

EAM2025

XI Conference

European
Association of
Methodology



23RD - 25TH
JULY
2025

Spain Tenerife
Canary Islands

**BERO: A New Perspective on the Psychometric
Assessment of Socially Aversive Traits**

García-Fernández, J., González-Nuevo, C., & Postigo, Á.



Universidad
de La Laguna



ICI
Instituto
Canario
de Igualdad



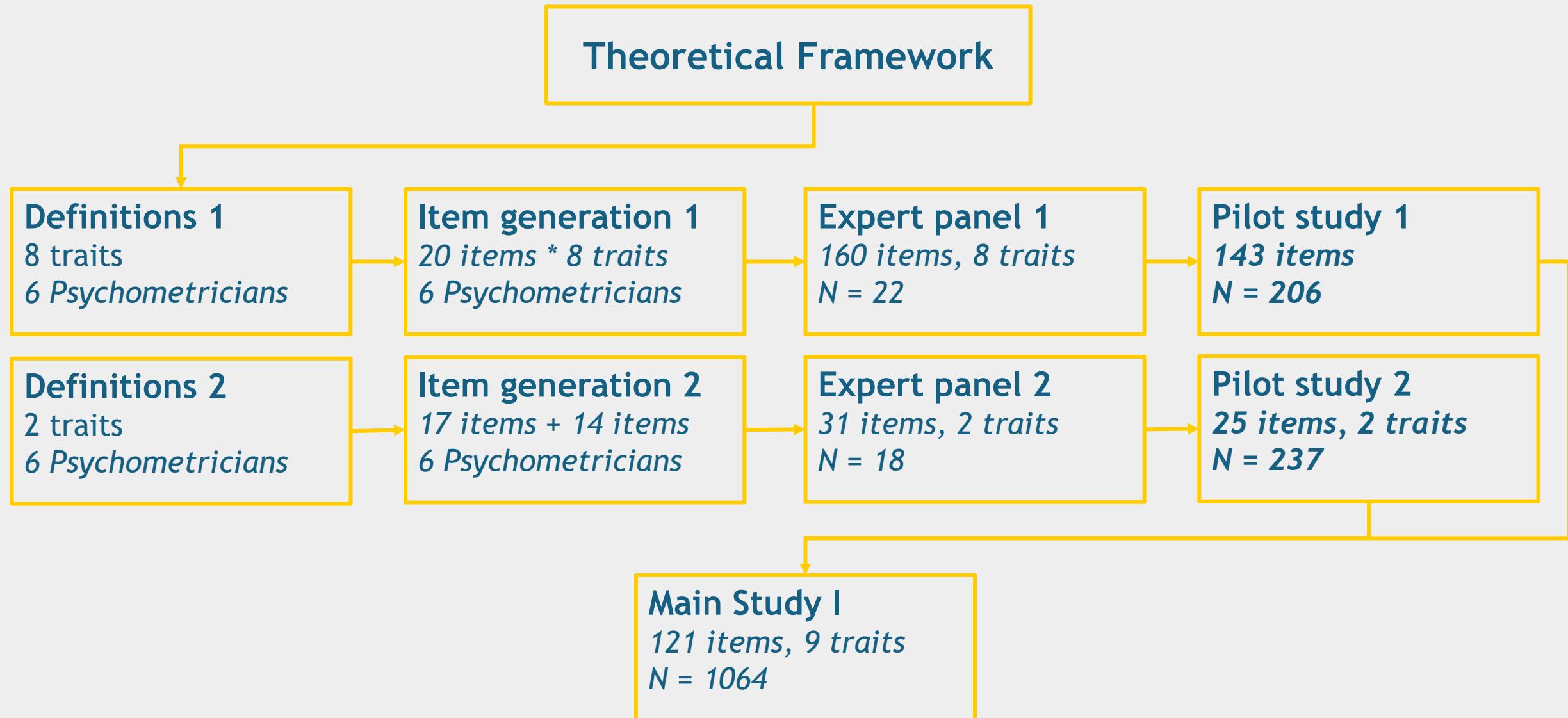
cajasiete



Gobierno de Canarias
Consejería de Universidades,
Ciencia e Innovación y Cultura
Agencia Canaria de Investigación,
Innovación y Sociedad
de la Información

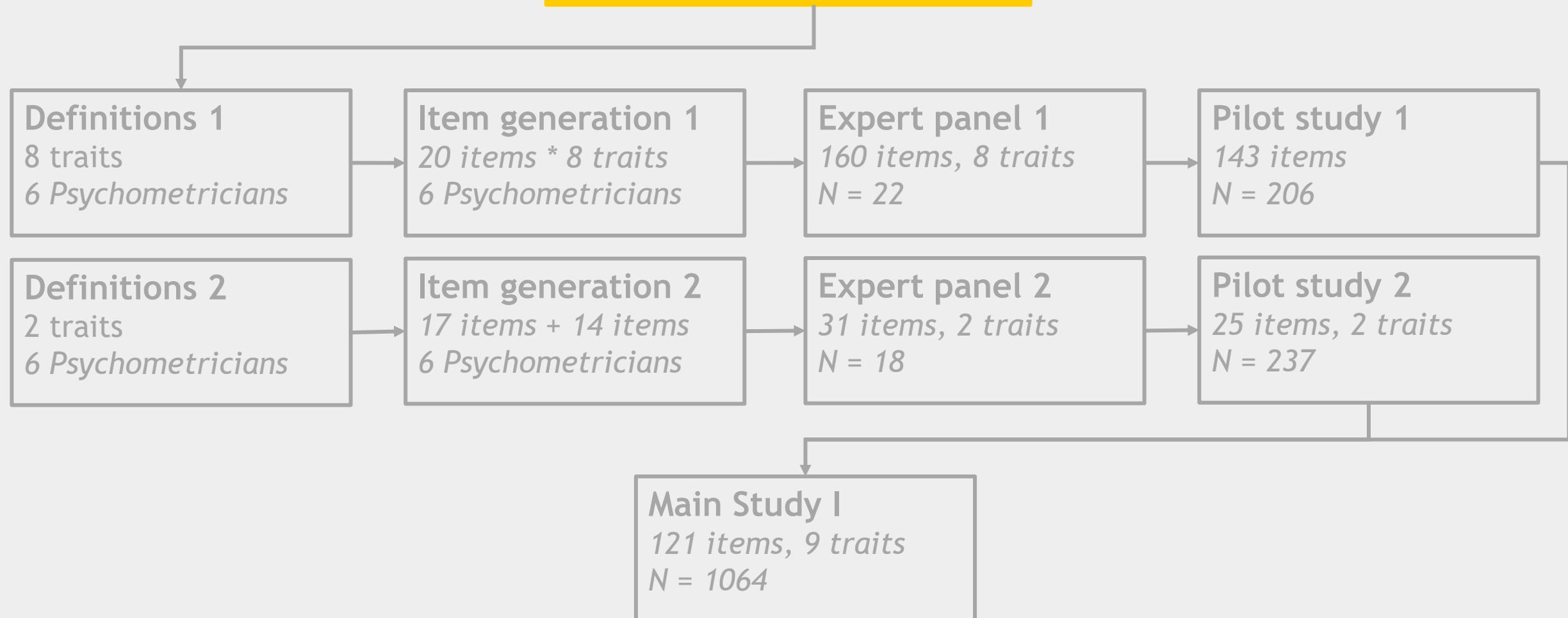


tea
hogrefe





Theoretical Framework





Theoretical Framework

Another measure of
dark personality ?



Theoretical Framework

ALTERNATIVE

Another measure of
dark personality ?



Theoretical Framework

Dark Triad
Paulhus & Williams (2002)

ALTERNATIVE
Another measure of
dark personality ?



Theoretical Framework

Dark Triad
Paulhus & Williams (2002)

Machiavellianism

ALTERNATIVE
Another measure of
dark personality ?

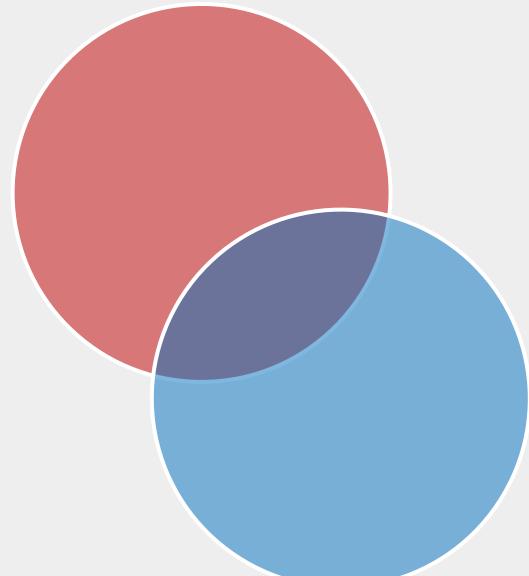


Theoretical Framework

ALTERNATIVE
Another measure of
dark personality ?

Machiavellianism

Dark Triad
Paulhus & Williams (2002)



Psychopathy

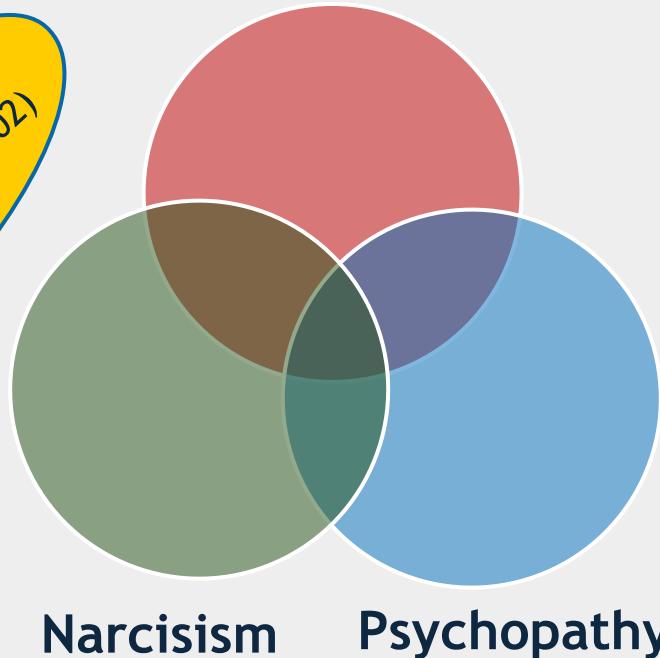


Theoretical Framework

ALTERNATIVE
Another measure of
dark personality ?

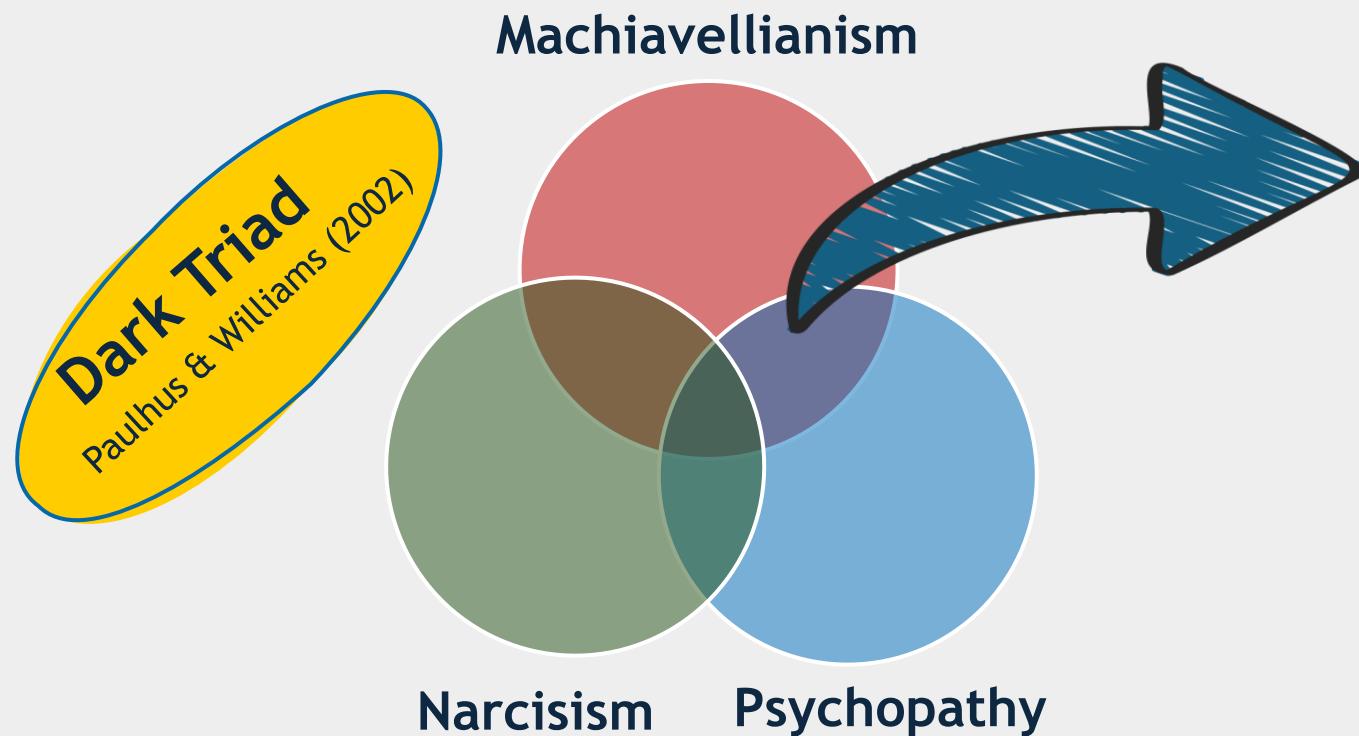
Machiavellianism

Dark Triad
Paulhus & Williams (2002)

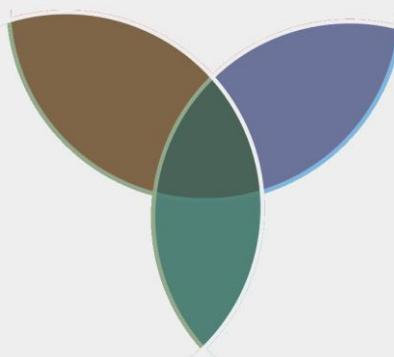




Theoretical Framework

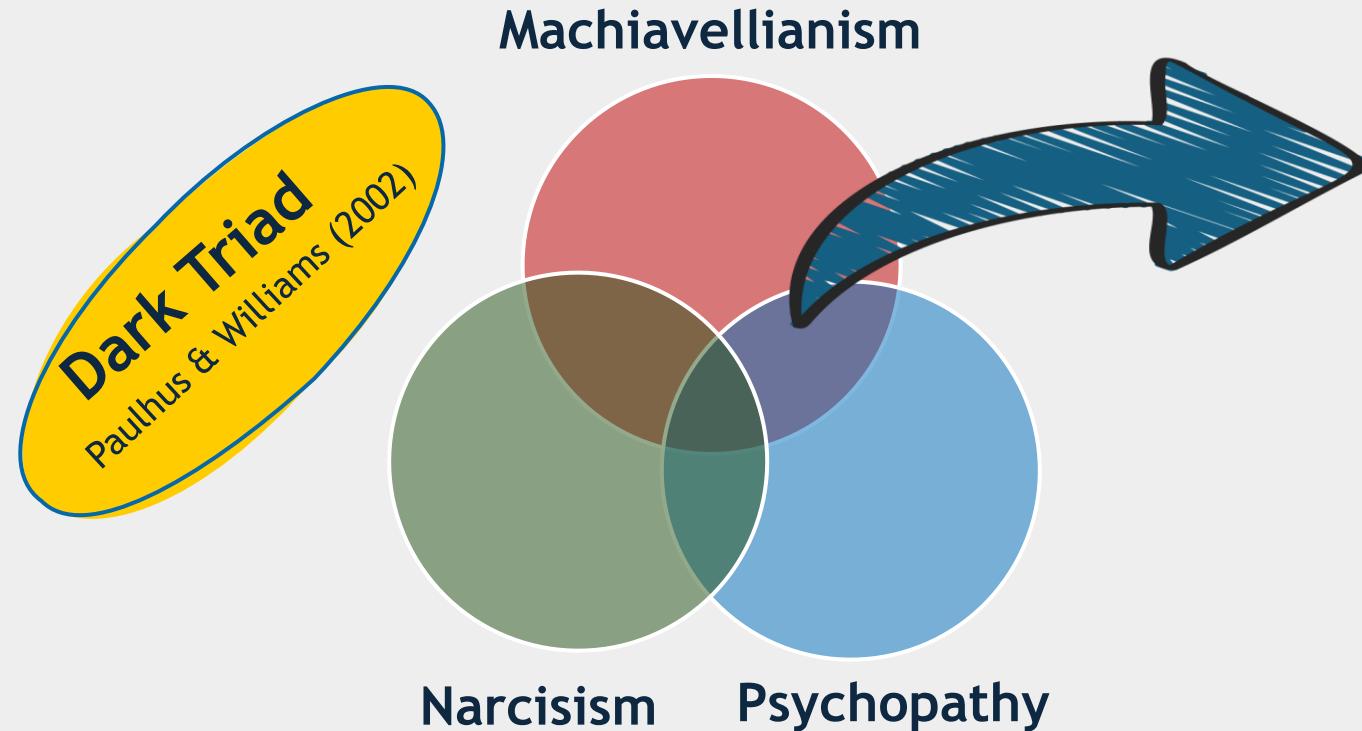


ALTERNATIVE
Another measure of
dark personality ?





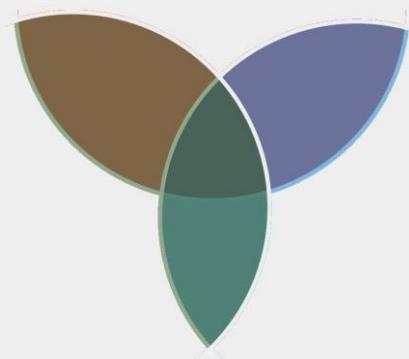
Theoretical Framework



ALTERNATIVE
Another measure of
dark personality ?

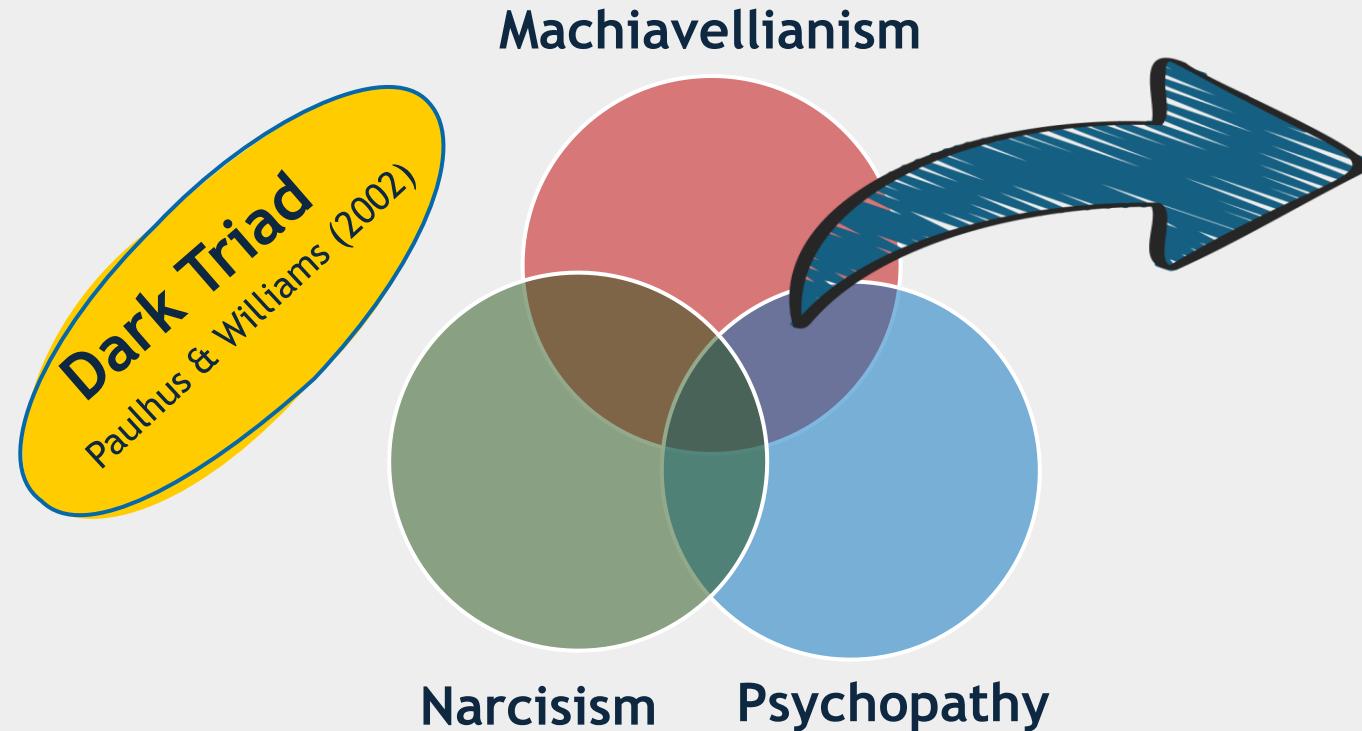
Theoretical Overlap

a.k.a. jangle Fallacy





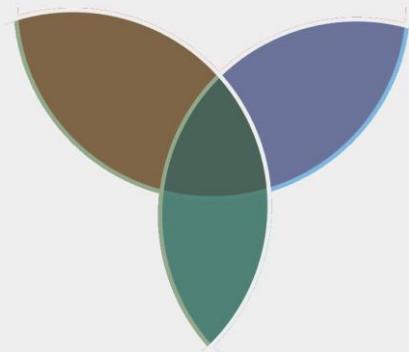
Theoretical Framework



ALTERNATIVE
Another measure of dark personality ?

Theoretical Overlap

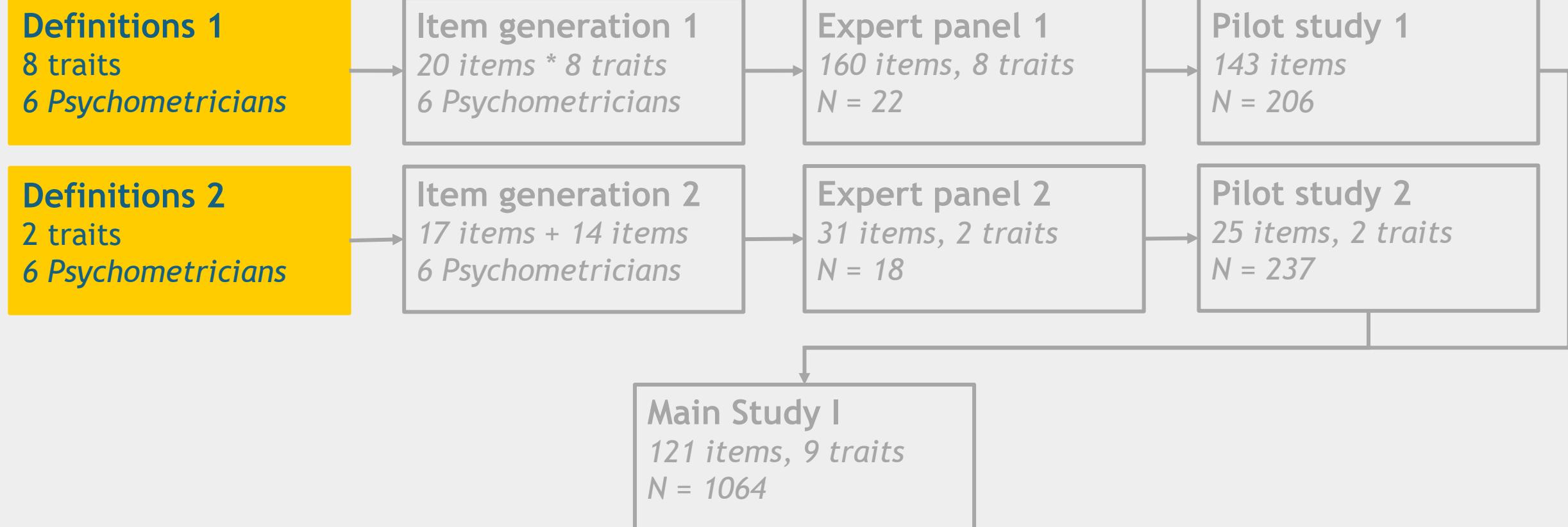
a.k.a. jangle Fallacy



Literature & Scale Review
García-Fernández et al. (2025)

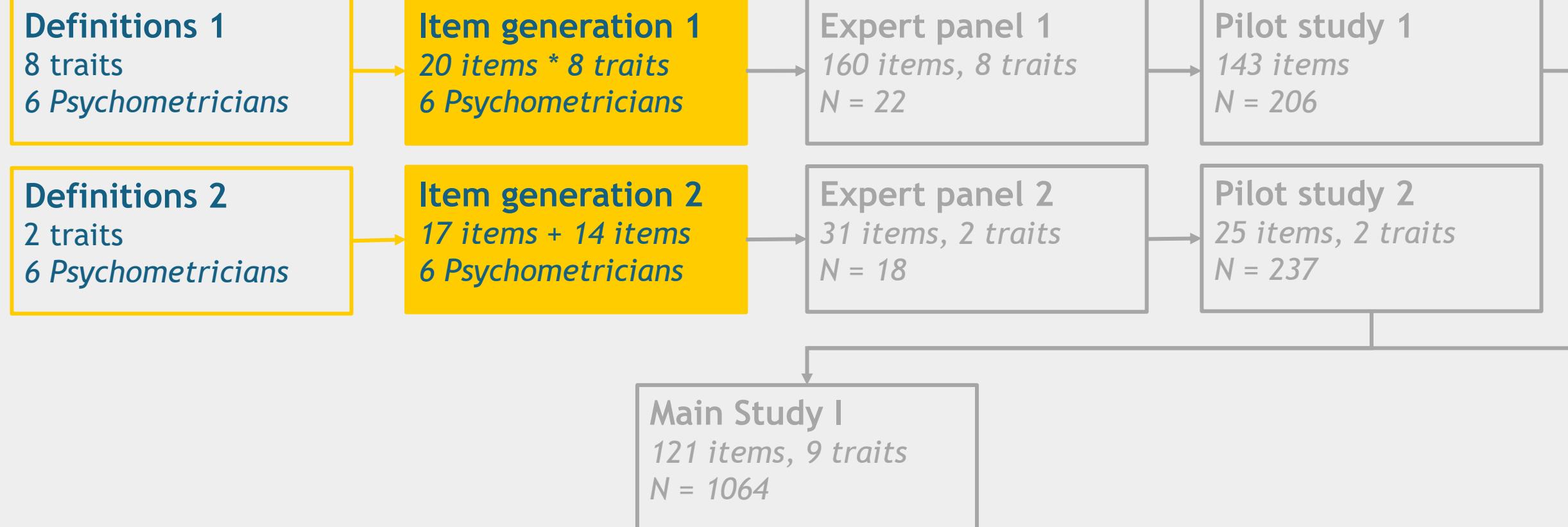


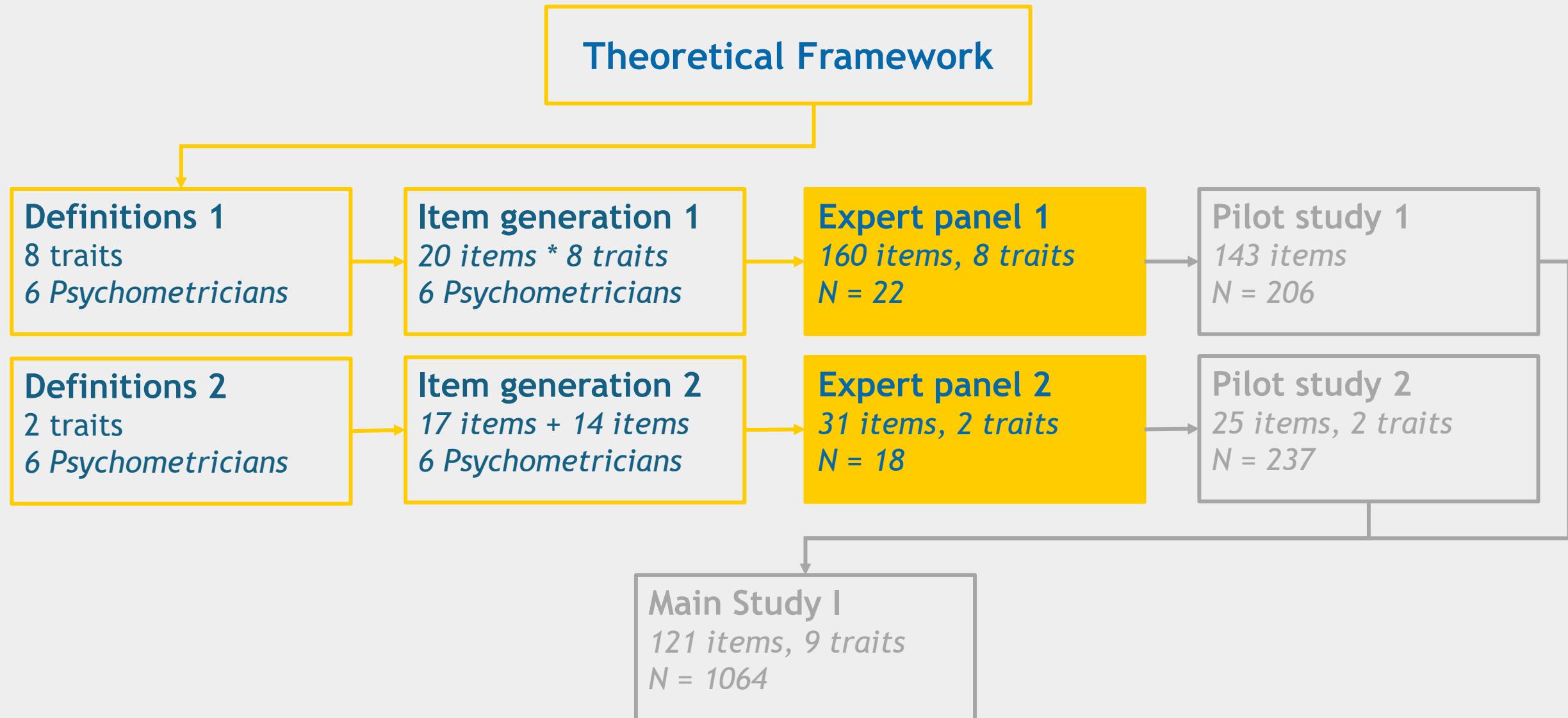
Theoretical Framework

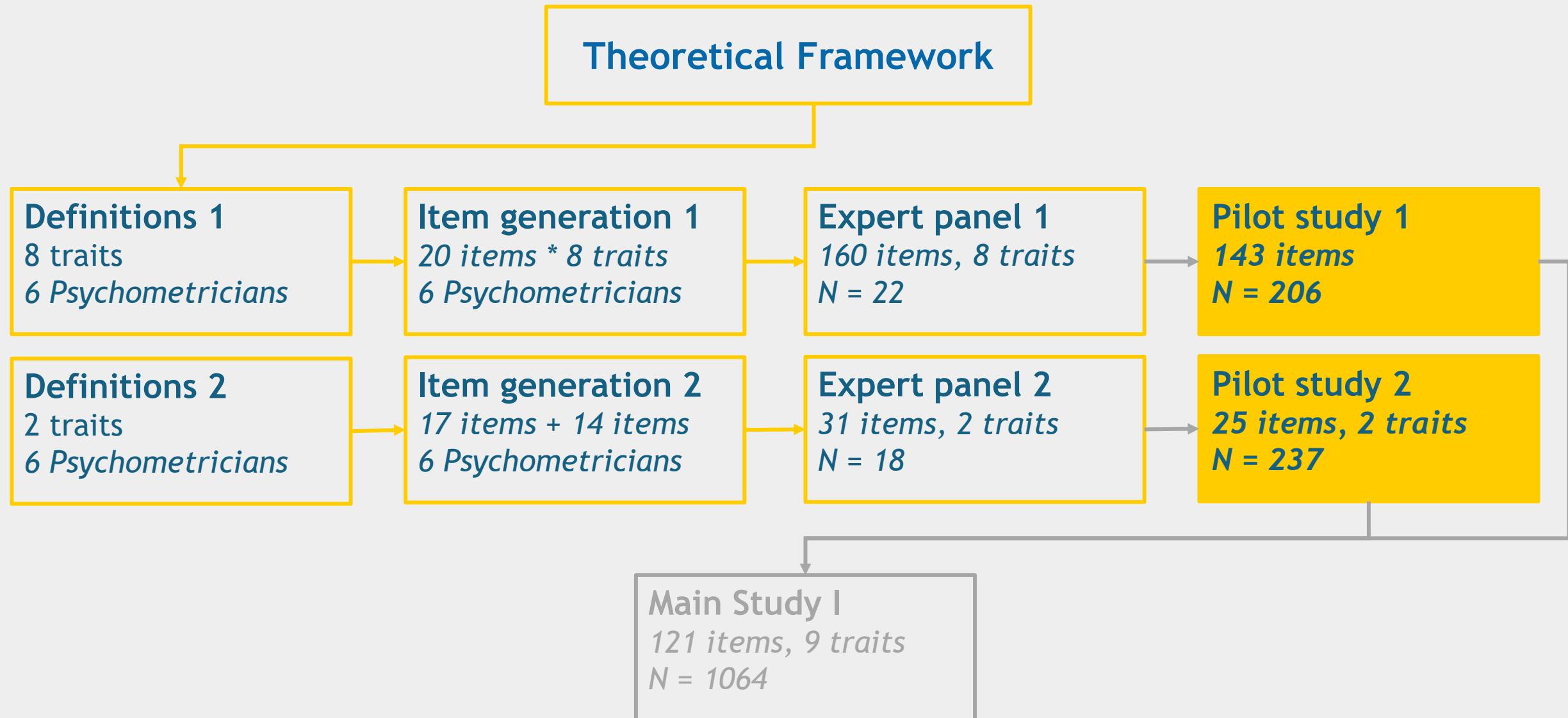




Theoretical Framework









Pilot Studies

Participants:

	Sample 1	Sample 2
N:	206	237
Sex (% females):	73.79%	67.09%
Age:	39.53	43.63
	SD = 17.95	SD = 16.37



Pilot Studies

Participants:

	Sample 1	Sample 2
N:	206	237
Sex (% females):	73.79%	67.09%
Age:	39.53	43.63
	SD = 17.95	SD = 16.37

Procedure:

- Online Platform.
- Randomized item presentation (one by one).
- Attentional scale.
- Anonymous & no rewards.



Pilot Studies

Participants:

	Sample 1	Sample 2
N:	206	237
Sex (% females):	73.79%	67.09%
Age:	39.53 SD = 17.95	43.63 SD = 16.37

Procedure:

- Online Platform.
- Randomized item presentation (one by one).
- Attentional scale.
- Anonymous & no rewards.

Me entretiene ver peleas sangrientas.

Completamente
en desacuerdo

1	2	3	4	5	6	7
---	---	---	---	---	---	---

Completamente
de acuerdo



Pilot Studies

Participants:

	Sample 1	Sample 2
N:	206	237
Sex (% females):	73.79%	67.09%
Age:	39.53	43.63
	SD = 17.95	SD = 16.37

Procedure:

- Online Platform.
- Randomized item presentation (one by one).
- Attentional scale.
- Anonymous & no rewards.

Me entretiene ver peleas sangrientas.

Completamente
en desacuerdo

1 2 3 4 5 6 7

Completamente
de acuerdo

Data Analysis:

Aim
scale-by-scale item
screening



Pilot Studies

Participants:

	Sample 1	Sample 2
N:	206	237
Sex (% females):	73.79%	67.09%
Age:	39.53	43.63
	SD = 17.95	SD = 16.37

Procedure:

- Online Platform.
- Randomized item presentation (one by one).
- Attentional scale.
- Anonymous & no rewards.

Me entretiene ver peleas sangrientas.

Completamente
en desacuerdo

1 2 3 4 5 6 7

Completamente
de acuerdo

Data Analysis:

- Descriptive stats review.

Aim
scale-by-scale item
screening



Pilot Studies

Participants:

	Sample 1	Sample 2
N:	206	237
Sex (% females):	73.79%	67.09%
Age:	39.53	43.63
	SD = 17.95	SD = 16.37

Procedure:

- Online Platform.
- Randomized item presentation (one by one).
- Attentional scale.
- Anonymous & no rewards.

Me entretiene ver peleas sangrientas.

Completamente
en desacuerdo

1 2 3 4 5 6 7

Completamente
de acuerdo

Data Analysis:

- Descriptive stats review.
- Exploratory Factor Analysis.
 - Paralell Analysis (*Timmerman & Lorenzo-Seva, 2011*).
 - Matrix suitability (*Barlett, KMO, MSA*).
 - Model fit (*CFI, RMSEA, MIREAL*).
 - Factor loadings review.

Aim
scale-by-scale item
screening



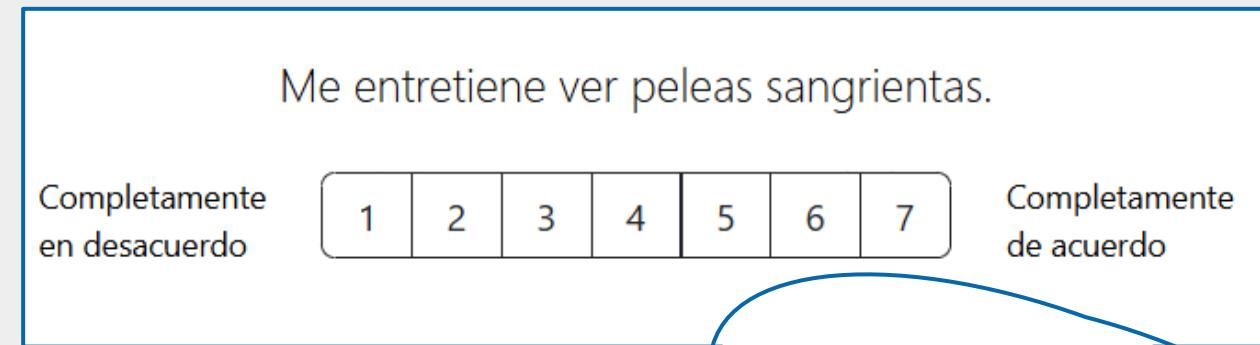
Pilot Studies

Participants:

	Sample 1	Sample 2
N:	206	237
Sex (% females):	73.79%	67.09%
Age:	39.53	43.63
	SD = 17.95	SD = 16.37

Procedure:

- Online Platform.
- Randomized item presentation (one by one).
- Attentional scale.
- Anonymous & no rewards.



Data Analysis:

- Descriptive stats review.
- Exploratory Factor Analysis.
 - Paralell Analysis (*Timmerman & Lorenzo-Seva, 2011*).
 - Matrix suitability (*Barlett, KMO, MSA*).
 - Model fit (*CFI, RMSEA, MIREAL*).
 - Factor loadings review.
- Item number review.

Aim
scale-by-scale item
screening



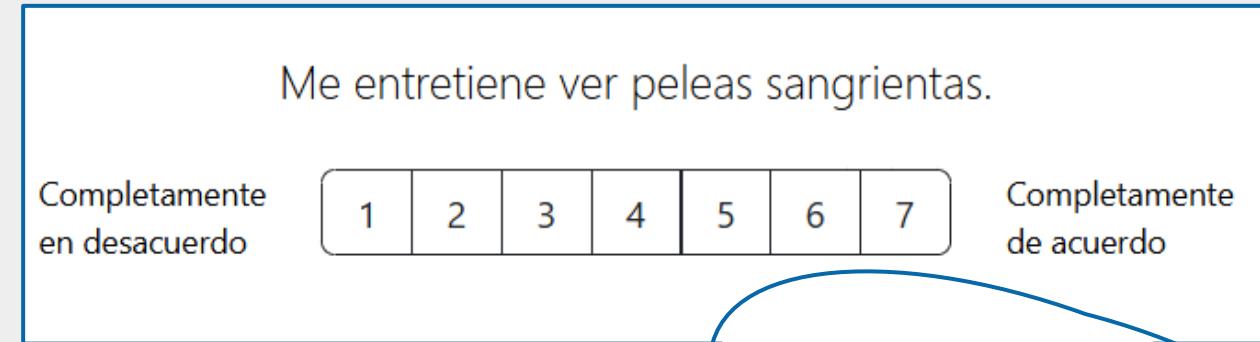
Pilot Studies

Participants:

	Sample 1	Sample 2
N:	206	237
Sex (% females):	73.79%	67.09%
Age:	39.53	43.63
	SD = 17.95	SD = 16.37

Procedure:

- Online Platform.
- Randomized item presentation (one by one).
- Attentional scale.
- Anonymous & no rewards.



Data Analysis:

- Descriptive stats review.
- Exploratory Factor Analysis.
 - Paralell Analysis (*Timmerman & Lorenzo-Seva, 2011*).
 - Matrix suitability (*Barlett, KMO, MSA*).
 - Model fit (*CFI, RMSEA, MIREAL*).
 - Factor loadings review.
- Item number review.
- Internal Consistency (ω).



Pilot Studies

Criteria:

- Descriptives: Range ≥ 5
- EFA: MSA $> .50$, CFI $> .90$, RMSEA < 0.08 ,
MIREAL $< .30$, $\lambda > .25$
- Nº Max: 14 items

Pilot Studies

Criteria:

- Descriptives: Range ≥ 5
- EFA: MSA $> .50$, CFI $> .90$, RMSEA < 0.08 , MIREAL $< .30$, $\lambda > .25$
- Nº Max: 14 items

Results:

Trait	KMO	% EV	CFI	RMSEA	MIREAL	ω	N
Aut	.94	59.51	.99	0.06	.21	.88	14
Gre	.89	43.46	.97	0.07	.25	.79	14
Cru	.89	48.91	.98	0.07	.27	.92	14
Ins	.96	62.00	.99	0.05	.18	.92	14
Man	.95	62.65	.99	0.04	.19	.85	14
Arr	.94	58.82	.99	0.06	.21	.86	14
Ven	.95	65.71	.99	0.06	.20	.86	14
Irr	.77	48.94	.99	0.06	-	-	0

Pilot Studies

Criteria:

- Descriptives: Range ≥ 5
- EFA: MSA $> .50$, CFI $> .90$, RMSEA < 0.08 ,
MIREAL $< .30$, $\lambda > .25$
- Nº Max: 14 items

PA recommended
2 factors

Results:

Trait	KMO	% EV	CFI	RMSEA	MIREAL	ω	N
Aut	.94	59.51	.99	0.06	.21	.88	14
Gre	.89	43.46	.97	0.07	.25	.79	14
Cru	.89	48.91	.98	0.07	.27	.92	14
Ins	.96	62.00	.99	0.05	.18	.92	14
Man	.95	62.65	.99	0.04	.19	.85	14
Arr	.94	58.82	.99	0.06	.21	.86	14
Ven	.95	65.71	.99	0.06	.20	.86	14
Irr	.77	48.94	.99	0.06	-	-	0

Pilot Studies

Criteria:

- Descriptives: Range ≥ 5
- EFA: MSA $> .50$, CFI $> .90$, RMSEA < 0.08 , MIREAL $< .30$, $\lambda > .25$
- Nº Max: 14 items



Results:

Trait	KMO	% EV	CFI	RMSEA	MIREAL	ω	N
Aut	.94	59.51	.99	0.06	.21	.88	14
Gre	.89	43.46	.97	0.07	.25	.79	14
Cru	.89	48.91	.98	0.07	.27	.92	14
Ins	.96	62.00	.99	0.05	.18	.92	14
Man	.95	62.65	.99	0.04	.19	.85	14
Arr	.94	58.82	.99	0.06	.21	.86	14
Ven	.95	65.71	.99	0.06	.20	.86	14
Irr	.77	48.94	.99	0.06	-	-	0
Trait	KMO	% EV	CFI	RMSEA	MIREAL	ω	N
Dis	.87	35.69	.96	0.06	.25	.84	14
Tra	.86	42.70	.98	0.07	.29	.86	9

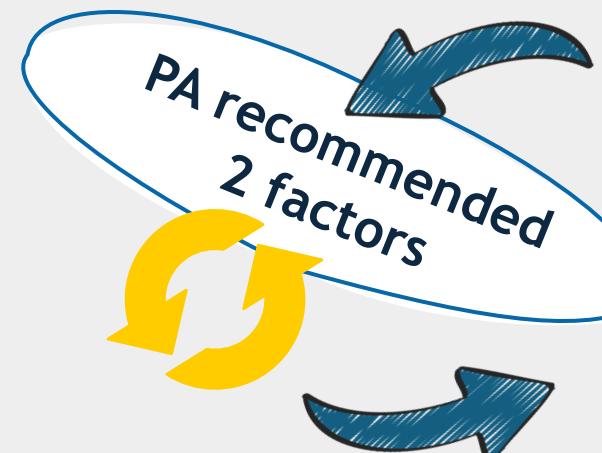
Pilot Studies

Criteria:

- Descriptives: Range ≥ 5
- EFA: MSA $> .50$, CFI $> .90$, RMSEA < 0.08 , MIREAL $< .30$, $\lambda > .25$
- Nº Max: 14 items

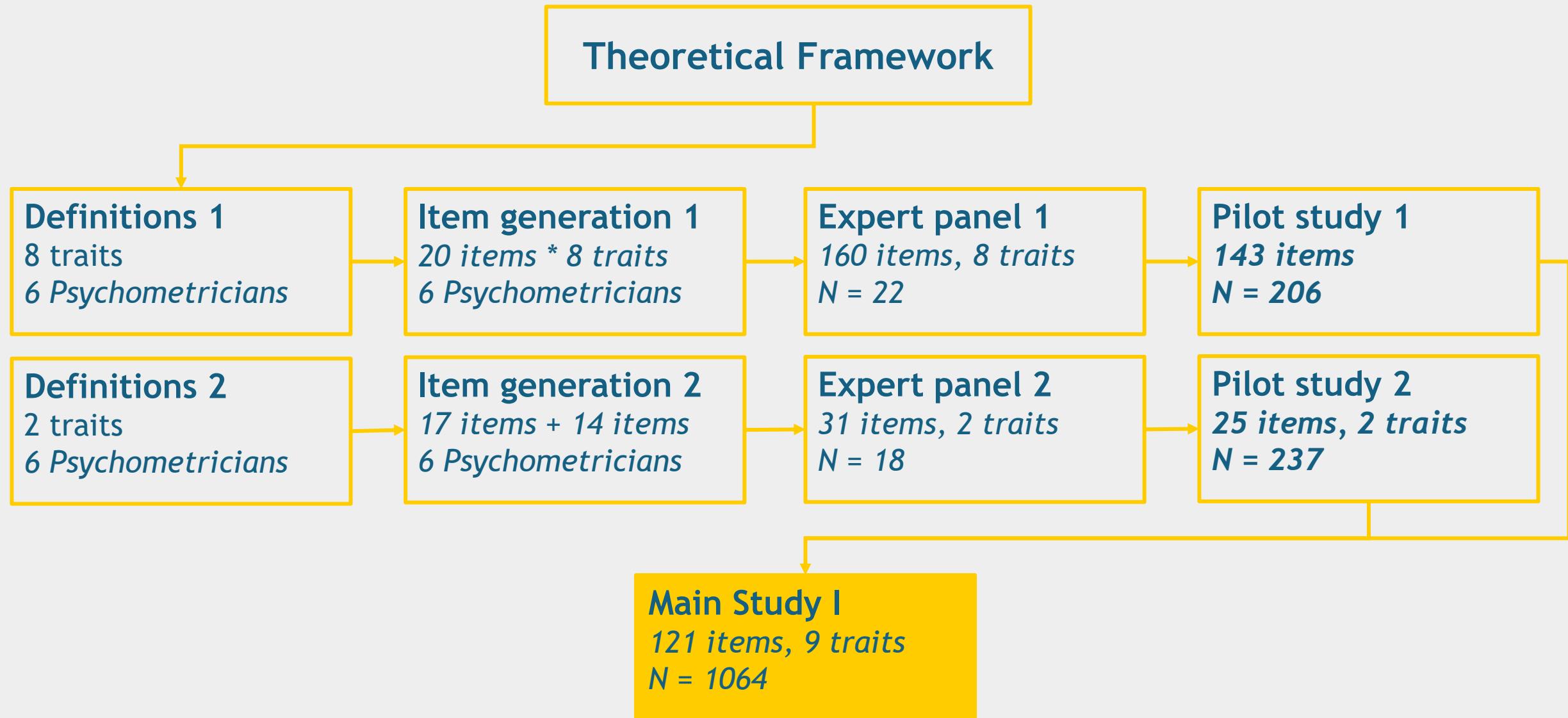
121

Items



Results:

Trait	KMO	% EV	CFI	RMSEA	MIREAL	ω	N
Aut	.94	59.51	.99	0.06	.21	.88	14
Gre	.89	43.46	.97	0.07	.25	.79	14
Cru	.89	48.91	.98	0.07	.27	.92	14
Ins	.96	62.00	.99	0.05	.18	.92	14
Man	.95	62.65	.99	0.04	.19	.85	14
Arr	.94	58.82	.99	0.06	.21	.86	14
Ven	.95	65.71	.99	0.06	.20	.86	14
Irr	.77	48.94	.99	0.06	-	-	0
Trait	KMO	% EV	CFI	RMSEA	MIREAL	ω	N
Dis	.87	35.69	.96	0.06	.25	.84	14
Tra	.86	42.70	.98	0.07	.29	.86	9

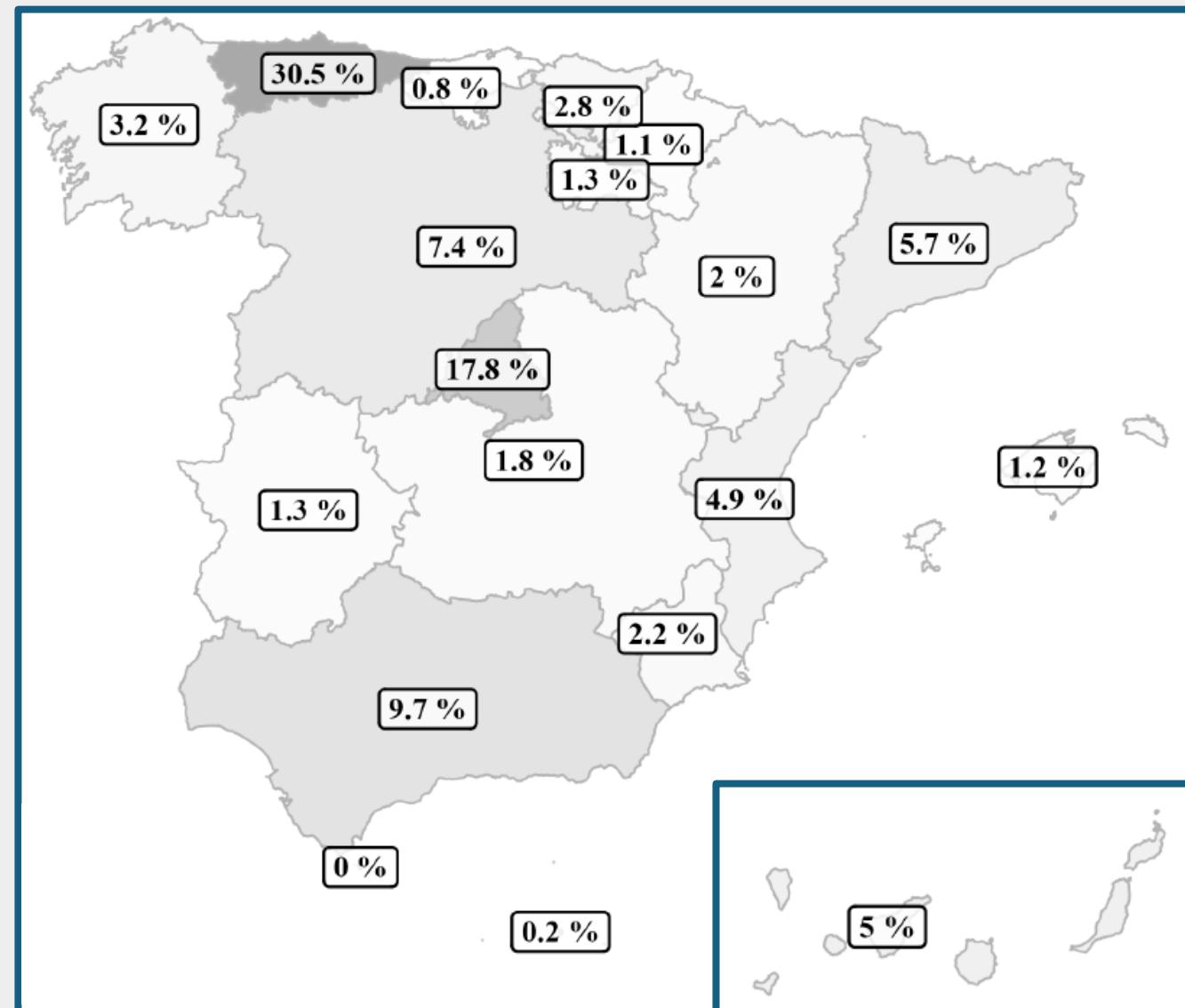
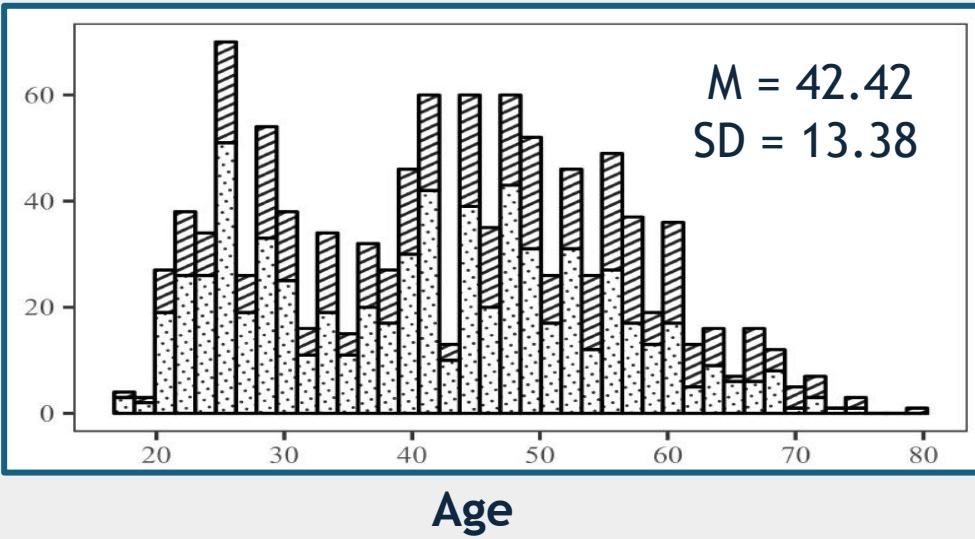


Main Study I

Participants:

N = 1064

63.06% female





Main Study I

Procedure:

- Same as Pilot Studies.

Me entretiene ver peleas sangrientas.

Completamente
en desacuerdo

1	2	3	4	5
---	---	---	---	---

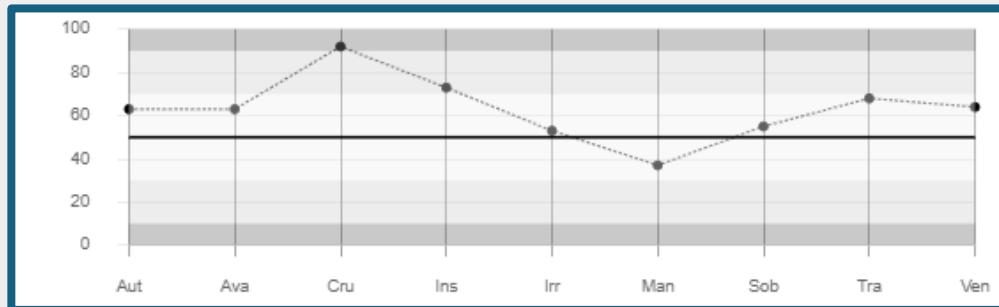
Completamente
de acuerdo



Main Study I

Procedure:

- Same as Pilot Studies.
- Automatized feedback as a reward.



Me entretiene ver peleas sangrientas.

Completamente
en desacuerdo

1	2	3	4	5
---	---	---	---	---

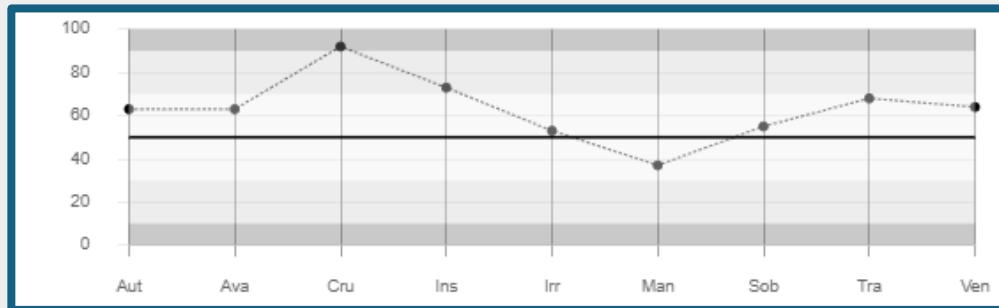
Completamente
de acuerdo



Main Study I

Procedure:

- Same as Pilot Studies.
- Automatized feedback as a reward.



Data Analysis:

Me entretiene ver peleas sangrientas.

Completamente
en desacuerdo

1	2	3	4	5
---	---	---	---	---

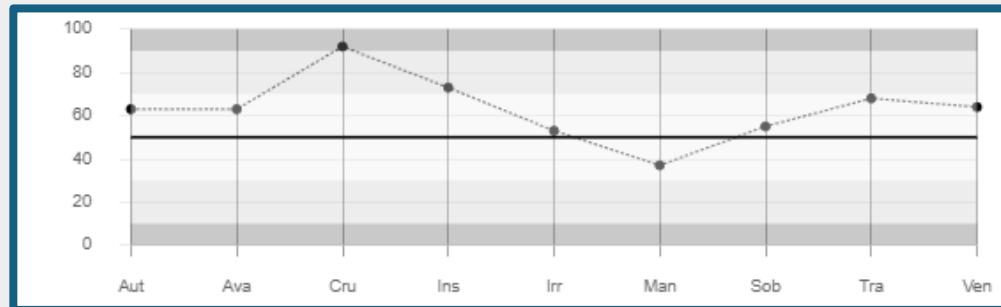
Completamente
de acuerdo



Main Study I

Procedure:

- Same as Pilot Studies.
- Automatized feedback as a reward.



Me entretiene ver peleas sangrientas.

Completamente
en desacuerdo

1	2	3	4	5
---	---	---	---	---

Completamente
de acuerdo

Data Analysis:

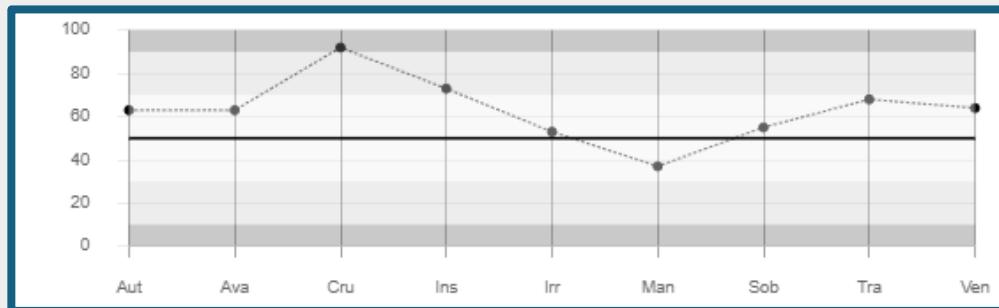
- Samejima's Graded Response Model (*EM Estimation*)
 - Local Independence (*JSI*; Edwards et al., 2018)
 - Options Information Functions (*OIFs*)
 - Item Information Function (*IIFs*)
 - Item fit ($S-x^2$ y *RMSEA*)
 - Scale fit (*C2*, *CFI*, *TLI*, *RMSEA*, *SRMSR*)
 - Internal consistency (ω)



Main Study I

Procedure:

- Same as Pilot Studies.
- Automatized feedback as a reward.



Me entretiene ver peleas sangrientas.

Completamente
en desacuerdo

1	2	3	4	5
---	---	---	---	---

Completamente
de acuerdo

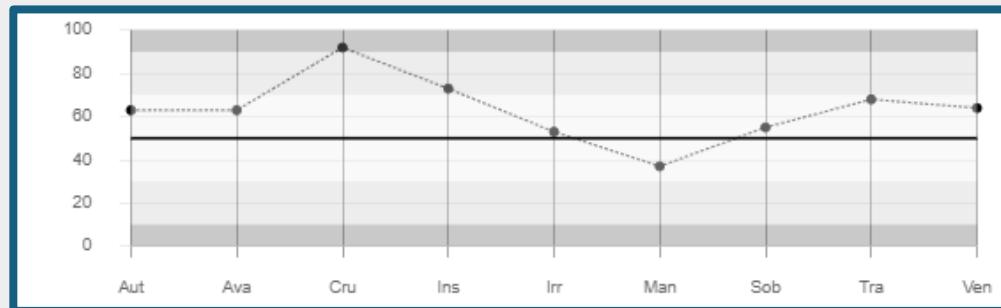
Data Analysis:

- Samejima's Graded Response Model (*EM Estimation*)
 - Local Independence (*JSI*; *Edwards et al., 2018*)
 - Options Information Functions (*OIFs*)
 - Item Information Function (*IIFs*)
 - Item fit ($S-x^2$ y *RMSEA*)
 - Scale fit (*C2*, *CFI*, *TLI*, *RMSEA*, *SRMSR*)
 - Internal consistency (ω)
- Battery Structure (*SOLOMON*; *Lorenzo-Seva, 2021*)
 - Exploratory Factor Analysis
 - Confirmatory Factor Analysis

Main Study I

Procedure:

- Same as Pilot Studies.
- Automatized feedback as a reward.



Me entretiene ver peleas sangrientas.

Completamente
en desacuerdo

1	2	3	4	5
---	---	---	---	---

Completamente
de acuerdo

Data Analysis:

- Samejima's Graded Response Model (*EM Estimation*)
 - Local Independence (*JSI*; *Edwards et al., 2018*)
 - Options Information Functions (*OIFs*)
 - Item Information Function (*IIFs*)
 - Item fit ($S-x^2$ y *RMSEA*)
 - Scale fit (*C2*, *CFI*, *TLI*, *RMSEA*, *SRMSR*)
 - Internal consistency (ω)
- Battery Structure (*SOLOMON*; *Lorenzo-Seva, 2021*)
 - Exploratory Factor Analysis
 - Confirmatory Factor Analysis
- Convergent-Discriminant Validity (*AVE*)

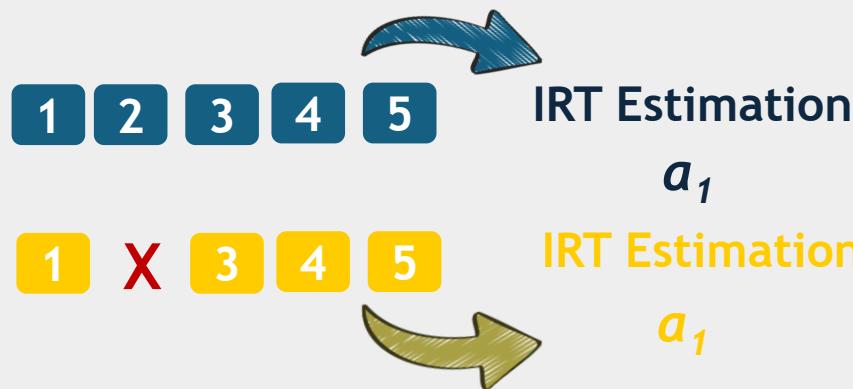


Main Study I

121
Items

Jackknife Slope Index:

(Edwards et al., 2018)



If local independence:

$$a_1 - \textcolor{blue}{a}_1 = 0$$

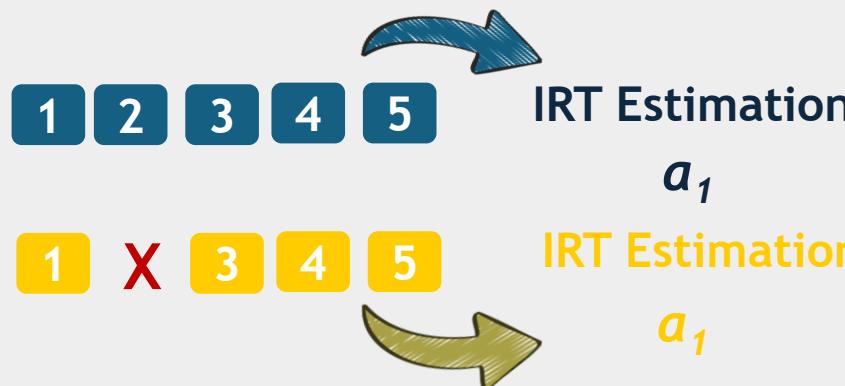


Main Study I

121 - 32
Items JSI

Jackknife Slope Index:

(Edwards et al., 2018)



If local independence:

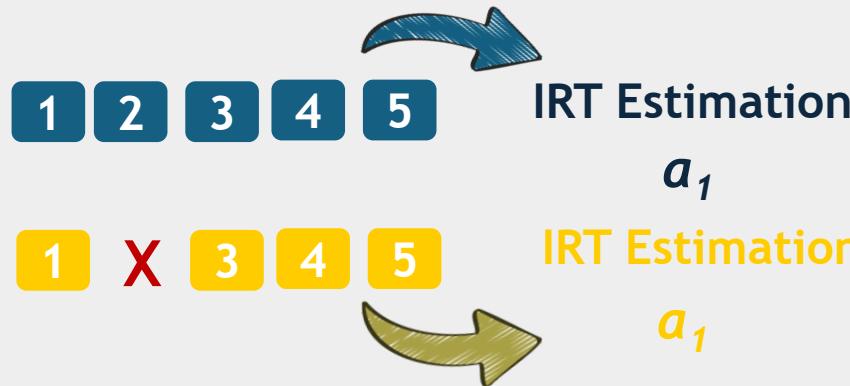
$$a_1 - a_1 = 0$$

Main Study I

121 - 32
Items JSI

Jackknife Slope Index:

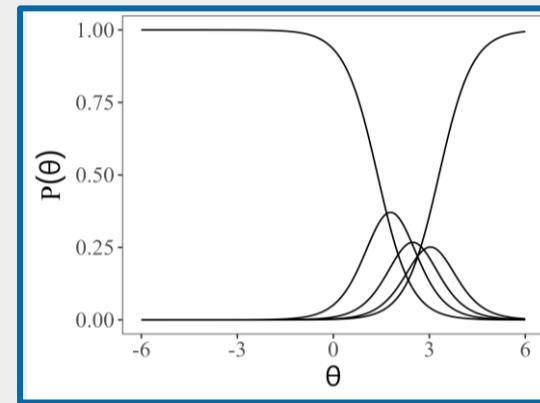
(Edwards et al., 2018)



If local independence:

$$a_1 - a_1 = 0$$

OIFs:



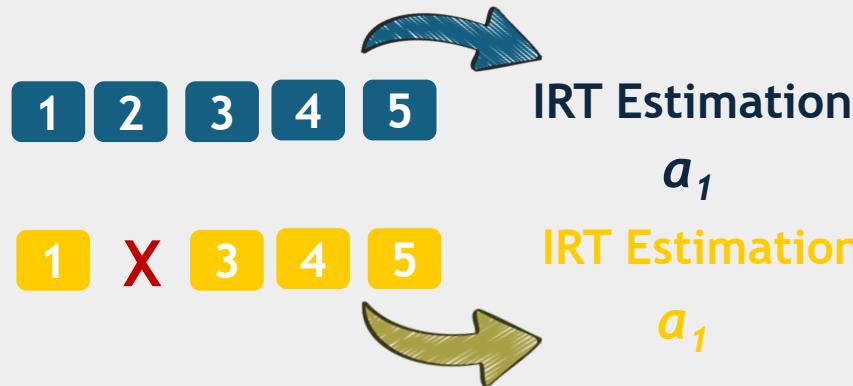
Authoritarianism (i7)

Main Study I

121 - 32
Items JSI

Jackknife Slope Index:

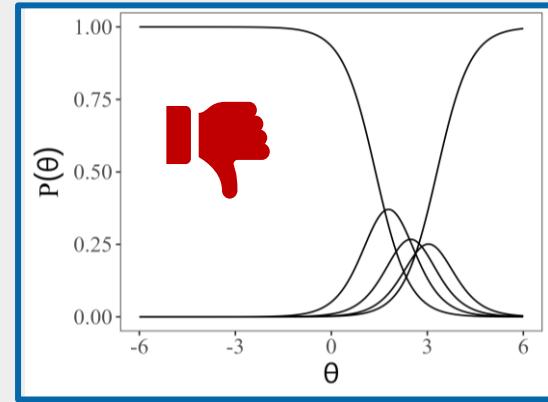
(Edwards et al., 2018)



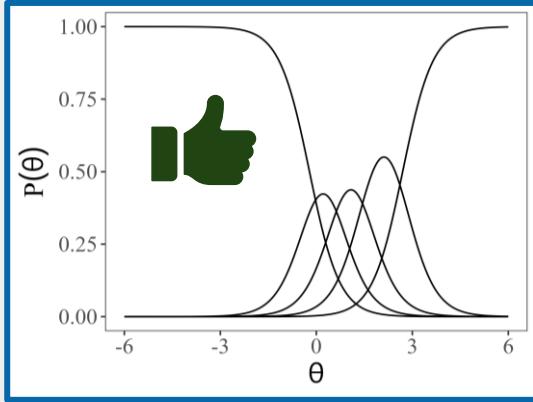
If local independence:

$$a_1 - a_1 = 0$$

OIFs:



Authoritarianism (*i7*)



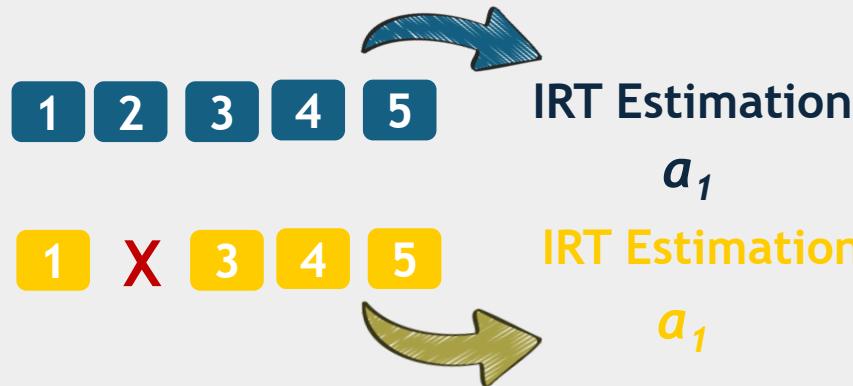
Authoritarianism (*i13*)

Main Study I

121 - 32 - 14
Items JSI OIFs

Jackknife Slope Index:

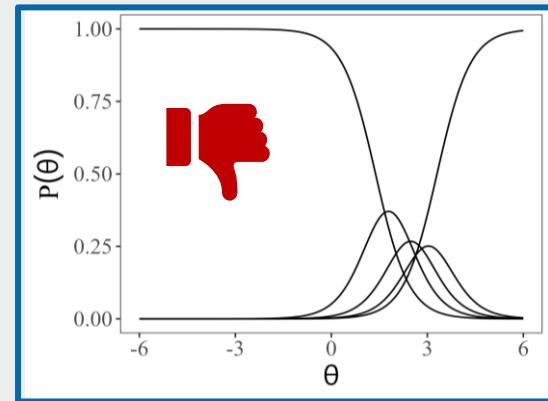
(Edwards et al., 2018)



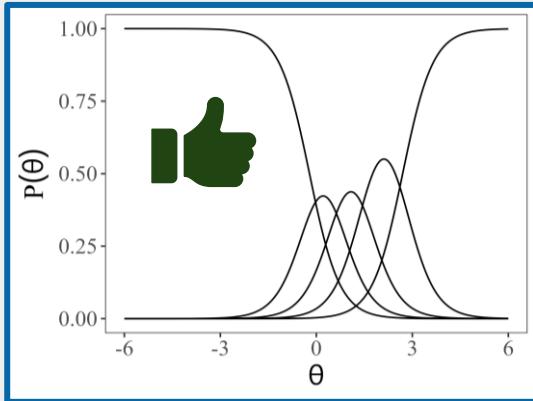
If local independence:

$$a_1 - a_1 = 0$$

OIFs:



Authoritarianism (*i7*)



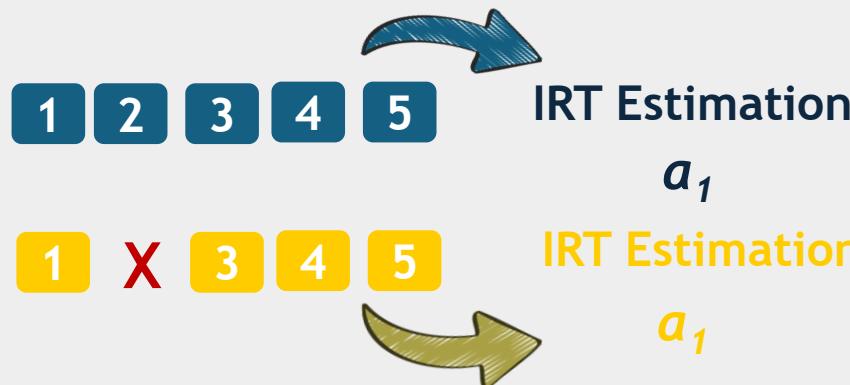
Authoritarianism (*i13*)

Main Study I

121 - 32 - 14
Items *JSI* *OIFs*

Jackknife Slope Index:

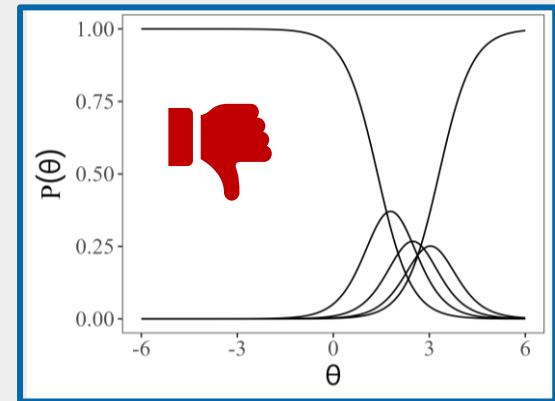
(Edwards et al., 2018)



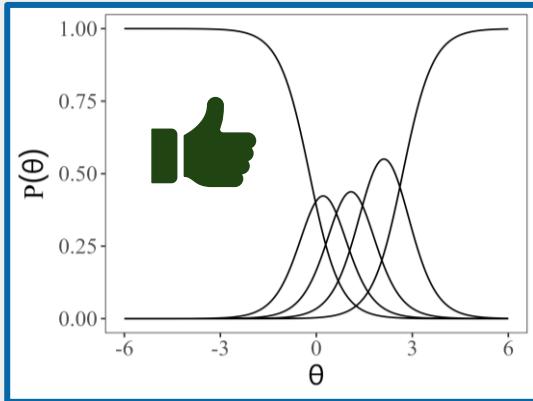
If local independence:

$$a_1 - a_1 = 0$$

OIFs:

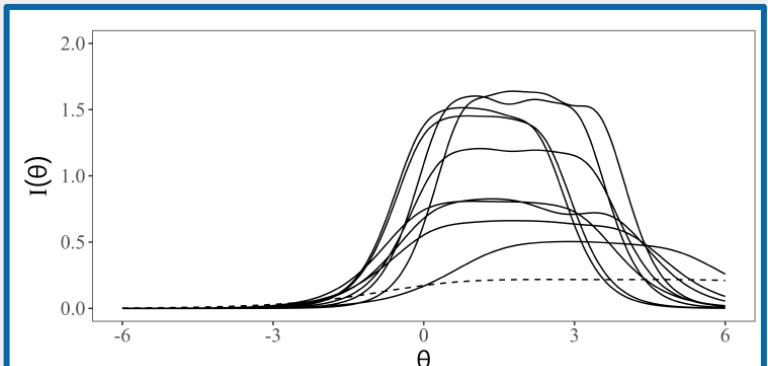


Authoritarianism (*i7*)



Authoritarianism (*i13*)

IIFs:



Greed

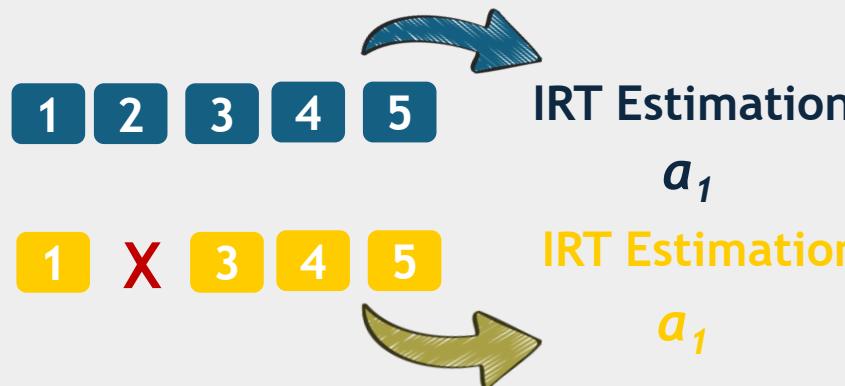
Main Study I

$$121 - 32 - 14 - 1 = 74$$

Items *JSI* *OIFs* *IIF* *Items*

Jackknife Slope Index:

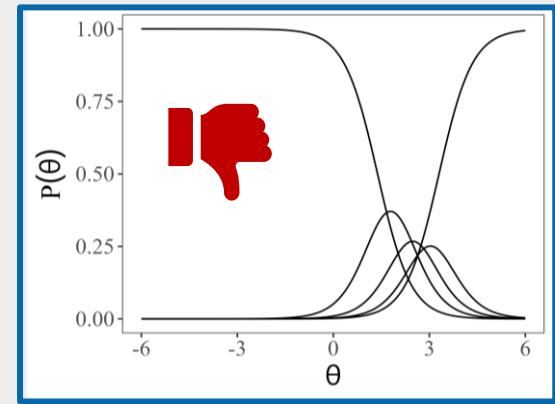
(Edwards et al., 2018)



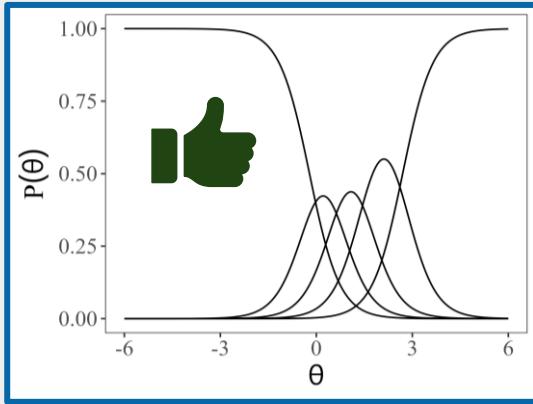
If local independence:

$$a_1 - a_1 = 0$$

OIFs:

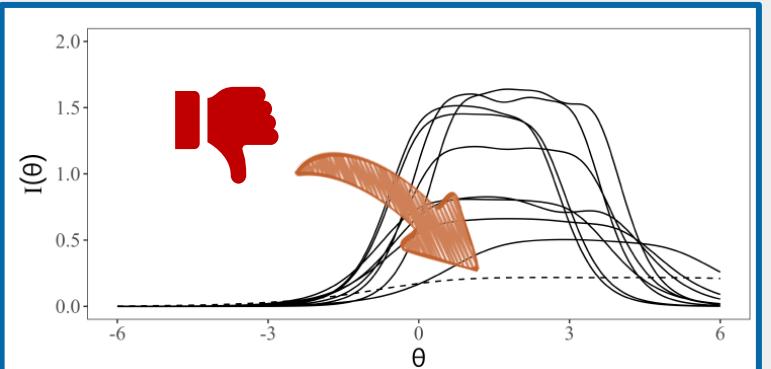


Authoritarianism (*i7*)



Authoritarianism (*i13*)

IIFs:



Greed



Main Study I

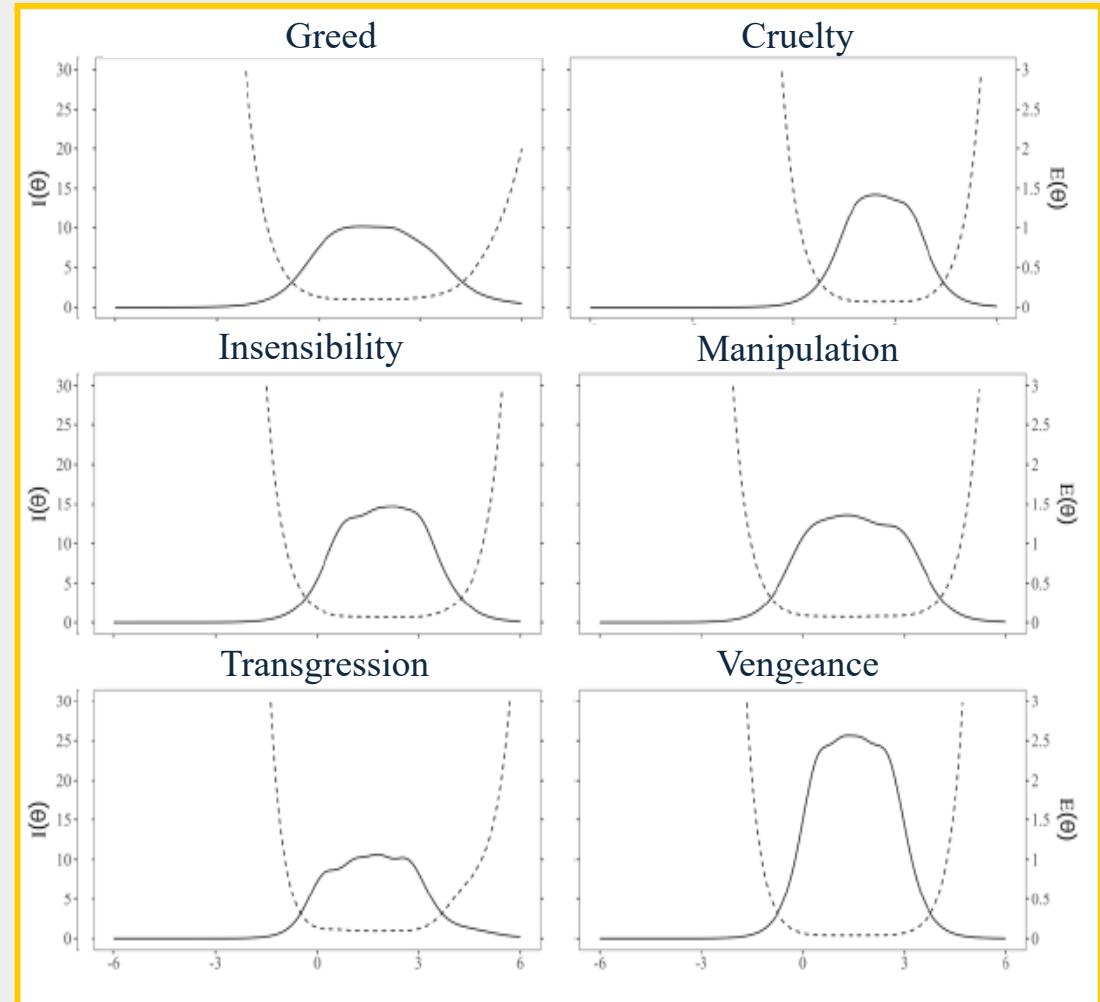
Scale Fit:

Trait	RMSEA	SRMSR	TLI	CFI	Ω	N
Aut	0.03	0.03	.92	1	.92	10
Gre	0.05	0.04	.86	.99	.86	9
Cru	0.04	0.08	.84	1	.84	7
Dis	0.04	0.03	.87	1	.87	6
Ins	0.03	0.03	.89	1	.89	8
Man	0.05	0.03	.90	.99	.90	9
Arr	0.05	0.03	.92	.99	.92	10
Tra	0.00	0.01	.85	1	.85	5
Ven	0.04	0.03	.94	1	.94	10

Main Study I

Scale Fit:

Trait	RMSEA	SRMSR	TLI	CFI	Ω	N
Aut	0.03	0.03	.92	1	.92	10
Gre	0.05	0.04	.86	.99	.86	9
Cru	0.04	0.08	.84	1	.84	7
Dis	0.04	0.03	.87	1	.87	6
Ins	0.03	0.03	.89	1	.89	8
Man	0.05	0.03	.90	.99	.90	9
Arr	0.05	0.03	.92	.99	.92	10
Tra	0.00	0.01	.85	1	.85	5
Ven	0.04	0.03	.94	1	.94	10





Main Study I

Cross-Validation:

SOLOMON Algorithm

(Lorenzo-Seva, 2021)



Main Study I

Cross-Validation:

SOLOMON Algorithm

(Lorenzo-Seva, 2021)

Participants	Distance
ID_01	1.31
ID_02	1.00
ID_03	0.78
ID_04	0.43



Main Study I

Cross-Validation:

SOLOMON Algorithm

(Lorenzo-Seva, 2021)

Participants	Distance
ID_01	1.31
ID_02	1.00
ID_03	0.78
ID_04	0.43



Main Study I

Cross-Validation:

SOLOMON Algorithm

(Lorenzo-Seva, 2021)

Participants	Distance	
ID_01	1.31	
ID_02	1.00	
ID_03	0.78	
ID_04	0.43	



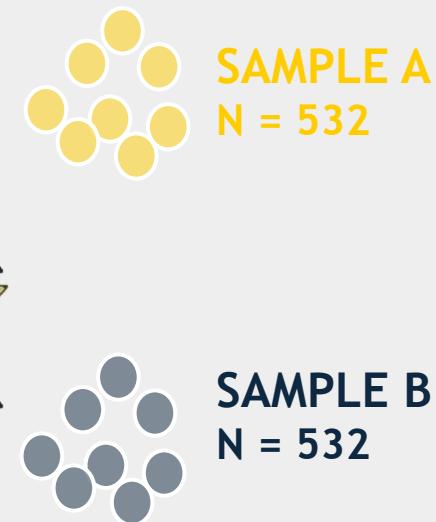
Main Study I

Cross-Validation:

SOLOMON Algorithm

(Lorenzo-Seva, 2021)

Participants	Distance
ID_01	1.31
ID_02	1.00
ID_03	0.78
ID_04	0.43



Main Study I

Cross-Validation:

SOLOMON Algorithm

(Lorenzo-Seva, 2021)

Participants Distance

ID_01	1.31
ID_02	1.00
ID_03	0.78
ID_04	0.43



SAMPLE A
N = 532



SAMPLE B
N = 532



Exploratory Factor Analysis ULS estimator, Promax Rotation

Aut
Gre
Cru
Dis
Ins

02	.68	.02	.15	.01	-.16	.12	.00	.05	.14
03	.67	.07	.06	-.03	-.03	.13	.17	-.01	.08
04	.76	.00	-.08	.08	-.10	.09	.01	.02	-.04
05	.53	.18	.02	.02	-.03	.19	-.02	.02	.08
06	.78	.17	.03	.03	-.03	.03	.00	.07	.01
07	.53	.22	.13	-.08	-.10	.05	.24	.04	.01
10	.50	.14	.10	.01	-.10	.15	.07	.15	.03
11	.26	.03	.02	-.11	-.01	.11	.13	-.01	.14
13	.63	.03	-.10	-.03	.10	.11	.13	-.01	.03
14	.58	.17	.02	-.11	.01	.06	.02	.09	.02

Aut
Gre
Cru
Dis
Ins

01	.06	.04	.05	.01	-.12	.81	.06	.06	.01
03	.04	-.03	.01	.04	-.02	.06	.67	.19	.03
04	.04	-.04	.01	.04	-.02	.10	.59	.00	.02
05	.04	-.05	.01	.04	-.02	.10	.57	.00	.02
06	.09	-.08	.05	.11	-.02	.17	.13	.01	.03
07	.06	-.03	.06	.00	-.01	.70	.05	.05	.03
10	.00	-.02	.17	.13	-.05	.62	.24	.01	.03
12	.21	-.06	.19	.02	-.11	.09	.02	.06	.04
14	.05	-.24	.13	.08	-.05	.48	.02	.04	.02

GFI = .99
RMSE = 0.03

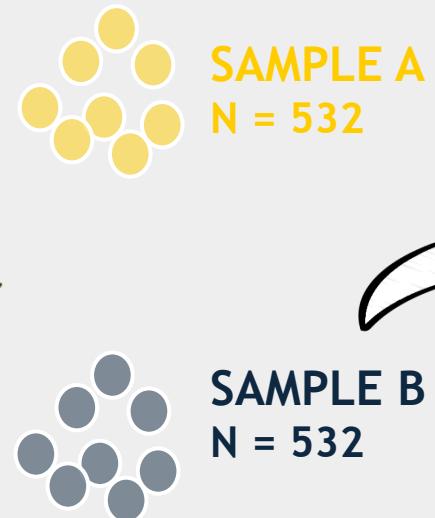


Main Study I

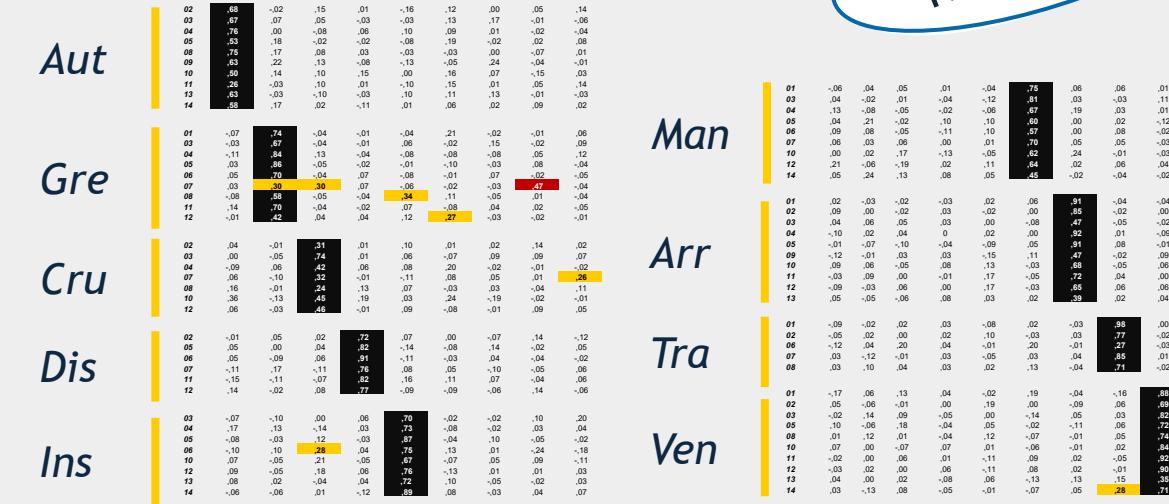
Cross-Validation:

SOLOMON Algorithm (Lorenzo-Seva, 2021)

Participants	Distance
ID_01	1.31
ID_02	1.00
ID_03	0.78
ID_04	0.43



Exploratory Factor Analysis ULS estimator, Promin Rotation



Confirmatory Factor Analysis ULSMV estimator

CFI = .99, TLI = .99
SRMR = 0.059, RMSEA = 0.043

GFI = .99
RMSR = 0.03



Main Study I

Convergent-Discriminant Validity:

AVE index +

Fornell & Larcker Criteria

(Fornell & Larcker, 1981)



Main Study I

Convergent-Discriminant Validity:

AVE index +

Fornell & Larcker Criteria

(Fornell & Larcker, 1981)

Convergent

Discriminant



Main Study I

Convergent-Discriminant Validity:

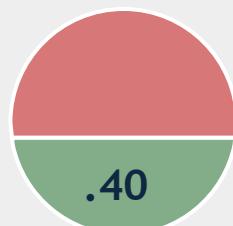
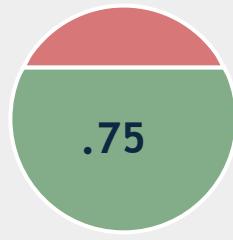
AVE index +

Fornell & Larcker Criteria

(Fornell & Larcker, 1981)

Convergent

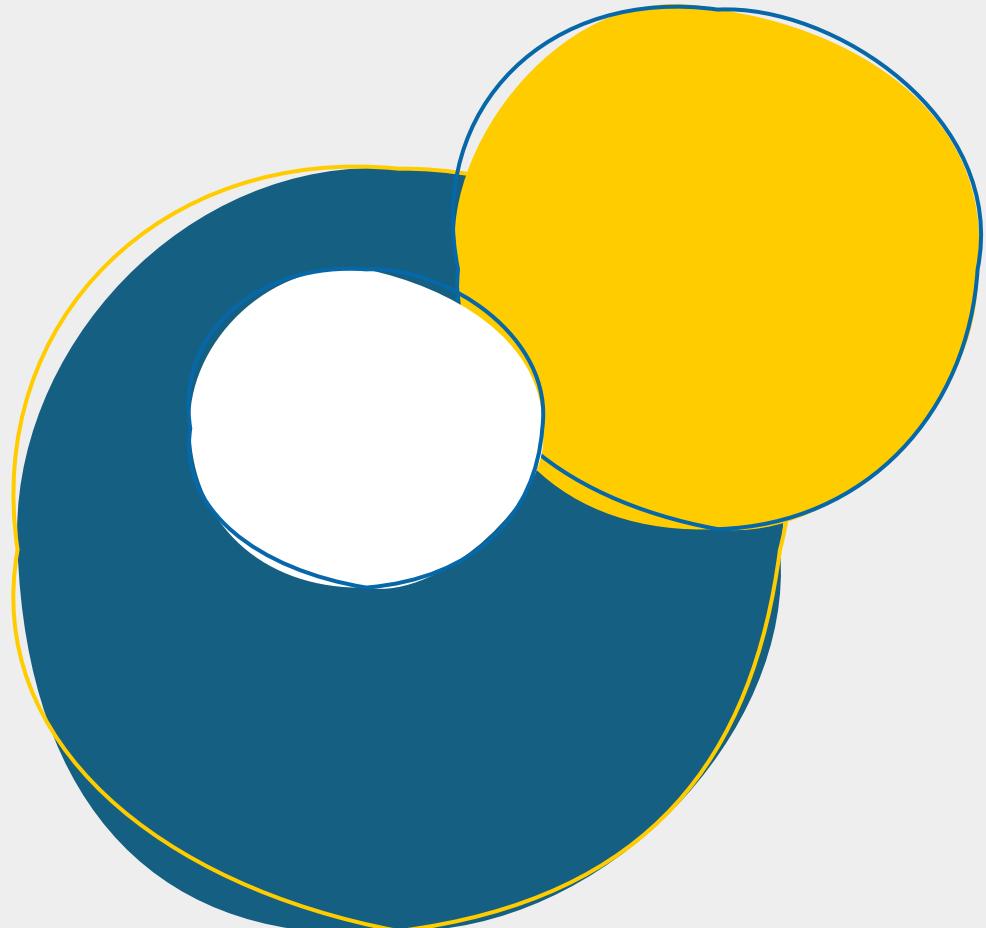
Discriminant



Traits	AVE ₁	AVE ₂	r ²	Traits	AVE ₁	AVE ₂	r ²
Aut-Gre	.67	.54	.51	Cru-Arr	.68	.67	.30
Aut-Cru	.67	.68	.46	Cru-Tra	.68	.71	.40
Aut-Dis	.67	.67	.10	Cru-Ven	.68	.73	.54
Aut-Ins	.67	.74	.34	Dis-Ins	.67	.74	.17
Aut-Man	.67	.61	.74	Dis-Man	.67	.61	.15
Aut-Arr	.67	.67	.51	Dis-Arr	.67	.67	.06
Aut-Tra	.67	.71	.25	Dis-Tra	.67	.71	.25
Aut-Ven	.67	.73	.47	Dis-Ven	.67	.73	.06
Gre-Cru	.54	.68	.32	Ins-Man	.74	.61	.32
Gre-Dis	.54	.67	.13	Ins-Arr	.74	.67	.37
Gre-Ins	.54	.74	.40	Ins-Tra	.74	.71	.32
Gre-Man	.54	.61	.47	Ins-Ven	.74	.73	.40
Gre-Arr	.54	.67	.37	Man-Arr	.61	.67	.45
Gre-Tra	.54	.71	.26	Man-Tra	.61	.71	.32
Gre-Ven	.54	.73	.40	Man-Ven	.61	.73	.38
Cru-Dis	.68	.67	.17	Arr-Tra	.67	.71	.23
Cru-Ins	.68	.74	.56	Arr-Ven	.67	.73	.34
Cru-Man	.68	.61	.36	Tra-Ven	.71	.73	.26



Discussion

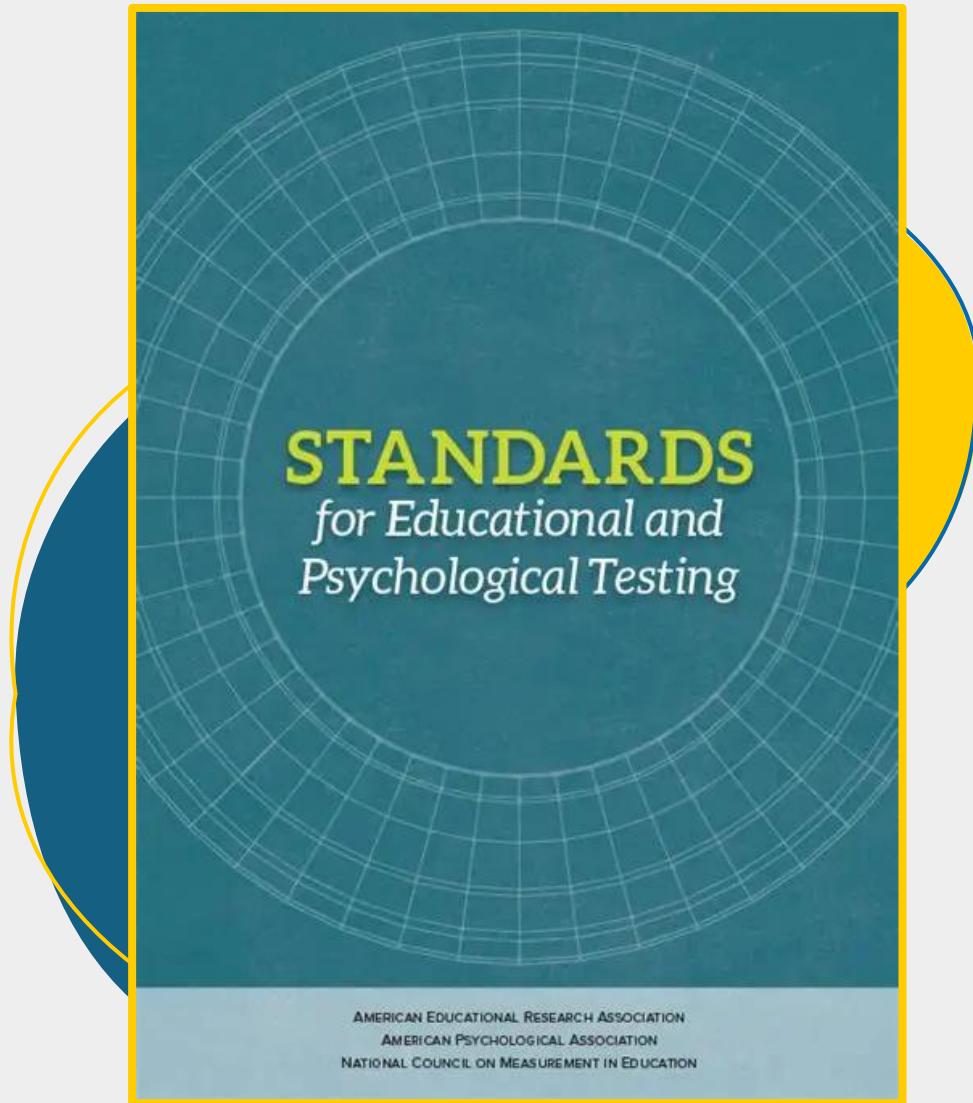




STANDARDS
*for Educational and
Psychological Testing*

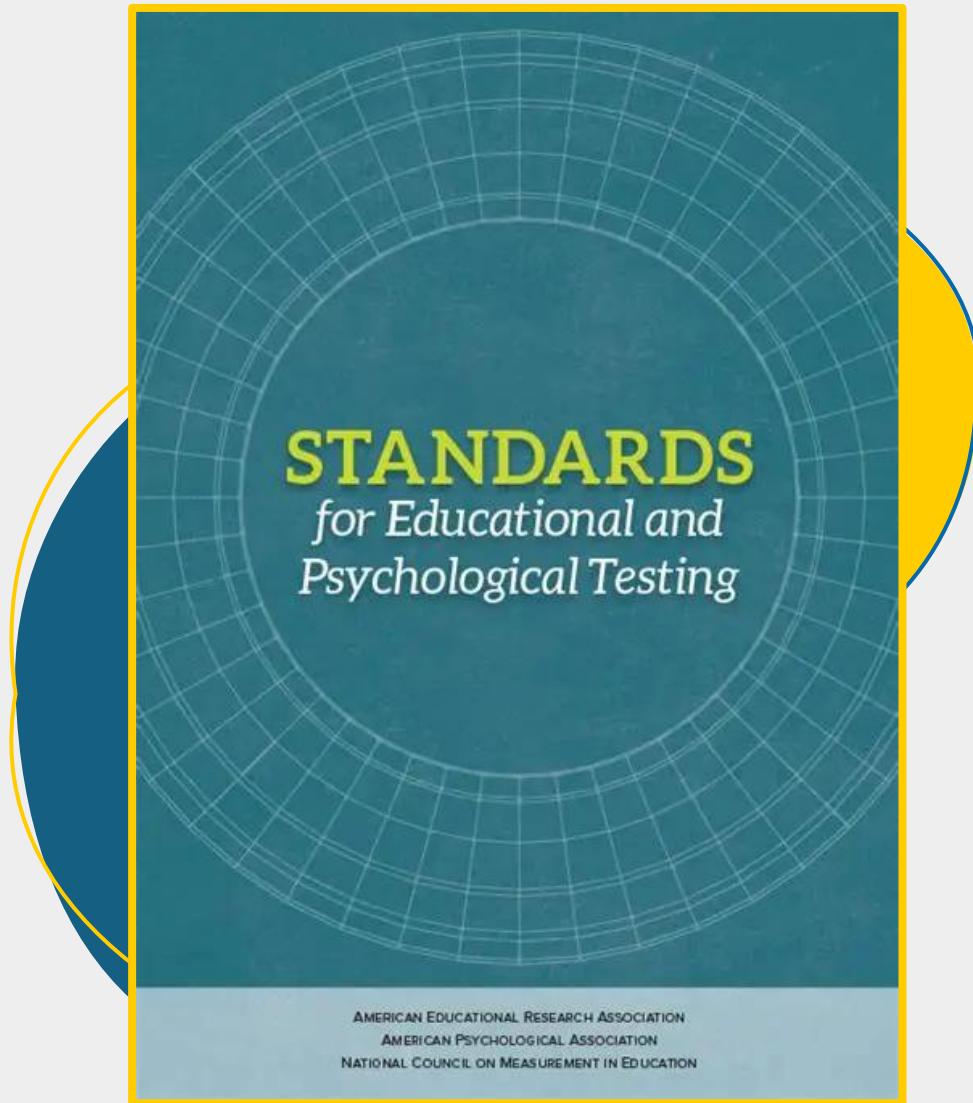
AMERICAN EDUCATIONAL RESEARCH ASSOCIATION
AMERICAN PSYCHOLOGICAL ASSOCIATION
NATIONAL COUNCIL ON MEASUREMENT IN EDUCATION

Discussion



Discussion

Content Validity Evidences
Theoretical framework
Expert Panels



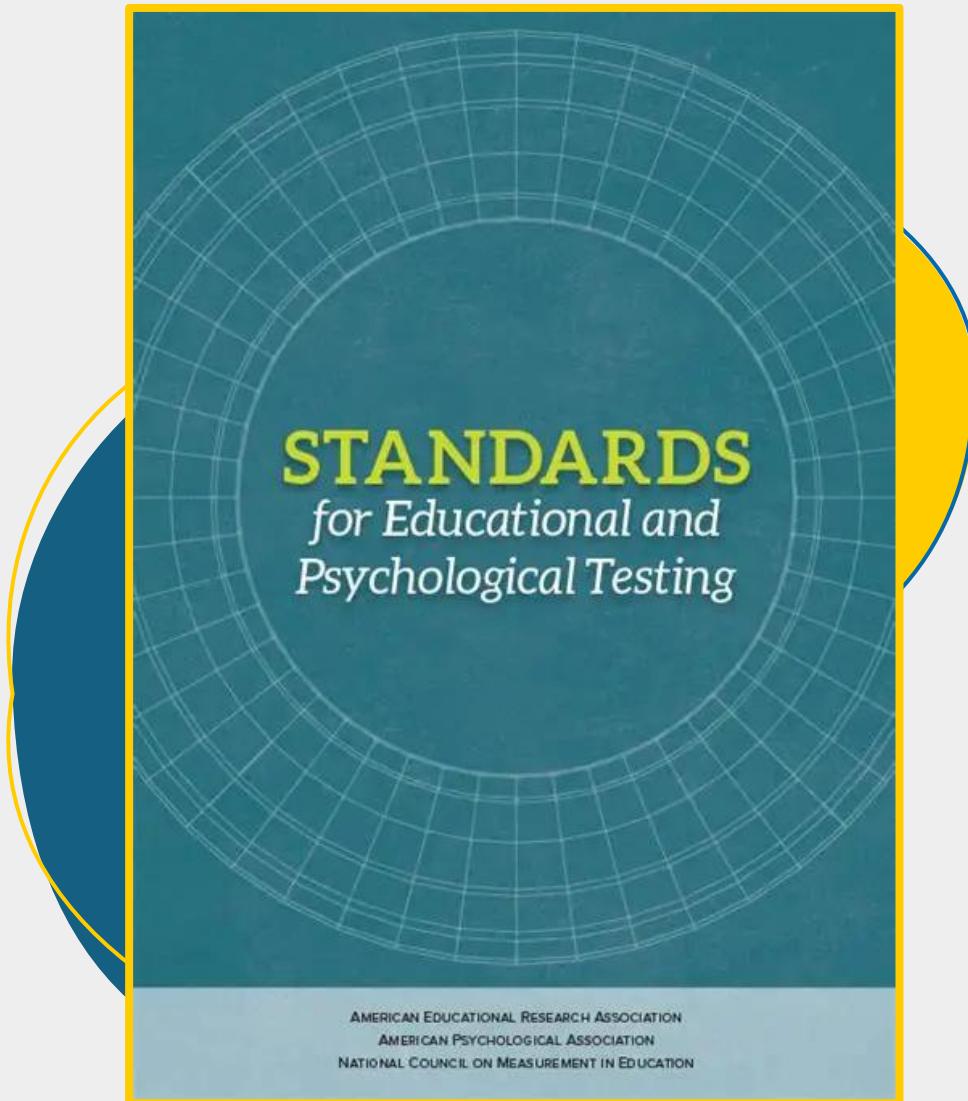
Discussion

Content Validity Evidences

Theoretical framework
Expert Panels

Internal Structure Validity Evidences

Pilot Studies (Unidimensional EFAs)
Main Study I (IRT, EFA/AFC, AVE)



Discussion

Content Validity Evidences

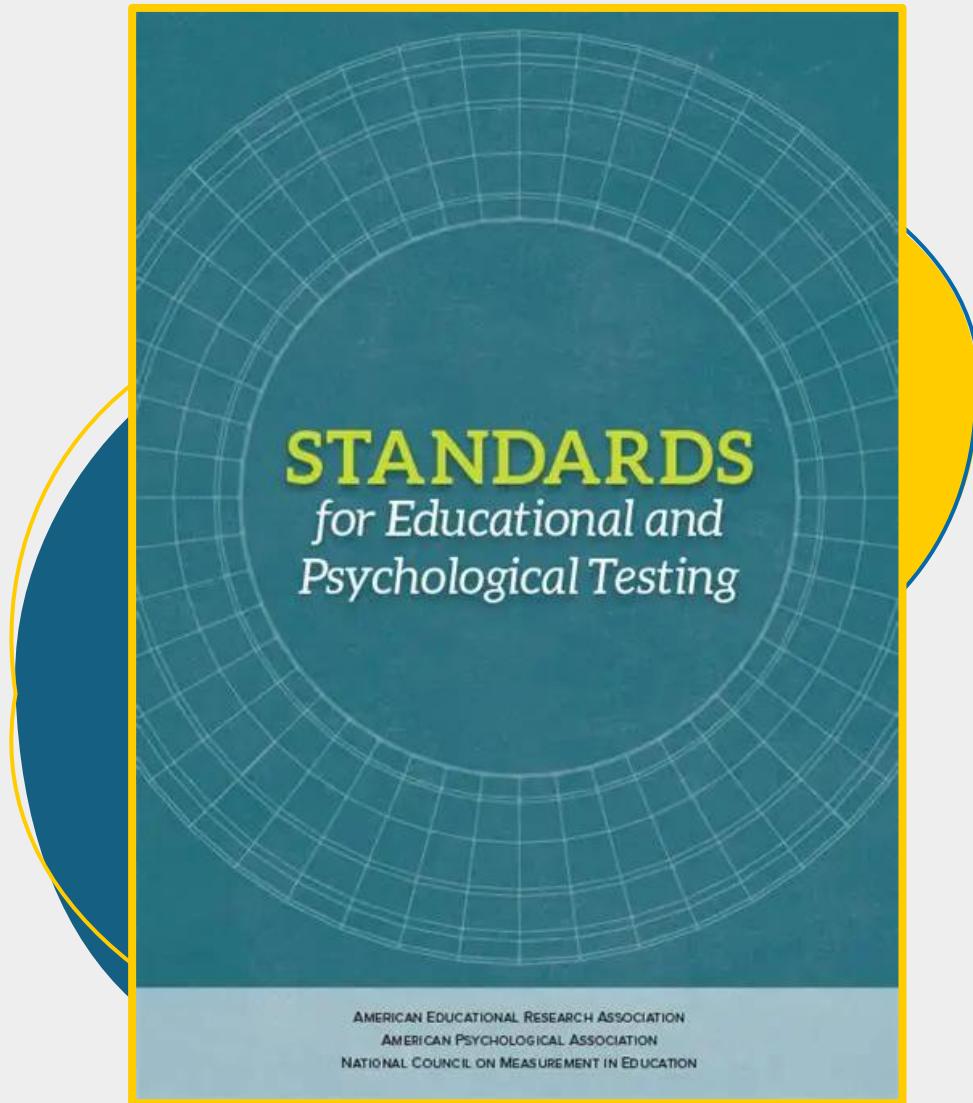
Theoretical framework
Expert Panels

Internal Structure Validity Evidences

Pilot Studies (Unidimensional EFAs)
Main Study I (IRT, EFA/AFC, AVE)

Other Variables Validity Evidences

Response Processes Validity Evidences



Discussion

Content Validity Evidences

Theoretical framework
Expert Panels

Internal Structure Validity Evidences

Pilot Studies (Unidimensional EFAs)
Main Study I (IRT, EFA/AFC, AVE)

Other Variables Validity Evidences

Response Processes Validity Evidences

Applied Contexts

Response biases

.... To be continued

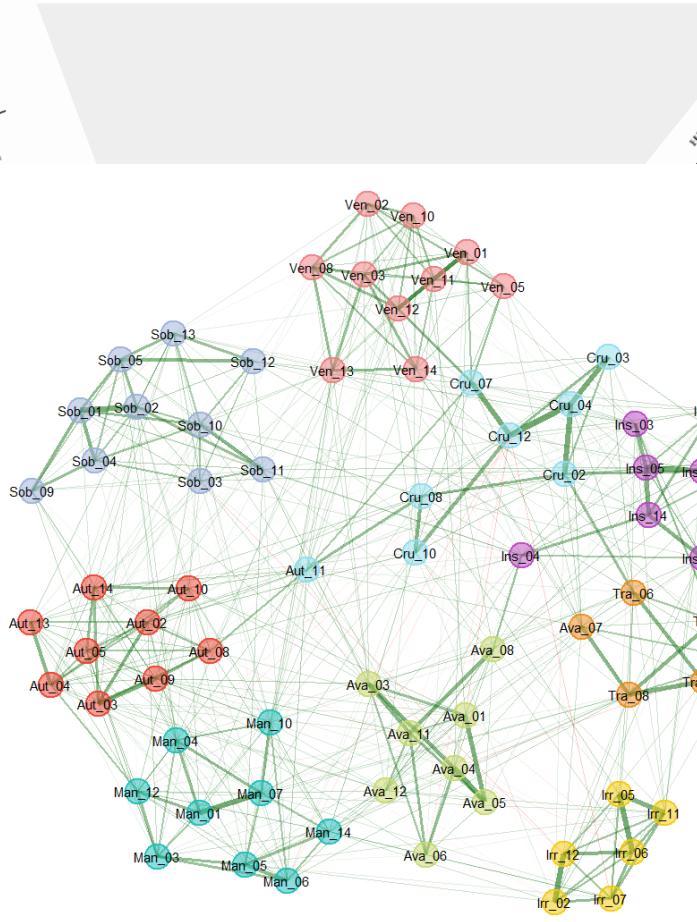
Coming soon...

Rasgo	CPPC-17						SOI-R								
	Pot. Creativo			Crea. Practicada			Soporte Org.			Conducta					
	β	t	p	β	t	p	β	t	p	β	t	p			
aut	0,16	1,04	,30	0,04	0,23	,82	0,00	-0,03	,98	0,07	0,43	,67	-0,13	-,04	,40
ava	-0,13	-1,03	,31	-0,02	-0,16	,87	0,07	0,49	,62	-0,18	-1,38	,17	-0,16	-1,21	,22
cru	-0,05	-0,43	,67	-0,08	-0,70	,48	-0,05	-0,41	,89	-0,08	-0,75	,45	0,01	0,05	,09
inc	-0,10	-0,87	,39	-0,20	-1,68	,10	-0,14	-1,15	,25	-0,06	-0,52	,61	-0,17	-1,44	,01
ins	-0,29	-2,30	,02	-0,12	-0,91	,36	0,00	-0,03	,98	0,03	0,23	,82	0,05	0,41	,11
man	0,15	0,96	,34	0,11	0,71	,48	-0,02	-0,14	,89	-0,26	-1,60	,11	0,05	0,35	,60
sob	0,37	3,10	< ,001	0,17	1,34	,18	0,10	0,73	,47	0,15	1,20	,23	0,08	0,60	,35
tra	0,24	2,39	,02	0,24	2,29	,92	0,14	1,27	,21	0,28	2,64	,01	0,38	3,65	,01
ven	-0,05	-0,39	,70	0,00	-0,04	,97	0,00	0,00	,01	0,11	0,88	,38	-0,05	-0,41	,29
F															15,6
R ²															
	3,55	< ,001		1,63	,32		0,54	,85		1,44	,18				
	23,90 %			12,57 %			4,55 %			11,43 %					

Nota. glnum = 9, glden = 100. Aut = Autoritarismo, Ava = Avaricia, Cru = Crueldad, Inc = Incumplimiento, Sob = Soberbia, Tra = Transgresión, Ven = Venganza.
Manipulación, Sob = Soberbia, Tra = Transgresión, Ven = Venganza.

Nota. Ape = Apertura, Res = Responsabilidad, Ans = Ansiedad, Hon = Neuroticismo, Neu = Neuroticismo, Hon = Honestidad-Humildad, Ins = Insensibilidad, Tra = Transgresión, Ven = Venganza. Los ítems 2 y 5 son versiones alternativas de los ítems 1 y 4. Los ítems 3 y 6 son versiones alternativas de los ítems 2 y 5. Los ítems 7 y 8 son versiones alternativas de los ítems 3 y 6. Los ítems 9 y 10 son versiones alternativas de los ítems 7 y 8. Los ítems 11 y 12 son versiones alternativas de los ítems 9 y 10. Los ítems 13 y 14 son versiones alternativas de los ítems 11 y 12. Los ítems 15 y 16 son versiones alternativas de los ítems 13 y 14. Los ítems 17 y 18 son versiones alternativas de los ítems 15 y 16. Los ítems 19 y 20 son versiones alternativas de los ítems 17 y 18. Los ítems 21 y 22 son versiones alternativas de los ítems 19 y 20. Los ítems 23 y 24 son versiones alternativas de los ítems 21 y 22. Los ítems 25 y 26 son versiones alternativas de los ítems 23 y 24. Los ítems 27 y 28 son versiones alternativas de los ítems 25 y 26. Los ítems 29 y 30 son versiones alternativas de los ítems 27 y 28. Los ítems 31 y 32 son versiones alternativas de los ítems 29 y 30. Los ítems 33 y 34 son versiones alternativas de los ítems 31 y 32. Los ítems 35 y 36 son versiones alternativas de los ítems 33 y 34. Los ítems 37 y 38 son versiones alternativas de los ítems 35 y 36. Los ítems 39 y 40 son versiones alternativas de los ítems 37 y 38. Los ítems 41 y 42 son versiones alternativas de los ítems 39 y 40. Los ítems 43 y 44 son versiones alternativas de los ítems 41 y 42. Los ítems 45 y 46 son versiones alternativas de los ítems 43 y 44. Los ítems 47 y 48 son versiones alternativas de los ítems 45 y 46. Los ítems 49 y 50 son versiones alternativas de los ítems 47 y 48. Los ítems 51 y 52 son versiones alternativas de los ítems 49 y 50. Los ítems 53 y 54 son versiones alternativas de los ítems 51 y 52. Los ítems 55 y 56 son versiones alternativas de los ítems 53 y 54. Los ítems 57 y 58 son versiones alternativas de los ítems 55 y 56. Los ítems 59 y 60 son versiones alternativas de los ítems 57 y 58. Los ítems 61 y 62 son versiones alternativas de los ítems 59 y 60. Los ítems 63 y 64 son versiones alternativas de los ítems 61 y 62. Los ítems 65 y 66 son versiones alternativas de los ítems 63 y 64. Los ítems 67 y 68 son versiones alternativas de los ítems 65 y 66. Los ítems 69 y 70 son versiones alternativas de los ítems 67 y 68. Los ítems 71 y 72 son versiones alternativas de los ítems 69 y 70. Los ítems 73 y 74 son versiones alternativas de los ítems 71 y 72. Los ítems 75 y 76 son versiones alternativas de los ítems 73 y 74. Los ítems 77 y 78 son versiones alternativas de los ítems 75 y 76. Los ítems 79 y 80 son versiones alternativas de los ítems 77 y 78. Los ítems 81 y 82 son versiones alternativas de los ítems 79 y 80. Los ítems 83 y 84 son versiones alternativas de los ítems 81 y 82. Los ítems 85 y 86 son versiones alternativas de los ítems 83 y 84. Los ítems 87 y 88 son versiones alternativas de los ítems 85 y 86. Los ítems 89 y 90 son versiones alternativas de los ítems 87 y 88. Los ítems 91 y 92 son versiones alternativas de los ítems 89 y 90. Los ítems 93 y 94 son versiones alternativas de los ítems 91 y 92. Los ítems 95 y 96 son versiones alternativas de los ítems 93 y 94. Los ítems 97 y 98 son versiones alternativas de los ítems 95 y 96. Los ítems 99 y 100 son versiones alternativas de los ítems 97 y 98.

Tabla 17 Comparación de Patrones Correlaciones con el HEXACO										
Rasgo	Ape	Res	Ans	Ext	Neu	Hon				
Rasgo	1,23 - ,09*	-,20 - ,12*	-,16 - ,14*	-,14 - ,14*	-,25 - ,05*	-,22 - ,01				
Aut-Ava	-0,02 - ,32*	-,05 - ,38*	-,03 - ,27*	-,12 - ,22*	-,08 - ,22*	-,19 - ,17*				
Aut-Cru	-0,18 - ,23*	-,19 - ,23*	-,08 - ,38*	-,10 - ,24*	-,10 - ,13*	-,07 - ,2				
Aut-Inc	-0,04 - ,31*	-,06 - ,38*	-,06 - ,15*	-,10 - ,13*	-,10 - ,17*	-,08 - ,1				



HEXACO	Tabla 19 Coeficientes Estadísticamente Significativos de la Regresiones con la BERO									
	Aut	Ava	Cra	Iac	Ias	Msa	Sab	Tra	Ven	
Aut	+,29	+,28	+,28	+,30	+,32	+,28	+,29	+,28	+,28	+,28
Ava	+,23	+,29	+,29	+,30	+,32	+,23	+,24	+,24	+,24	+,24
Cra	+,22	+,20	+,28	+,29	+,32	+,22	+,23	+,23	+,23	+,23
Iac	+,22	+,21	+,28	+,29	+,32	+,22	+,23	+,23	+,23	+,23
Ias	+,24	+,24	+,28	+,29	+,32	+,24	+,25	+,25	+,25	+,25
Msa	+,23	+,23	+,28	+,29	+,32	+,23	+,24	+,24	+,24	+,24
Sab	+,23	+,23	+,28	+,29	+,32	+,23	+,24	+,24	+,24	+,24
Tra	+,23	+,23	+,28	+,29	+,32	+,23	+,24	+,24	+,24	+,24
Ven	+,23	+,23	+,28	+,29	+,32	+,23	+,24	+,24	+,24	+,24

t	gl	p	Medias		d de Cohen [95 % CI]
			Hombr	Mujer	
Aut	5,06	281,03	< ,001	0,41	-0,03 [0,30 - 0,68]
Ava	4,43	291,67	< ,001	0,51	0,13 [0,23 - 0,61]
Cra	5,93	220,17	< ,001	0,31	0,62 [0,46 - 0,84]
Iac	2,88	273,31	,004	0,21	-0,01 [0,09 - 0,47]
Ias	7,26	257,14	< ,001	0,52	-0,08 [0,73 - 0,94]
Manip	5,86	305,23	< ,001	0,48	-0,02 [0,54 - 0,92]
Soberbia	6,56	275,96	< ,001	0,44	-0,11 [0,64 - 0,64]
Transgresión	7,31	271,96	< ,001	0,52	-0,09 [0,72 - 0,91]
Venganza	6,19	283,12	< ,001	0,50	-0,03 [0,59 - 0,78]

Nota. Las comparaciones están hechas con las puntuaciones TRI (θ) de los participantes.

* Las puntuaciones TRI del incumplimiento para este análisis se han estimado sin los ítems 2 y 5.



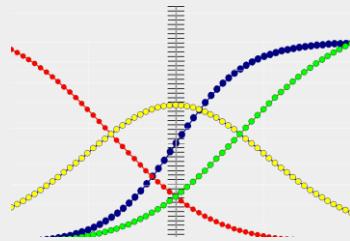
References

- Edwards, M. C., Houts, C. R., & Cai, L. (2018). A diagnostic procedure to detect departures from local independence in Item Response Theory models. *Psychological Methods*, 23(1), 138-149. <https://doi.org/10.1037/met0000121>
- Fornell, C., & Larcker, D. F. (1981). Evaluating Structural Equation Models with Unobservable Variables and Measurement Error. *Journal of Marketing Research*, 18(1), 39. <https://doi.org/10.2307/3151312>
- García-Fernández, J., Cuesta, M., García-Cueto, E., González-Nuevo, C., & Postigo, A. (2025). Reconceptualization of dark personality: Towards a new model without theoretical overlap. *Psychologist Papers*, 46(2), 125-135. <https://doi.org/10.70478/pap.psicol.2025.46.16>
- Lorenzo-Seva, U. (2021). SOLOMON: A method for splitting a sample into equivalent subsamples in factor analysis. *Behavior Research Methods*, 54(6), 2665-2677. <https://doi.org/10.3758/s13428-021-01750-y>
- Moshagen, M., Hilbig, B. E., & Zettler, I. (2018). The dark core of personality. *Psychological Review*, 125(5), 656-688. <https://doi.org/10.1037/rev0000111>
- Paulhus, D. L., & Williams, K. M. (2002). The Dark Triad of personality: Narcissism, machiavellianism, and psychopathy. *Journal of Research in Personality*, 36(6), 556-563. [https://doi.org/10.1016/S0092-6566\(02\)00505-6](https://doi.org/10.1016/S0092-6566(02)00505-6)
- Timmerman, M. E., & Lorenzo-Seva, U. (2011). Dimensionality assessment of ordered polytomous items with Parallel Analysis. *Psychological Methods*, 16(2), 209-220. <https://doi.org/10.1037/a0023353>



Thanks!

Jaime García-Fernández
garciafernandezj@uniovi.es



Psychometrics Research Group
University of Oviedo

Slides:

<https://osf.io/ve7tb/>

