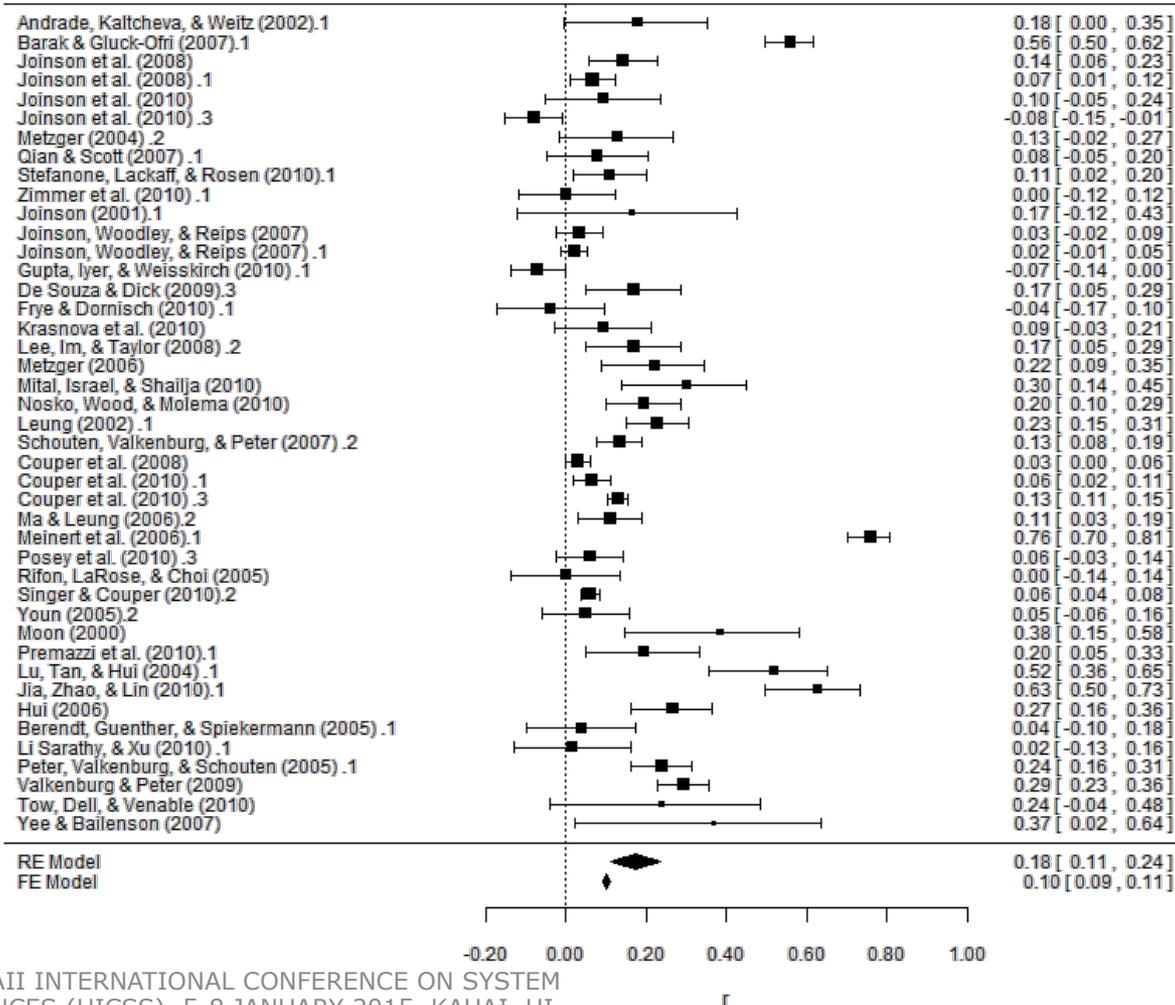
Heterogeneity statistics for each predictor category

	demographic	environmental
Q (df)	99.8 (12) **	251.8 (9) **
τ^2 (s.e.)	.013 (.006)	.068 (.033)
H	3.65	5.25
I^2	92.5%	96.4%

	person-based	system-based
Q (df)	7658.5 (25) **	626.5 (42) **
τ^2 (s.e.)	.125 (.037)	.041 (.010)
H	9.89	5.79
I^2	99.0%	97.0%
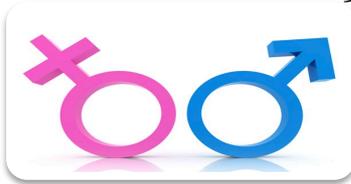
Publications

Publications available at:

- https://www.researchgate.net/profile/Christine_Bauer
- http://bach.wu.ac.at/bachapp/cgi-bin/fides/fides.aspx/fides.aspx?search=true;person=true;show=pub;tid=9856;lang=EN

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