

gesis

Leibniz Institute
for the Social Sciences



Why do authors of social science journal articles share their data? Explanations by the Theory of Planned Behavior.

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Data Sharing

Importance of data sharing

- transparency, verification, replication, validation
- cost efficiency (data reuse)
- ...

But: Sharing data is for varying reasons not a norm.

- lack of resources
- fear to lose publication opportunities
- fear of misuse of shared data
- ...

Research Question

Which factors can explain individual researcher's data sharing behavior?

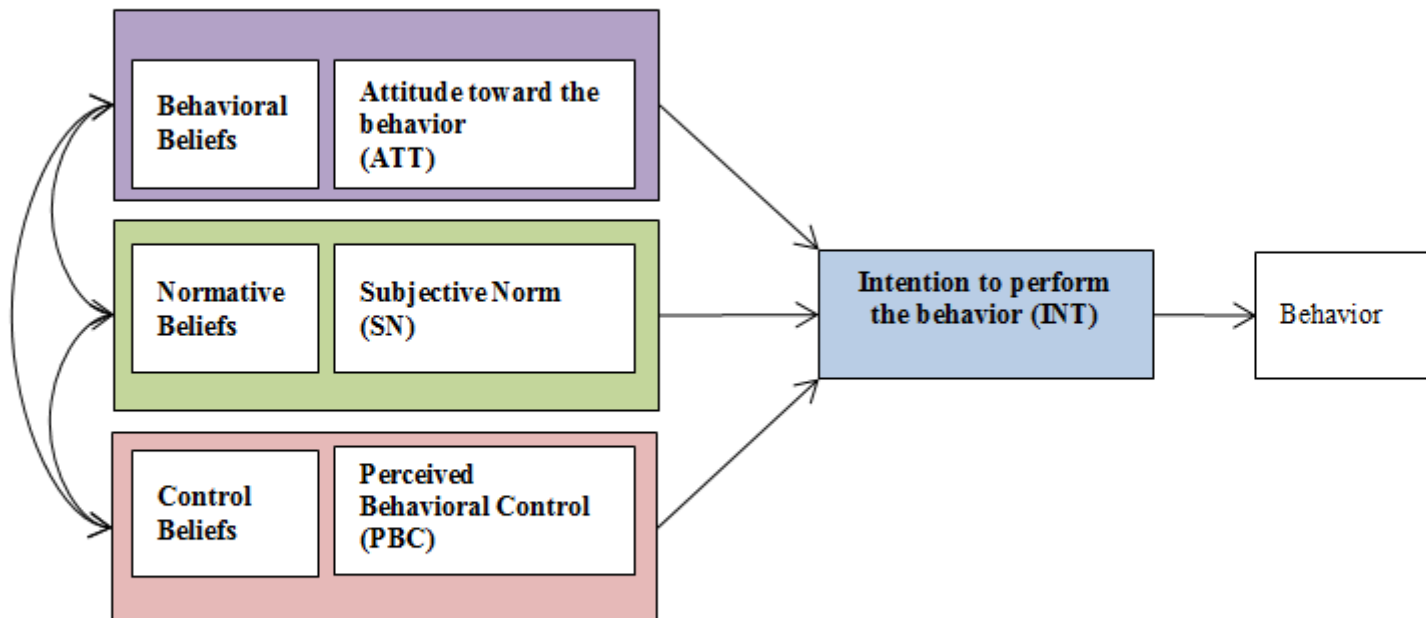
Empirical Study

- Data Collection
 - ▶ Target Population
 - authors of scientific articles
 - published in *social sciences* journals
 - primary or secondary *quantitative* data
 - ▶ Sampling Procedure and Collection Mode
 - 10 journals (2012-2014)
 - e-mail addresses of authors
 - online questionnaire
- Response Rate
 - ▶ 1011 articles, 459 authors participated (45%)

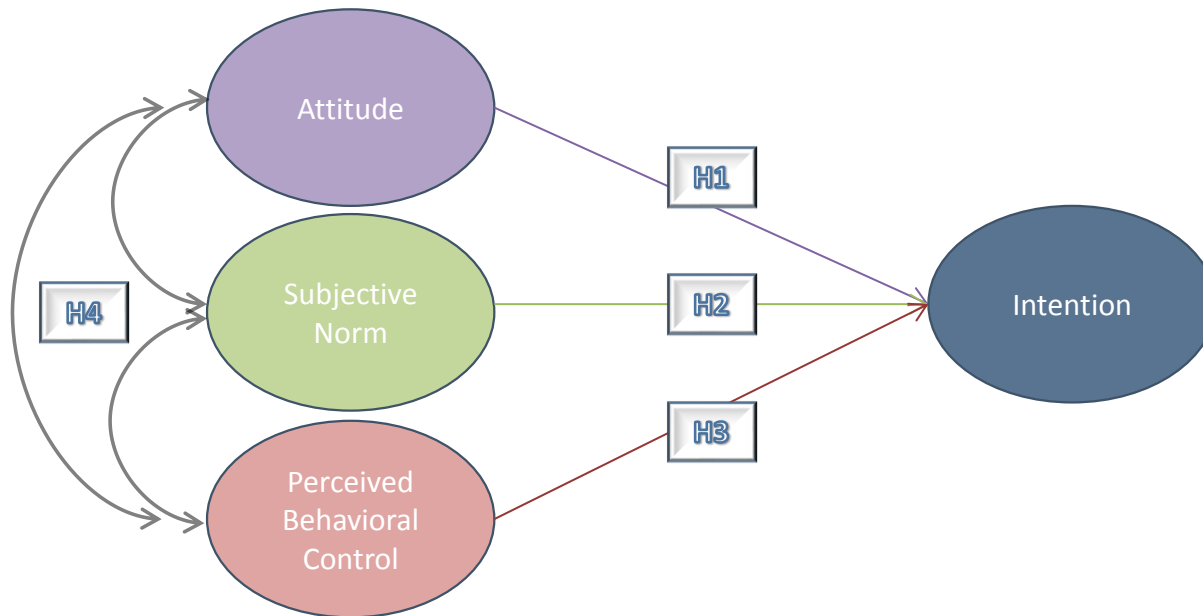
Demographics

Demographic variables		TOTAL	TOTAL (%)
Gender	Male	260	58.30
	Female	103	23.09
	Other	1	0.22
	Missing	82	18.39
Age	Under 29	17	3.81
	30-39	189	42.38
	40-49	91	20.40
	50-59	28	6.28
	60+	20	4.48
	Missing	101	22.65
Position	Professor	91	20.40
	Associate Professor	82	18.39
	Assistant Professor	100	22.42
	Researcher with PhD	53	11.88
	Researcher without PhD	10	2.24
	Doctoral Student	21	4.71
	Graduate Student	2	0.45
	Undergraduate Student	1	0.22
	Missing	86	19.28
Working Sector	University, College, or TU	325	72.87
	Public Research Institute	24	5.38
	Private Research Institute	7	1.57
	Other	2	0.45
	Missing	88	19.73
Country	United States	162	36.32
	Germany	77	17.26
	United Kingdom	19	4.26
	Netherlands	13	2.91
	Italy	12	2.69
	Switzerland	9	2.02
	Sweden	8	1.79
	Canada	6	1.35
	Belgium	6	1.35
	Denmark	5	1.12
	Austria	5	1.12
	Spain	5	1.12
	Other (Frequency ≤3)	29	6.50
	Missing	90	20.18

Model of Theory of Planned Behavior

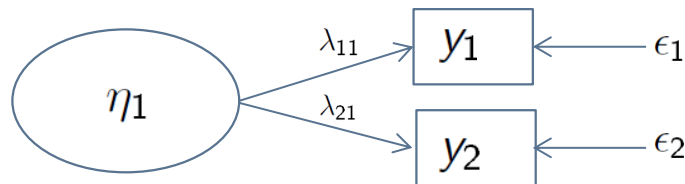


Proposed conceptual model



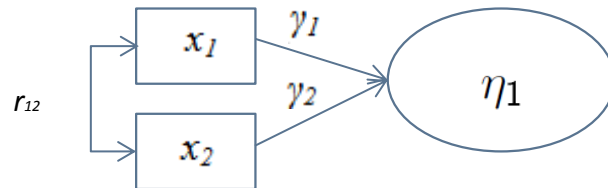
Measurement

- direct measures = reflective



Latent Variable: η_1
 Manifest Variables: $y_1 y_2$
 Factor loadings: $\lambda_{11} \lambda_{21}$
 Measurement error: $\epsilon_1 \epsilon_2$

- indirect belief measures = formative



Latent Variable: η_1
 Manifest Variables: $x_1 x_2$
 Regression Coefficients: $\gamma_1 \gamma_2$
 Measurement error: r_{12}

Direct Measurement Scales

Latent Variables	Items
INTENTION	<i>INT</i> : When publishing empirical journal articles within the next 3 years, I will share my research data.
ATTITUDE	<i>ATT1</i> : When publishing empirical journal articles it would be good for researchers in general to share research data.
SUBJECTIVE NORM	<i>SN1</i> : Most researchers who are important to me in my work would approve that I share research data. <i>SN2</i> : Most researchers like me, who publish empirical journal articles, actually share research data.
PERCEIVED BEHAVIORAL CONTROL	<i>PBC1</i> : I am confident that I can share research data. <i>PBC2</i> : It is my own decision if I share research data.

Indirect Measurement Scales

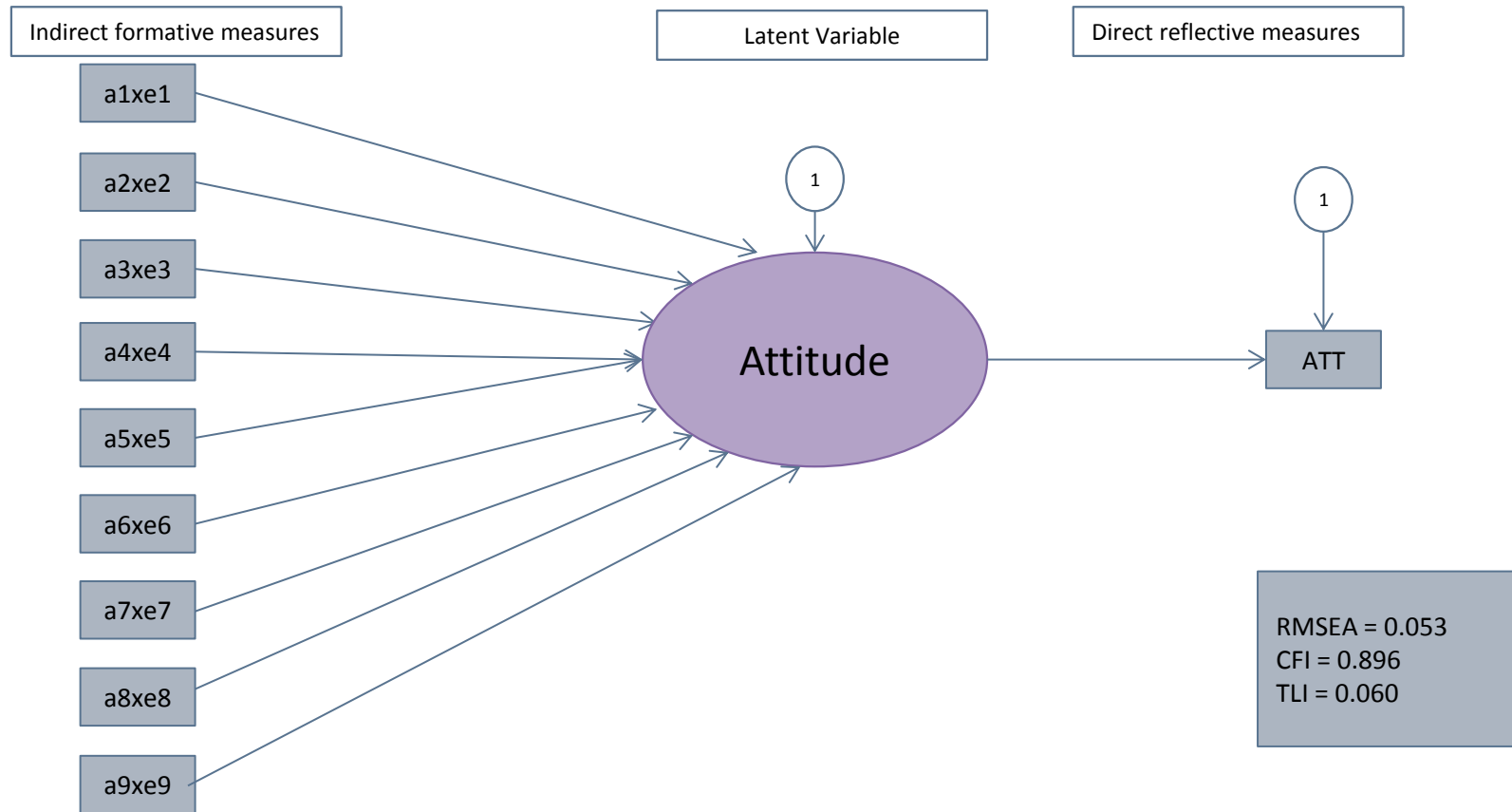
Latent Variables	<i>Belief Strength</i>	<i>Impact of Belief</i>	
ATTITUDE	<p>Sharing my research data will result in ...getting increased reputation for my research (a_i)</p> <p>i= possible outcomes</p>	<p>How important are the following things for you? ...getting increased reputation for my research (e_i)</p> <p>→EVALUATION</p>	$a_i \times e_i$
SUBJECTIVE NORM	<p>When I think about sharing my research data of empirical journal articles I will publish during the next 3 years. I feel... my colleagues expect me to do so. (s_j)</p> <p>j= possible important referents</p>	<p>When I think about sharing my research data of empirical journal articles I will publish during the next 3 years. I want to do what... my colleagues think I should do. (m_j)</p> <p>→MOTIVATION TO COMPLY</p>	$s_j \times m_j$
PERCEIVED BEHAVIORAL CONTROL	<p>I think that for sharing my research data of empirical journal articles... the technology in general is available. (c_k)</p> <p>k= possible factors</p>	<p>Having the following would enable me to share my research data with the empirical journal articles I will publish during the next 3 years: technology in general. (p_k)</p> <p>→POWER</p>	$c_k \times p_k$

Structural Equation Modeling

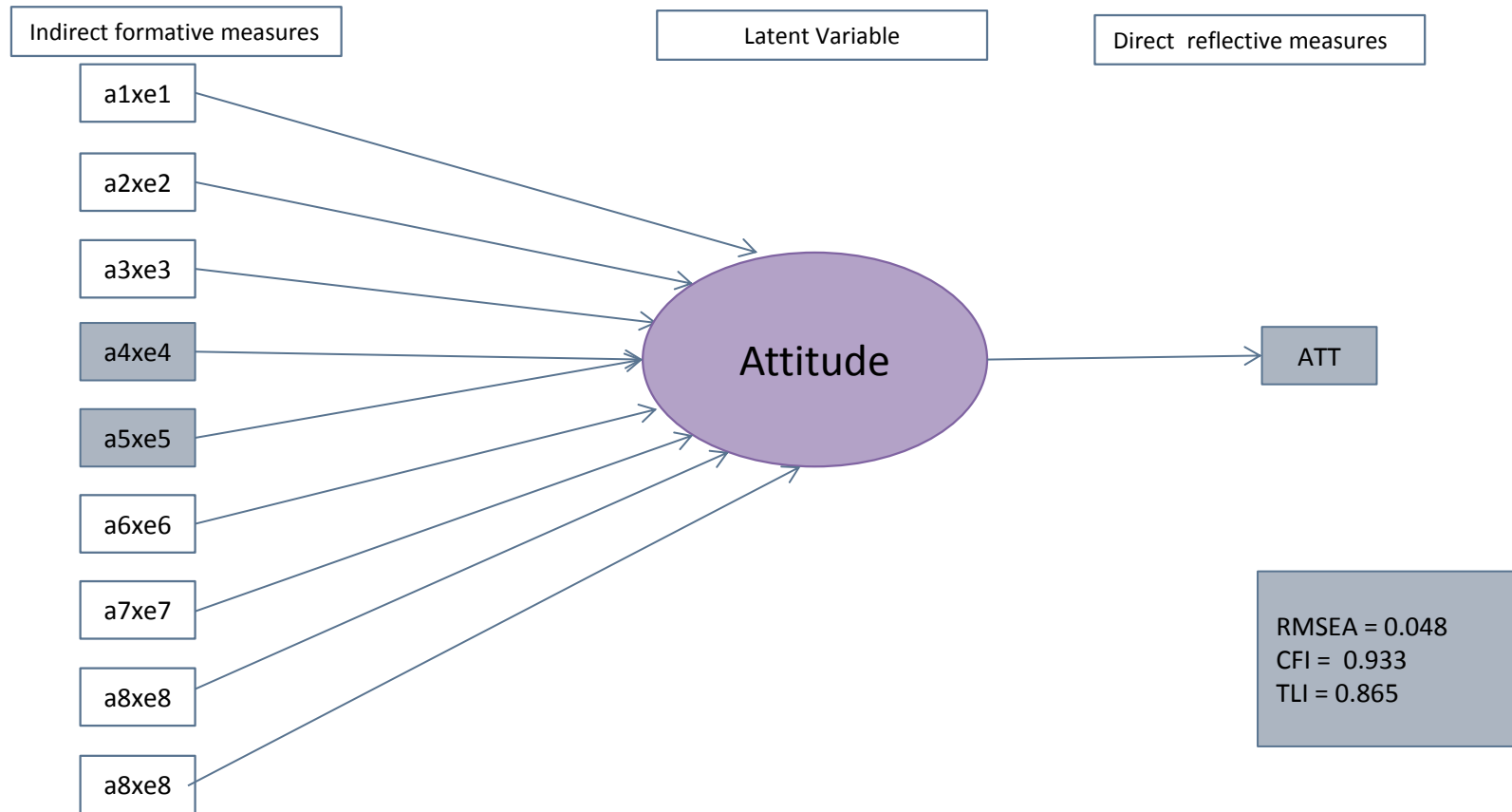
Process of using the method

- Step 1 : MIMIC Models
- Step 2: Structural Model with all latent constructs
- Step 3: Alternative Structural Model

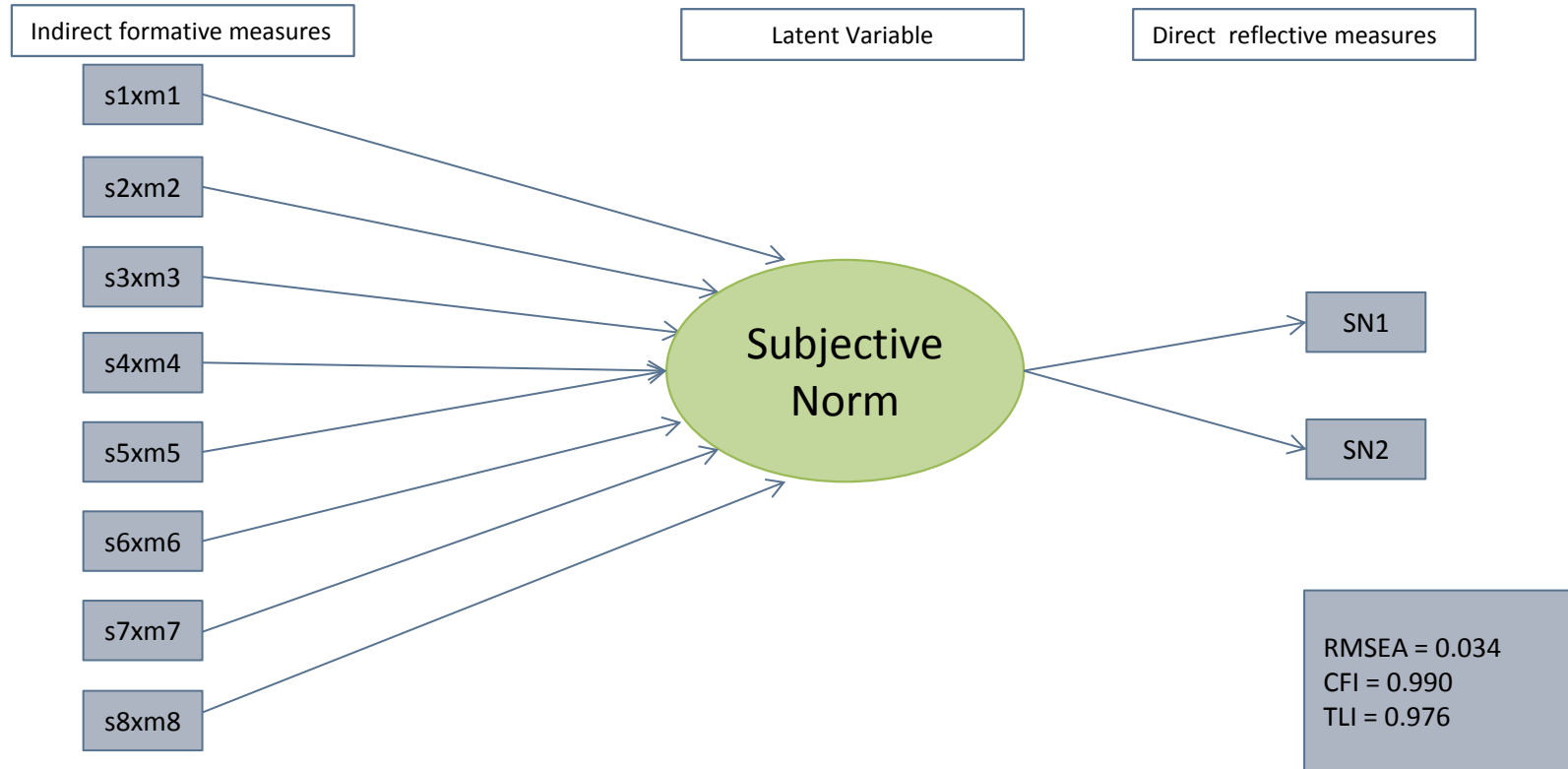
MIMIC Model 1



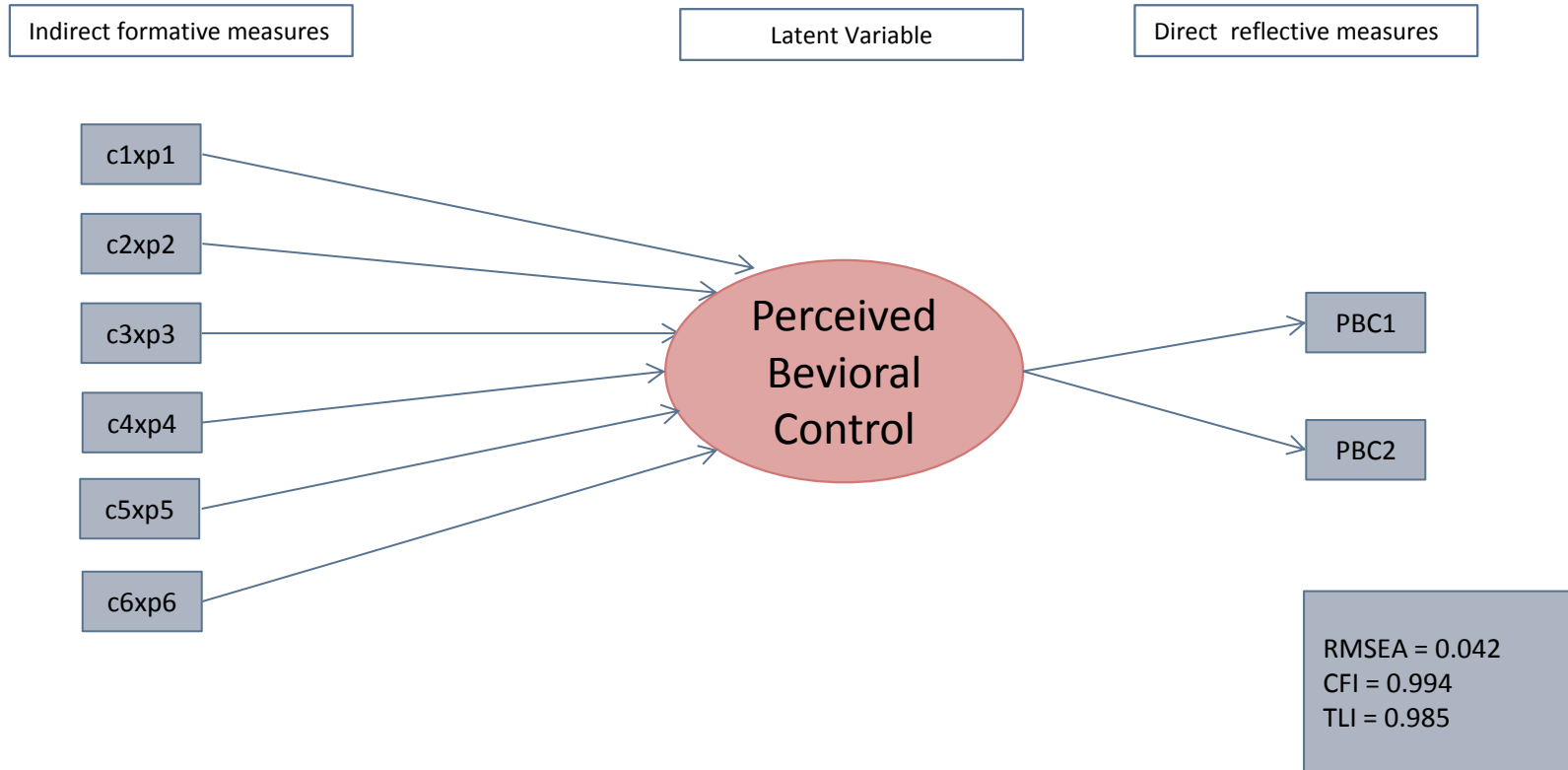
MIMIC Model 1



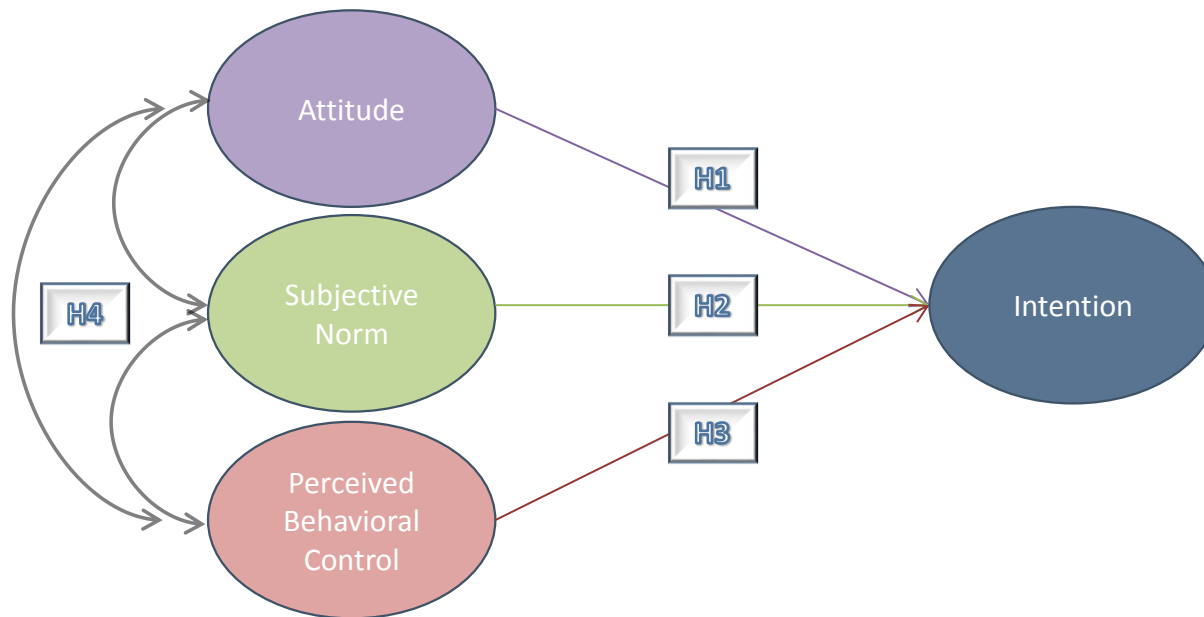
MIMIC Model 2



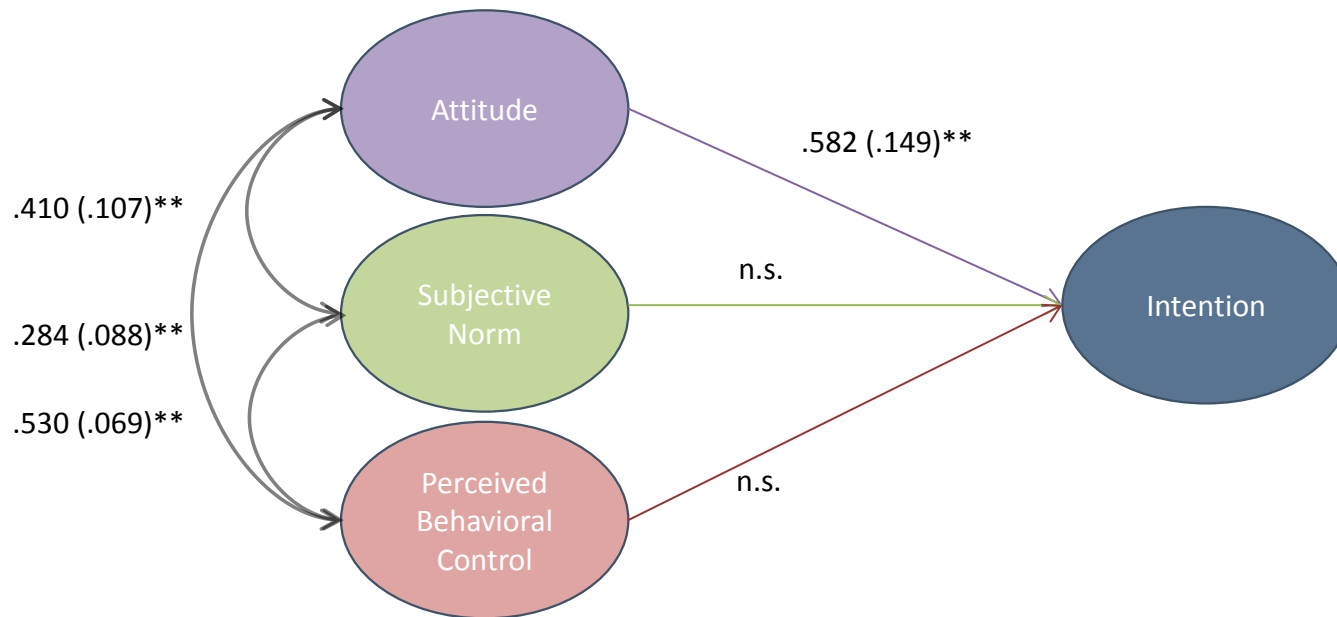
MIMIC Model 3



Step 3: Structural Model

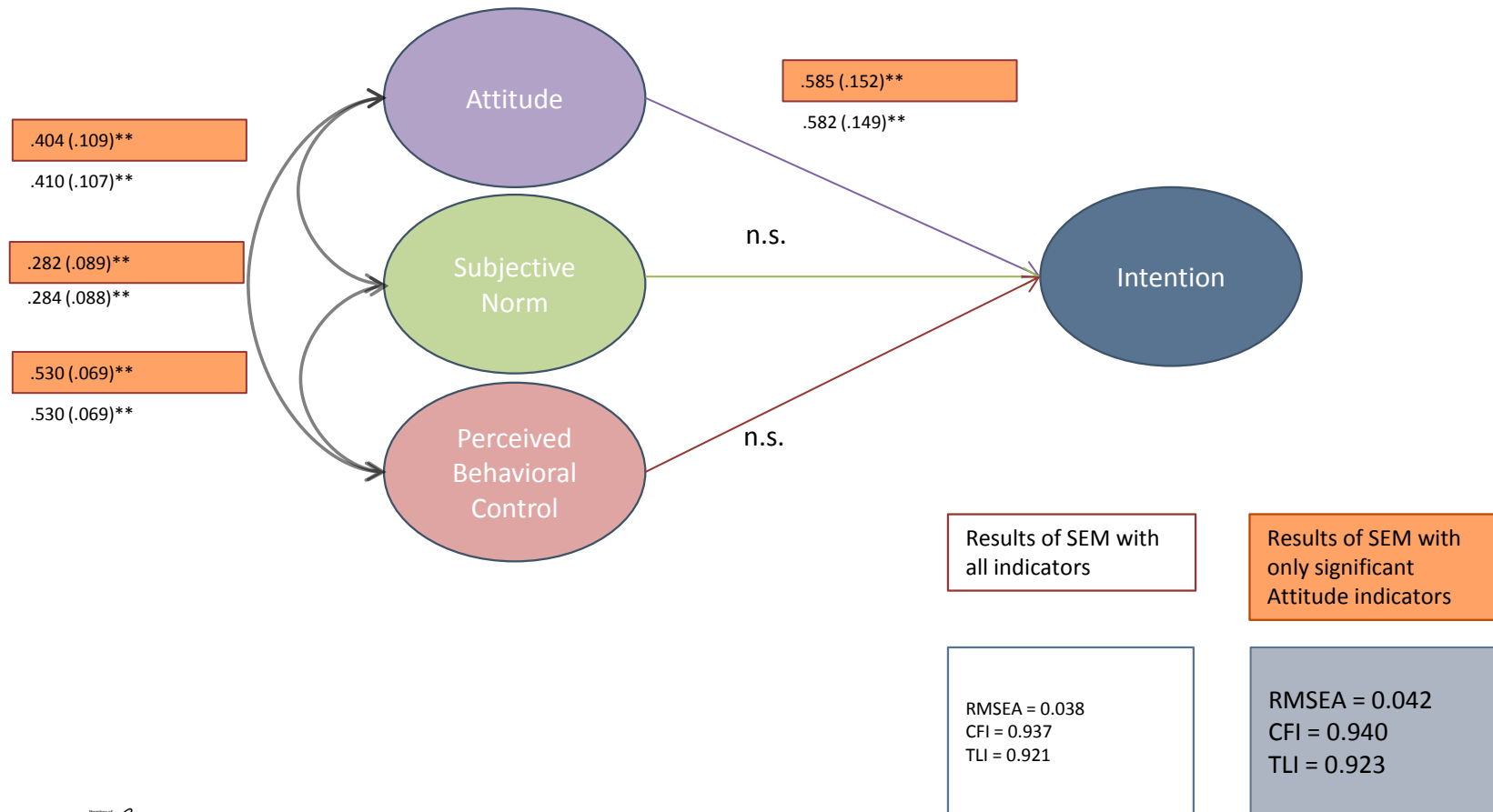


Results of SEM with all Items



RMSEA = 0.038
CFI = 0.937
TLI = 0.921

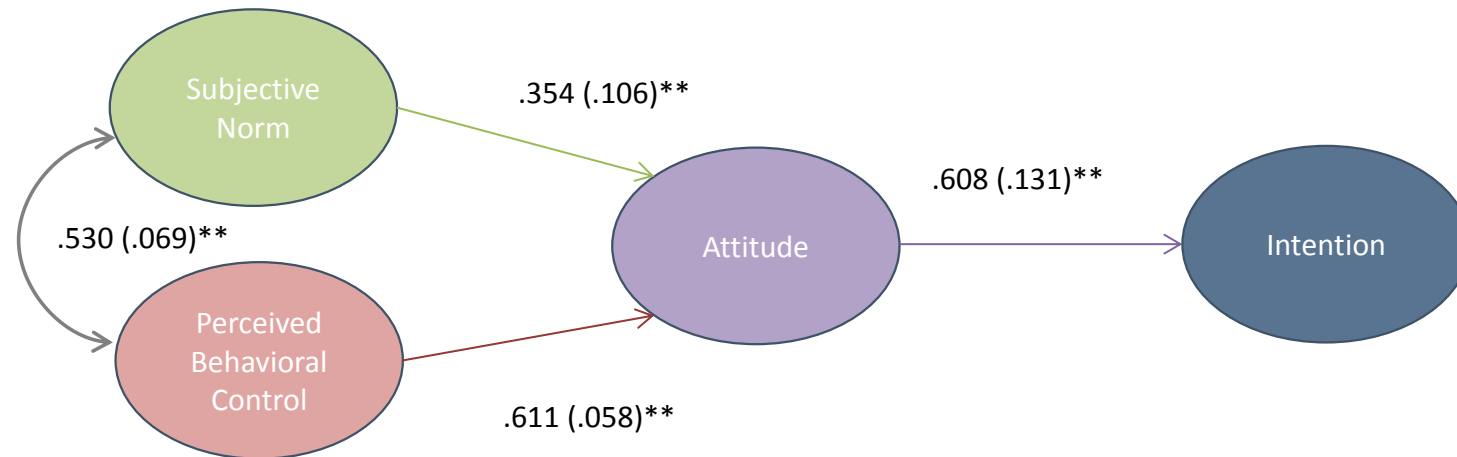
Results of SEM



Results of SEM

H1: Attitude towards data sharing will positively influence Data Sharing Intention.	Supported
H2: Subjective Norm will positively influence Data Sharing Intention.	Not supported
H3: Perceived Behavioral Control will positively influence Data Sharing Intention.	Not supported

Structural Model



RMSEA = 0.037
CFI = 0.940
TLI = 0.926

Results

- To understand Data Sharing behavior can help to improve initiatives to better fulfill researchers' needs
- Data Sharing Intention is influenced by Attitude towards Data Sharing
 - ▶ reputation, getting scooped by colleagues
- Attitude is influenced by Subjective Norm and Perceived Behavioral Control
 - ▶ SN: colleagues
 - ▶ PBC: availability of time and money

Further Research Suggestions

- Actual behavior was not conducted
 - ▶ longitudinal survey design
- Background factors were not included in the analysis
 - ▶ demography
 - ▶ respondents' personal characteristics
- Results refer exclusively to 10 not-randomly selected journal authors
 - ▶ random sample of journals

Thank you for your attention

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