

Assessing the Applicability of the HEXACO Personality Model to Taiwanese

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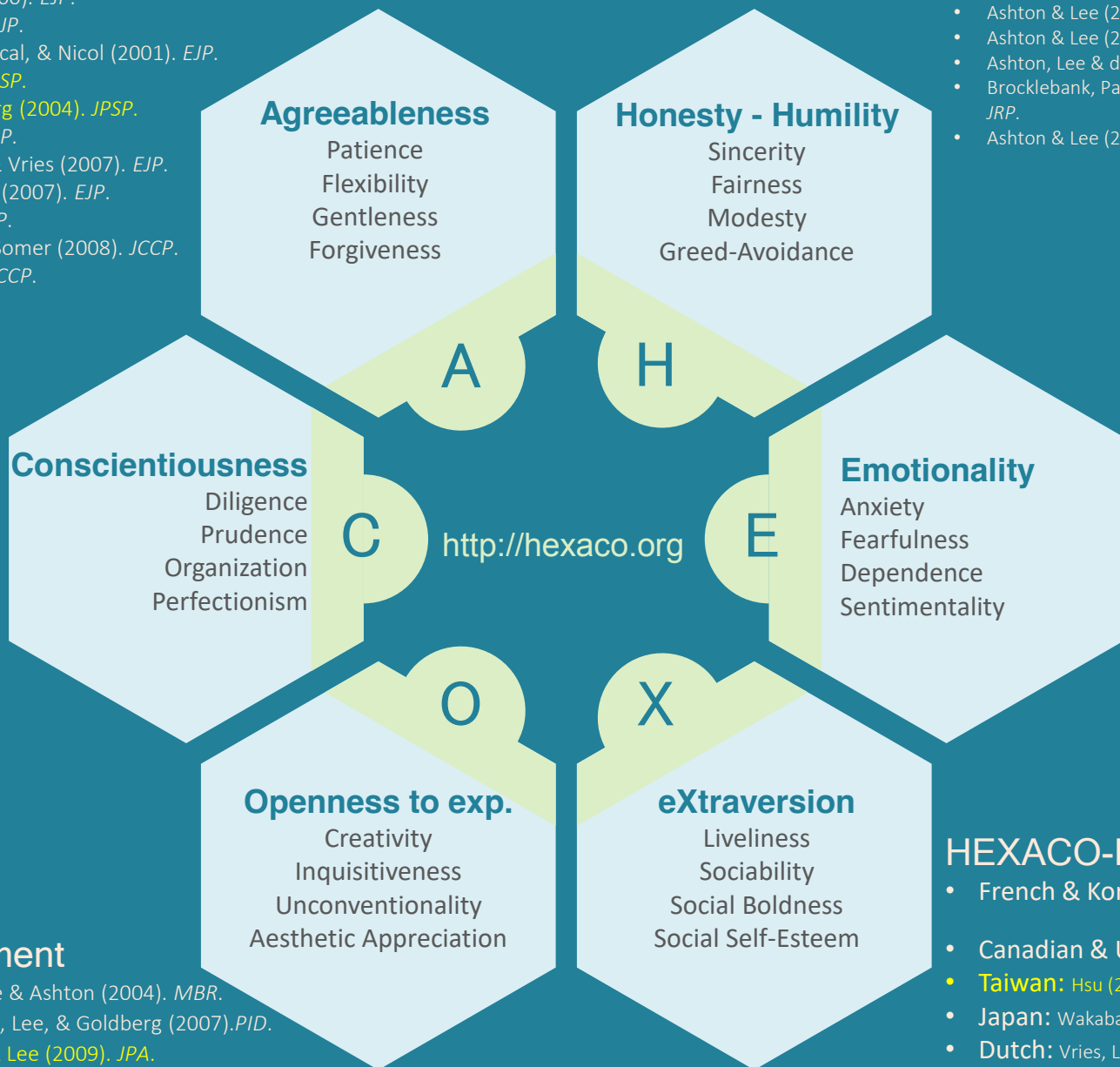
FFM
vs.
HEXACO

Research
Issue

Results

Lexical studies

- Ashton, Lee, & Son (2000). *EJP*.
- Ashton & Lee (2001). *EJP*.
- Boies, Lee, Ashton, Pascal, & Nicol (2001). *EJP*.
- Ashton et al. (2004). *JSPS*.
- Ashton, Lee, & Goldberg (2004). *JSPS*.
- Ashton et al. (2006). *JRP*.
- Ashton, Lee, Marcus, & Vries (2007). *EJP*.
- Szarota, Ashton, & Lee (2007). *EJP*.
- Lee & Ashton (2008). *JP*.
- Wasti, Lee, Ashton, & Somer (2008). *JCCP*.
- Lee & Ashton (2009). *JCCP*.



Vs. FFM / B5

- Ashton & Lee (2007). *PSPR*.
- Ashton & Lee (2008). *JRP*.
- Ashton, Lee & de Vries (2014). *PSPR*.
- Brocklebank, Pauls, Rockmore, & Bates (2015). *JRP*.
- Ashton & Lee (2018). *JPA*.

Scale development

- HEXACO-PI (200): Lee & Ashton (2004). *MBR*.
- IPIP-HEXACO: Ashton, Lee, & Goldberg (2007). *PID*.
- HEXACO-60: Ashton & Lee (2009). *JPA*.
- Brief HEXACO Inventory (24): Vries (2013). *JRP*.
- HEXACO-PI-R (100): Lee & Ashton (2016). *Assessment*.

HEXACO-PI(-R) validation

- French & Korean: Boies, Yoo, Ebacher, Lee, & Ashton (2004). *EPM*.
- Canadian & U.S.: Lee & Ashton (2006). *PA*.
- Taiwan: Hsu (2010). *Unpublished manuscript*.
- Japan: Wakabayashi (2014). *JPR*.
- Dutch: Vries, Lee, & Ashton (2008). *JPA*.
- Spain: Romero, Villar, & López-Romero (2015). *PID*.
- Serbia: Međedović, Čolović, Dinić, & Smederevac (2017). *JPA*.

FFM vs. HEXACO

NEO-PI-R (Costa & McCrae, 1992)

Neuroticism (Emotional Stability)	Extraversion	Agreeableness	Conscientiousness	Openness
Anxiety Angry Hostility Depression Self-consciousness Impulsiveness Vulnerability	Warmth Gregariousness Assertiveness Activity Excitement seeking Positive emotions	Trust Straightforwardness Altruism Compliance Modesty Tender-mindedness	Competence Order Dutifulness Achievement striving Self-discipline Deliberation	Fantasy Aesthetics Feelings Actions Ideas Values

HEXACO (Lee & Ashton, 2004. *MBR.*)

Honesty–Humility	Emotionality	Extraversion	Agreeableness	Conscientiousness	Openness
Sincerity Fairness Greed avoidance Modesty	Fearfulness Anxiety Dependence Sentimentality	Expressiveness Social boldness Sociability Liveliness	Forgiveness Gentleness Flexibility Patience	Organization Diligence Perfectionism Prudence	Aesthetic appreciation Inquisitiveness Creativity Unconventionality

Lack of irritability &
temperamentality
but include sensitivity

Include irritability
& temperamentality

FFM
vs.
HEXACO

Research
Issue

Results

Investigate the factor structure of the Chinese version HEXACO-60 in Taiwan

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graph LR; A[FFM vs. HEXACO] --> B[Research Issue]; B --> C[Results];
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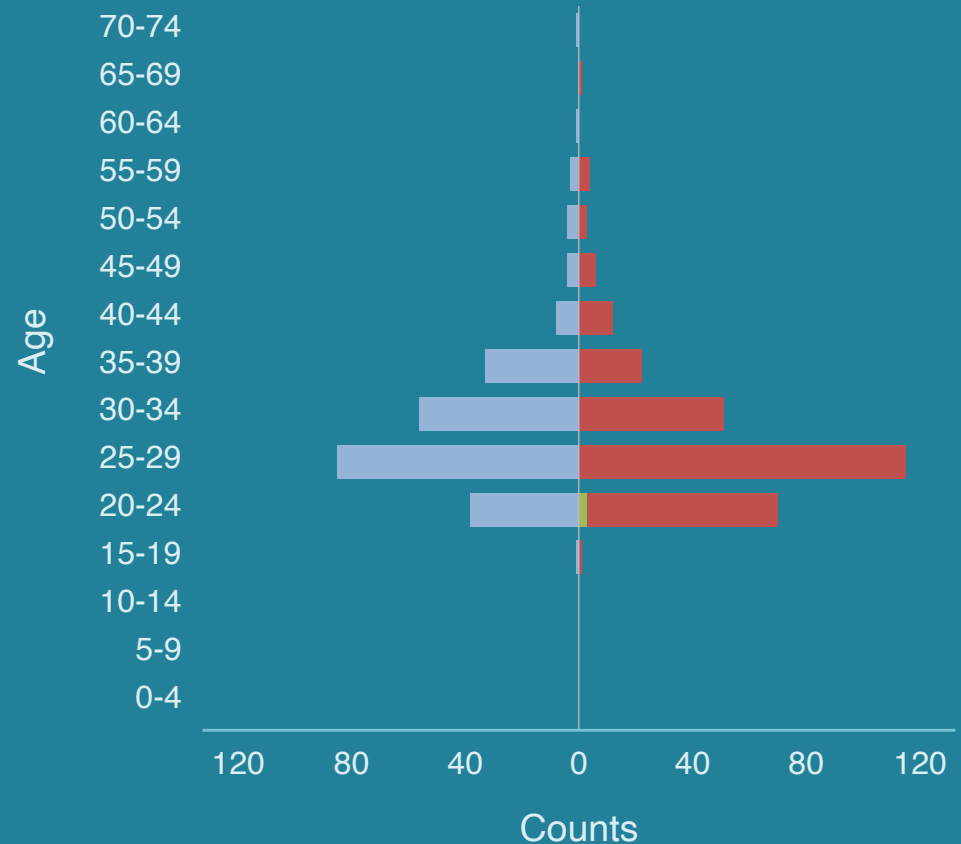
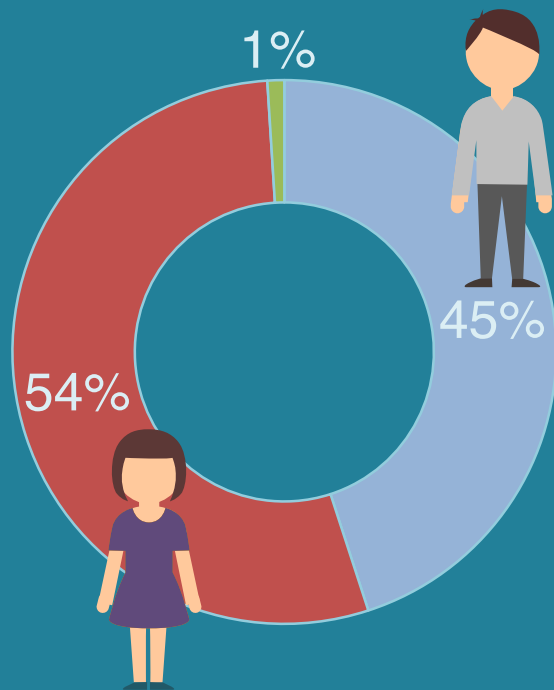
FFM
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519 participants & item-level exploratory factor analysis (EFA)

Demographics ($N = 519$)



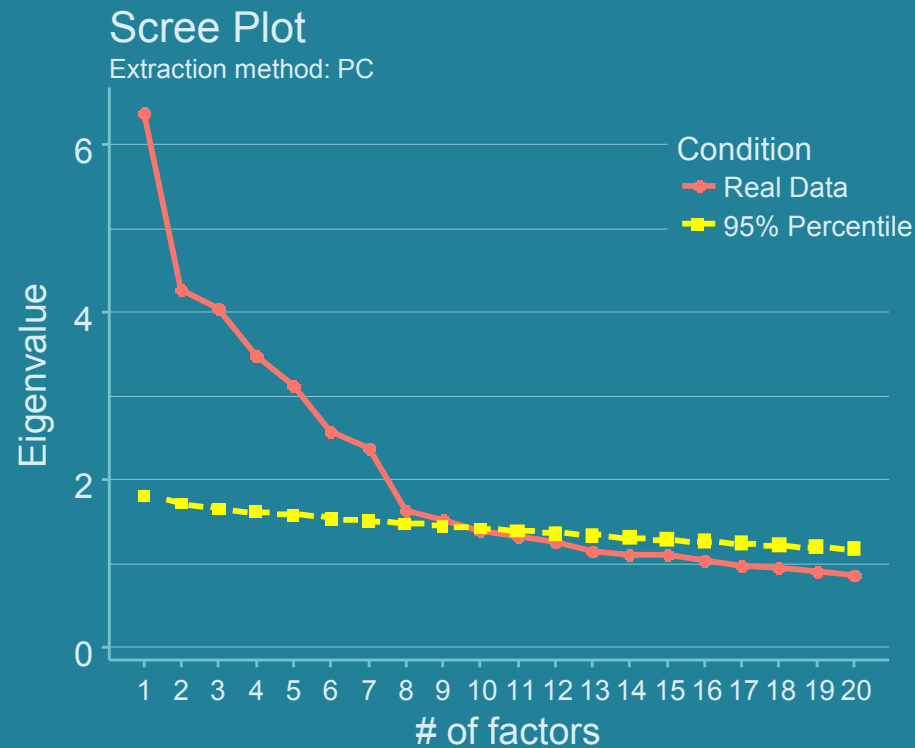
Descriptive Statistics

Dim	Mean (<i>SD</i>)	Skewness	Kurtosis	Cronbach's α (95% C.I.)
H	3.29 (0.58)	-0.30	0.27	0.71 (0.67, 0.74)
E	3.41 (0.58)	-0.25	0.00	0.74 (0.71, 0.77)
X	3.19 (0.57)	-0.06	0.12	0.77 (0.74, 0.80)
A	3.23 (0.56)	-0.12	0.01	0.75 (0.72, 0.78)
C	3.26 (0.52)	-0.20	0.54	0.71 (0.67, 0.75)
O	3.38 (0.54)	0.01	0.02	0.68 (0.64, 0.72)

The calculation of 95% C.I. for Cronbach's α was based on Feldt, Woodruff, & Salih (1987).

EFA: Factor Number

Method	# of factors suggested
Minimum average partial test (1976)	7
Bayesian information criterion	7
Parallel analysis (95 th percentile)	9



Correlation: Polychoric
 Bartlett's test $\chi^2_{(1770)} = 11792.2^{***}$
 Overall MSA = .75

EFA: Factor Emergence



A

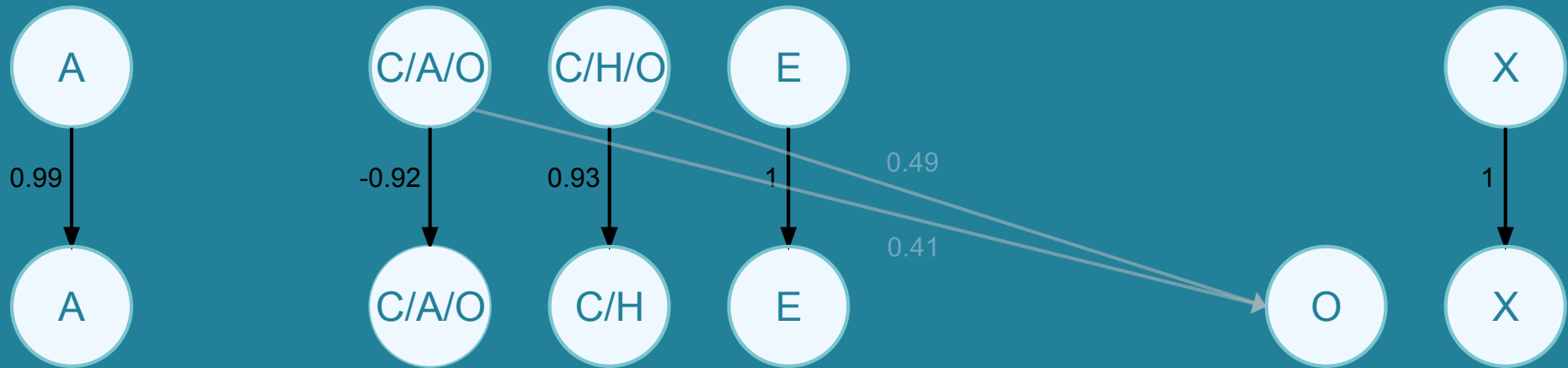
C/A/O

C/H/O

E

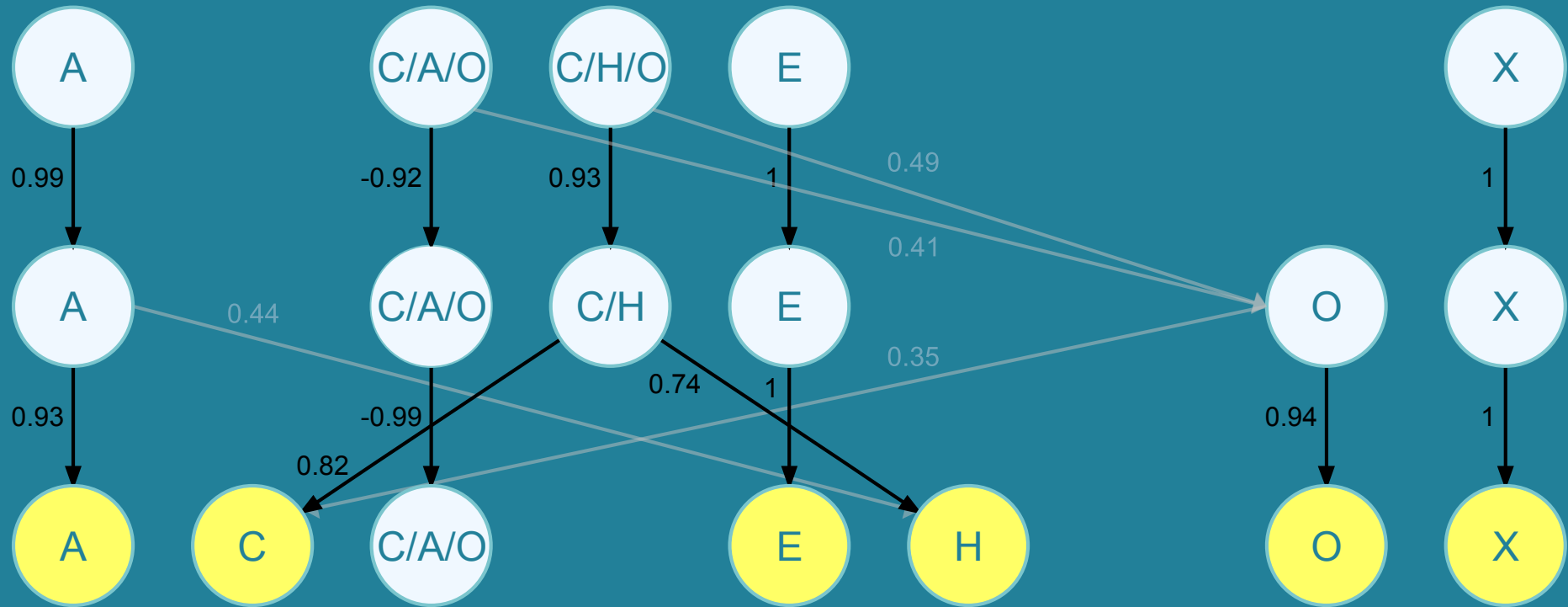
X

EFA: Factor Emergence



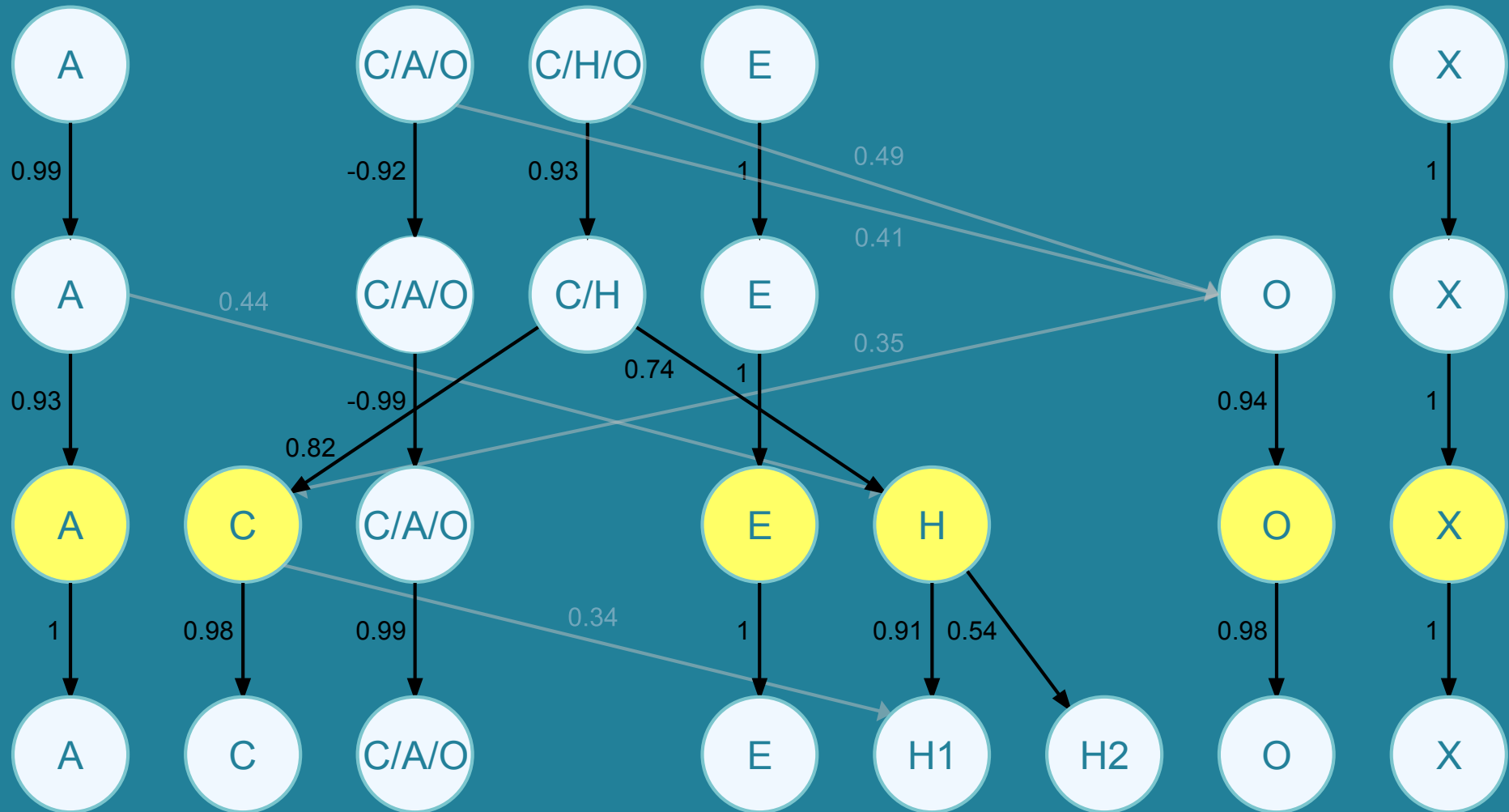
Values above indicated the Pearson correlation between factor scores.
Factor scores were estimated by Ten Berge, Krijnen, Wansbeek, & Shapiro (1999).

EFA: Factor Emergence



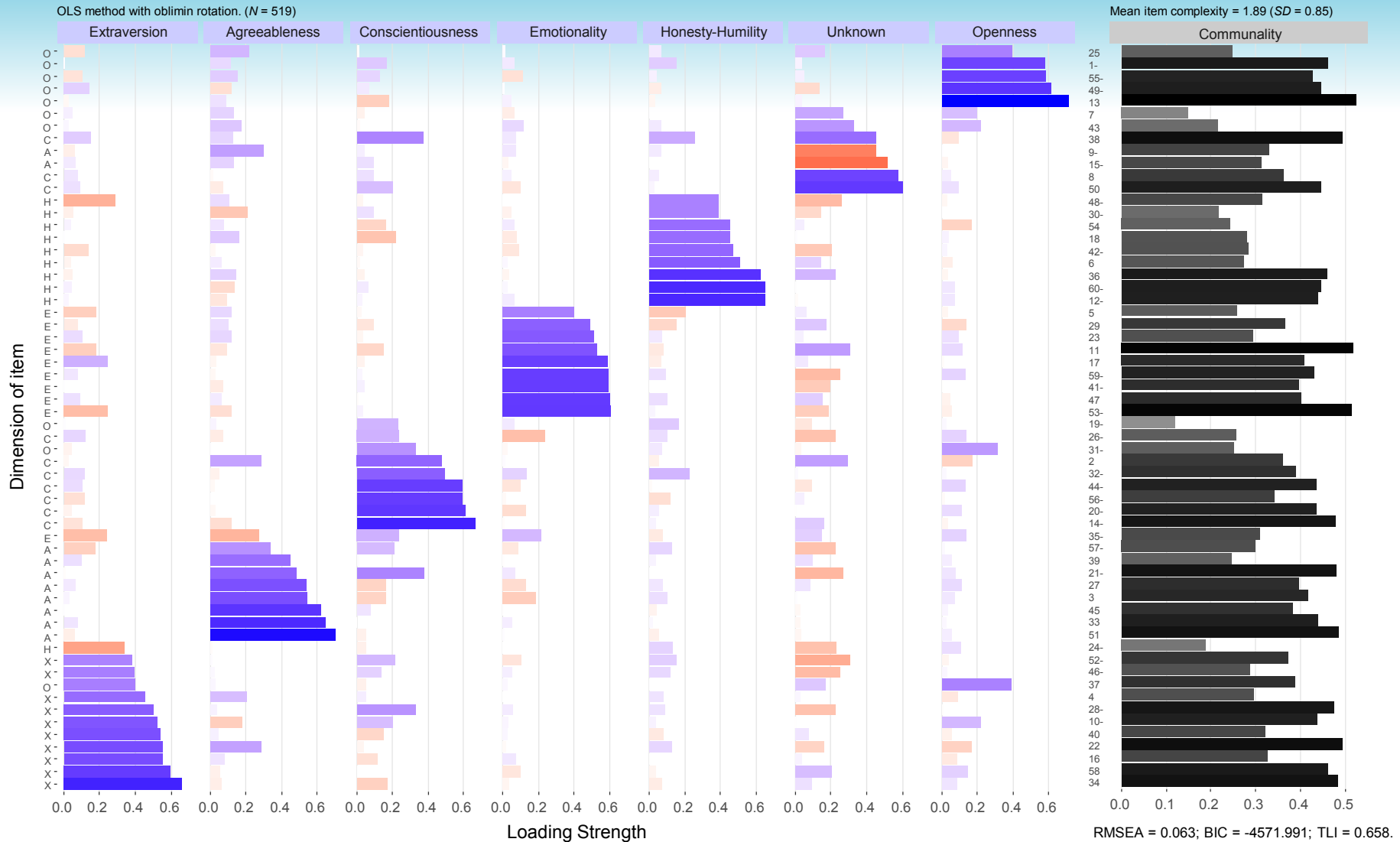
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EFA: Factor Emergence



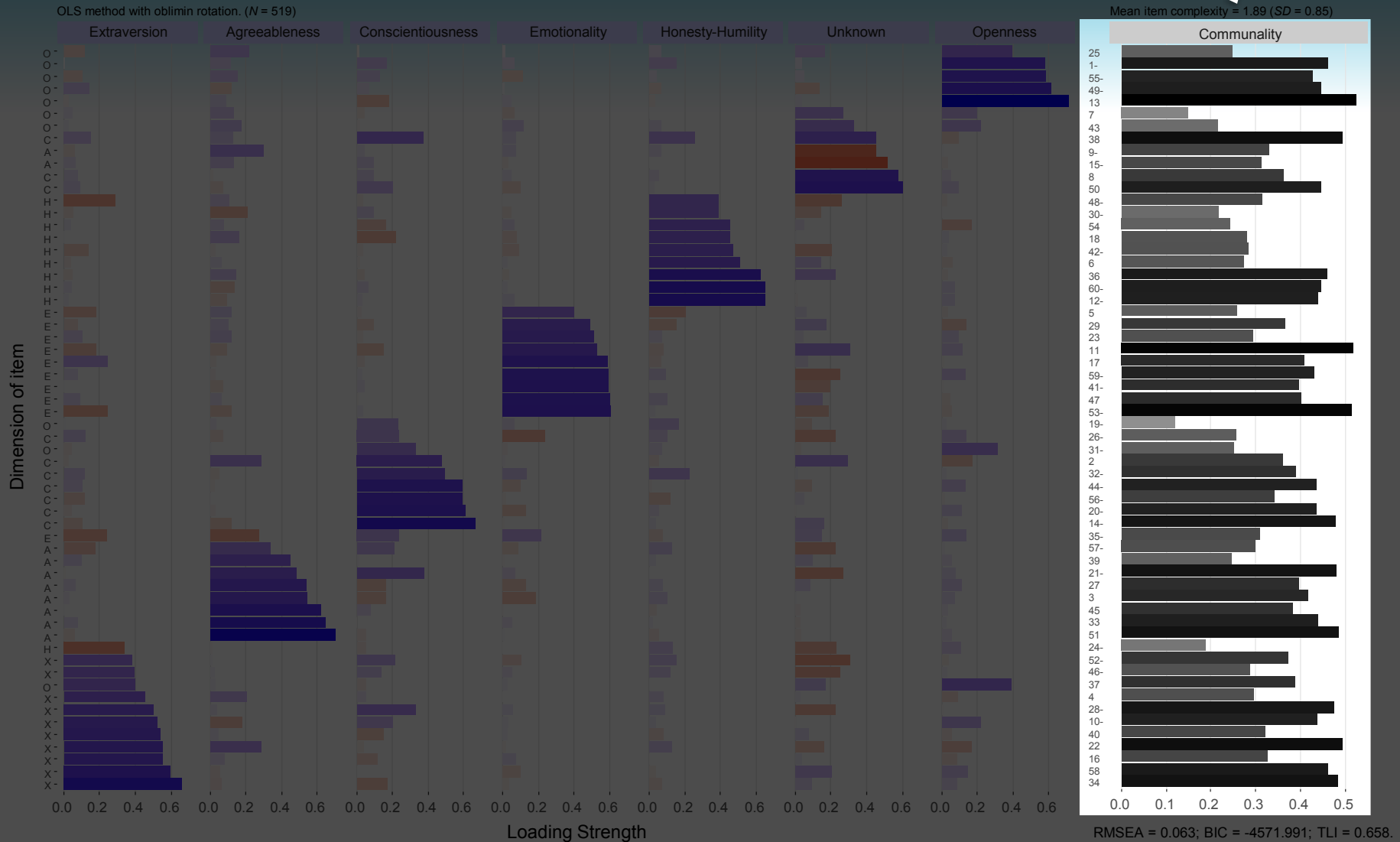
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EFA: 7-factor Solution (Δ)



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Communality: % of variance explained by the common factors.

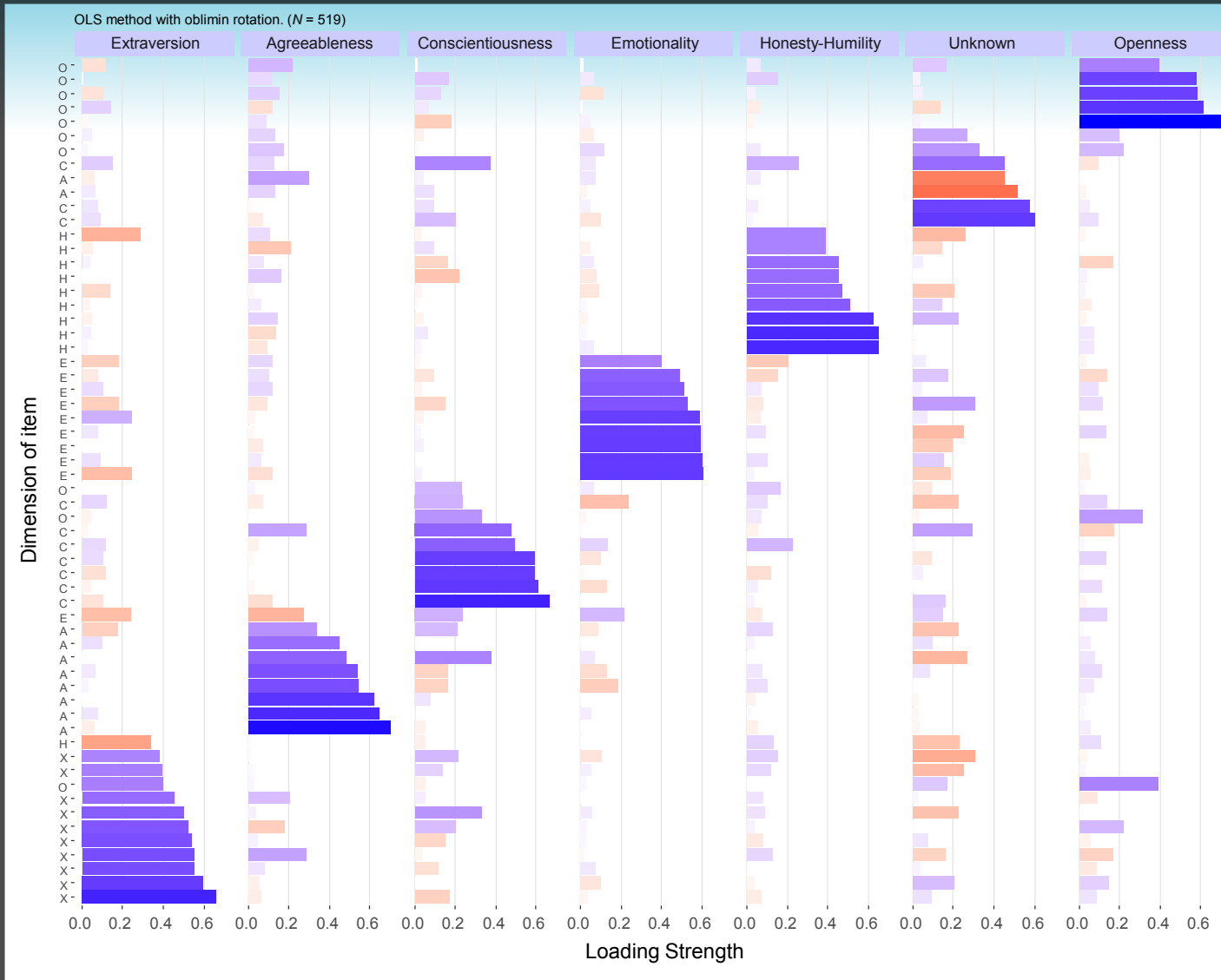


EFA: 7-factor Solution (Λ)

Pattern matrix



Col = factor; Row = item; Bar = factor loading

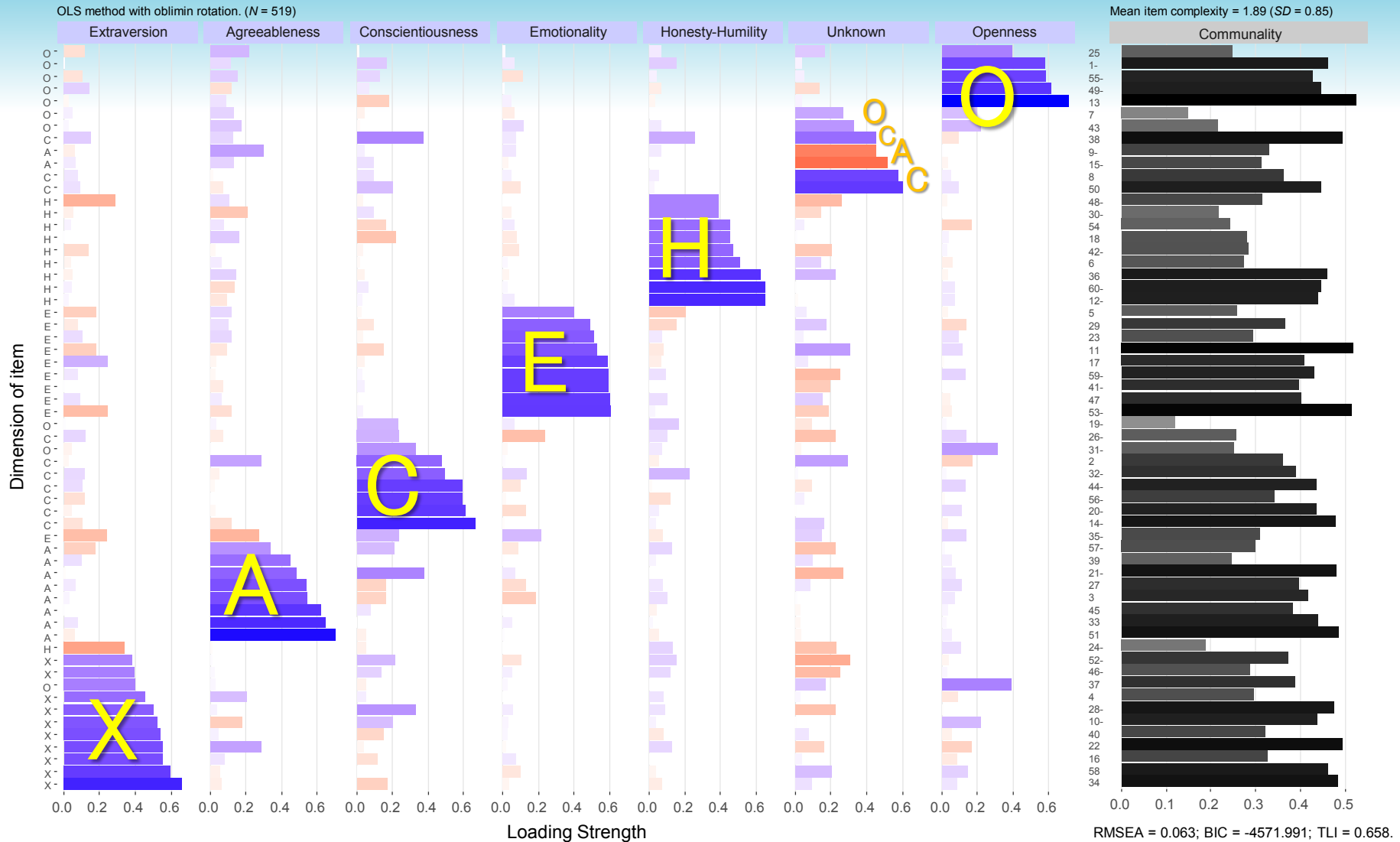


Mean item complexity = 1.89 (SD = 0.85)



RMSEA = 0.063; BIC = -4571.991; TLI = 0.658.

EFA: 7-factor Solution (Δ)

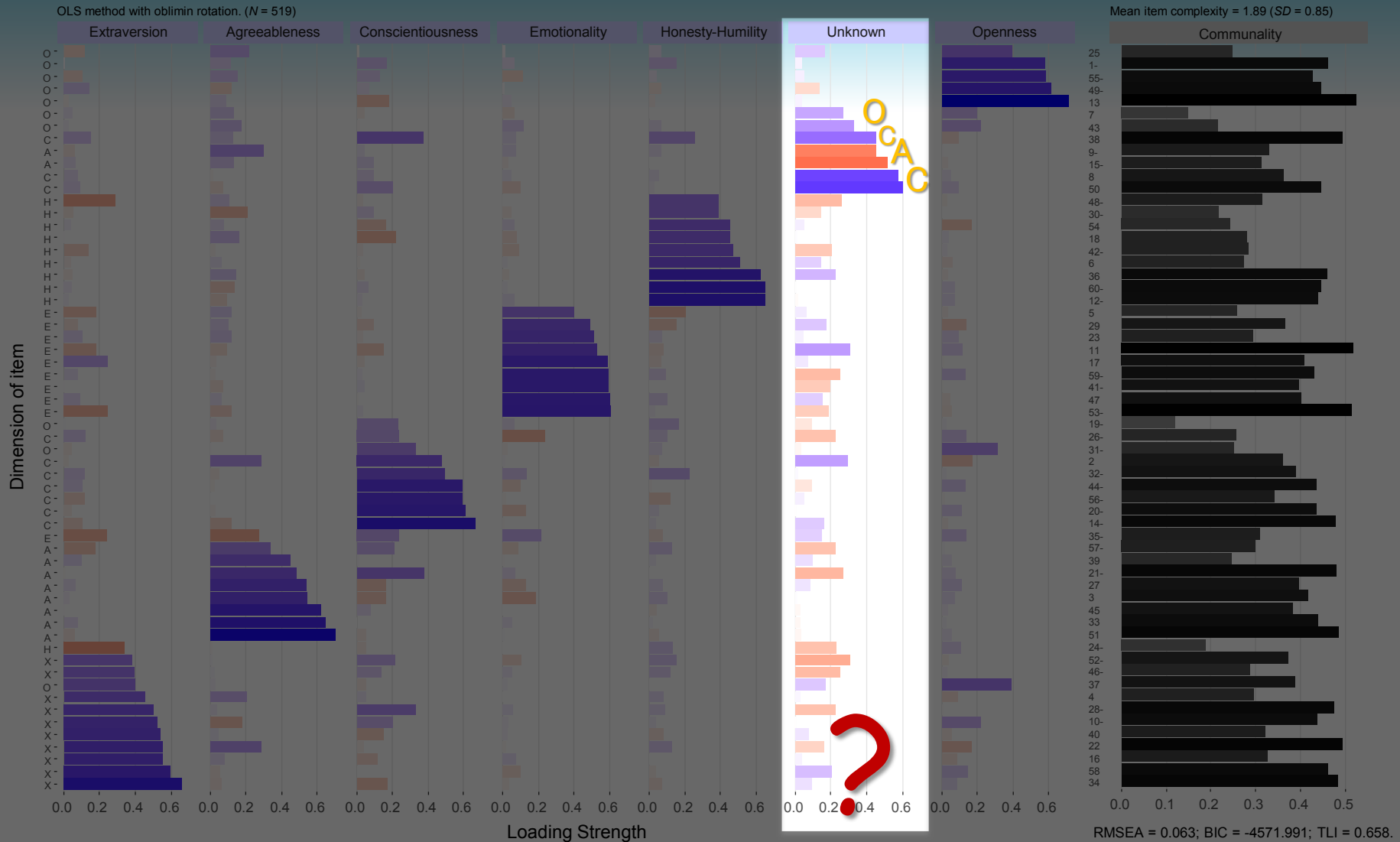


EFA: 7-factor Solution (Φ)

	X	A	C	E	H	U
X						
A	.10					
C	.08	.00				
E	-.07	-.10	-.04			
H	.13	.21	.23	-.04		
U	.05	-.04	-.05	.05	-.08	
O	.12	.03	.12	-.02	.09	.05

Factor extraction: Ordinary least squares
Rotation: Direct oblimin

EFA: 7-factor Solution (Λ)



Items in Additional Factor

O

我喜歡去學習外國的歷史和政治 (7)
我喜歡那些對事情有獨特見解的人 (43)

C

我通常把自己逼得很緊，以求達到目標 (8)
別人常說我是個完美主義者 (50)
即使花很多時間，在工作上，我還是力求精確 (38)

A

有時候其他人告訴我對別人太挑剔 (9-)
有時候其他人認為我太頑固 (15-)

The diagram illustrates the hierarchical structure of the Big Five personality traits and their facets. The traits are represented by boxes at the top, and their facets are represented by boxes below them. The correlations between the traits and their facets are shown as numbers on the lines connecting them.

- Evaluation/Social Propriety** (correlation: .94)
 - Social Propriety** (correlation: .95)
 - Honesty vs. N.V.** (correlation: .95)
 - Honesty vs. N.V.** (correlation: 1.00)
 - Honesty vs. N.V.** (correlation: 1.00)
 - Broad Conscientiousness** (correlation: .99)
 - Simple mind/Unselfishness** (correlation: .99)
 - Simple mind/Unselfishness** (correlation: .99)
 - Simple mind/Unselfishness** (correlation: .73)
 - Broad Conscientiousness** (correlation: .76)
 - Conscientiousness/Diligence** (correlation: .90)
 - Conscientiousness/Diligence** (correlation: .99)
 - Intellect/Positive valence** (correlation: .64)
 - Brave/Daring vs. Docile/Gentle** (correlation: .43)
 - Brave/Daring vs. Docile/Gentle** (correlation: .42)
 - Dynamism** (correlation: .95)
 - Dynamism (Extraversion)** (correlation: .96)
 - Dynamism/Extraversion** (correlation: .96)
 - Dynamism/Extraversion** (correlation: .96)
 - Dynamism/Extraversion** (correlation: .53)

The diagram shows the following correlations between the facets and the traits:

- Evaluation/Social Propriety** and **Social Propriety**: .94
- Social Propriety** and **Honesty vs. N.V.**: .95
- Social Propriety** and **Broad Conscientiousness**: .99
- Dynamism** and **Dynamism (Extraversion)**: .95
- Dynamism (Extraversion)** and **Dynamism/Extraversion**: .96
- Honesty vs. N.V.** and **Honesty vs. N.V.**: 1.00
- Honesty vs. N.V.** and **Simple mind/Unselfishness**: .99
- Broad Conscientiousness** and **Simple mind/Unselfishness**: .99
- Broad Conscientiousness** and **Conscientiousness/Diligence**: .90
- Broad Conscientiousness** and **Intellect/Positive valence**: .64
- Dynamism/Extraversion** and **Dynamism/Extraversion**: .96
- Simple mind/Unselfishness** and **Simple mind/Unselfishness**: .73
- Conscientiousness/Diligence** and **Conscientiousness/Diligence**: .99
- Brave/Daring vs. Docile/Gentle** and **Brave/Daring vs. Docile/Gentle**: .42
- Intellect/Positive valence** and **Intellect/Positive valence**: .85
- Dynamism/Extraversion** and **Dynamism/Extraversion**: .53
- Simple mind/Unselfishness** and **Unselfishness/Heroic vs. Vain**: .73
- Simple mind/Unselfishness** and **Conscientiousness/Diligence**: -.43
- Simple mind/Unselfishness** and **Brave/Daring vs. Docile/Gentle**: .42
- Simple mind/Unselfishness** and **Even temper vs. Emotional volatility**: .89
- Conscientiousness/Diligence** and **Conscientiousness/Diligence**: .99
- Brave/Daring vs. Docile/Gentle** and **Brave/Daring vs. Docile/Gentle**: .42
- Intellect/Positive valence** and **Intellect/Positive valence**: .85
- Dynamism/Extraversion** and **Dynamism/Extraversion**: .53
- Unselfishness/Heroic vs. Vain** and **Unselfishness/Heroic vs. Vain**: .73
- Conscientiousness/Diligence** and **Conscientiousness/Diligence**: .99
- Brave/Daring vs. Docile/Gentle** and **Brave/Daring vs. Docile/Gentle**: .42
- Even temper vs. Emotional volatility** and **Even temper vs. Emotional volatility**: .85
- Intellect/Positive valence** and **Intellect/Positive valence**: .85
- Dynamism/Extraversion** and **Dynamism/Extraversion**: .53
- Extraversion** and **Extraversion**: .91

Figure 1 Pattern of factor emergence for ipsatized self-ratings.
Note: N.V. = Negative valence or noxious violativeness of the rights of others

Seven-factor Model (1/3)

Zhou, Saucier, Gao & Liu (2009). *Journal of Personality*.

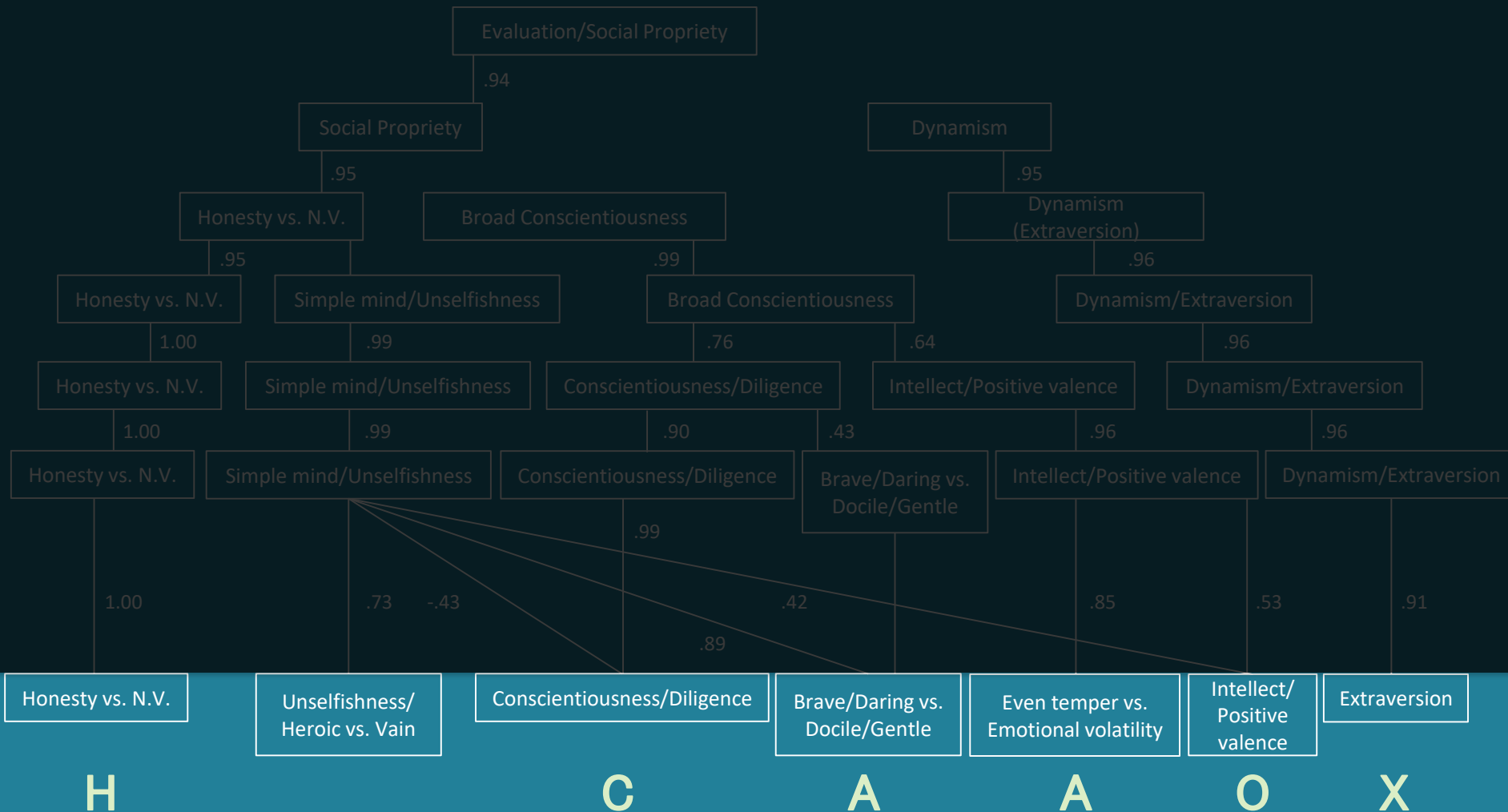


Figure 1 Pattern of factor emergence for ipsatized self-ratings.

Note: N.V. = Negative valence or noxious violativeness of the rights of others

The diagram illustrates the hierarchical structure of the Big Five personality traits and their facets. The traits are grouped into five columns: H (Honesty vs. Nervousness), C (Conscientiousness), A (Agreeableness), A (Assertiveness), and X (Extraversion). The diagram shows the relationships between broad traits, intermediate traits, and specific facets, with correlation coefficients indicated on the connecting lines. The 'Simple mind/Unselfishness' facet is highlighted in yellow.

Correlation Coefficients:

- Evaluation/Social Propriety to Social Propriety: .94
- Social Propriety to Honesty vs. N.V.: .95
- Social Propriety to Broad Conscientiousness: .99
- Dynamism to Dynamism (Extraversion): .95
- Dynamism (Extraversion) to Dynamism/Extraversion: .96
- Honesty vs. N.V. to Honesty vs. N.V. (facet): 1.00
- Honesty vs. N.V. to Simple mind/Unselfishness: .95
- Broad Conscientiousness to Broad Conscientiousness (facet): .76
- Broad Conscientiousness to Conscientiousness/Diligence: .99
- Broad Conscientiousness to Brave/Daring vs. Docile/Gentle: .43
- Dynamism/Extraversion to Intellect/Positive valence: .96
- Dynamism/Extraversion to Dynamism/Extraversion (facet): .96
- Honesty vs. N.V. (facet) to Honesty vs. N.V. (facet): 1.00
- Simple mind/Unselfishness (facet) to Simple mind/Unselfishness (facet): .99
- Simple mind/Unselfishness (facet) to Conscientiousness/Diligence (facet): .89
- Simple mind/Unselfishness (facet) to Brave/Daring vs. Docile/Gentle (facet): .42
- Simple mind/Unselfishness (facet) to Intellect/Positive valence (facet): .73
- Simple mind/Unselfishness (facet) to Dynamism/Extraversion (facet): -.43
- Conscientiousness/Diligence (facet) to Conscientiousness/Diligence (facet): .99
- Brave/Daring vs. Docile/Gentle (facet) to Brave/Daring vs. Docile/Gentle (facet): .91
- Intellect/Positive valence (facet) to Intellect/Positive valence (facet): .85
- Dynamism/Extraversion (facet) to Dynamism/Extraversion (facet): .53
- Honesty vs. N.V. (facet) to Honesty vs. N.V. (facet): 1.00
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- Conscientiousness/Diligence (facet) to Conscientiousness/Diligence: .89
- Brave/Daring vs. Docile/Gentle (facet) to Brave/Daring vs. Docile/Gentle: .42
- Intellect/Positive valence (facet) to Even temper vs. Emotional volatility: .85
- Dynamism/Extraversion (facet) to Extraversion: .91

Seven-factor Model (2/3)

36

Table 1 (selected) from Zhou et al. (2009)

Extraversion	外向、活躍、開朗、活潑
	沈默寡言、內向、孤單、沈悶
Conscientiousness/Diligence	一絲不苟、勤奮、嚴格、勤快
	懶散、懶洋洋、三天打魚，兩天曬網、懶惰
Gentle/Even Temper	斯文、文靜、乖巧、溫柔
	衝動、急性子、性急、急躁
Intellect/Positive Valence	獨特、特別、多才多藝、天才
	普通、平凡（庸）、目光短淺
Unselfishness	純（淳）樸、 憨 （寬/敦/仁）厚、寬容（大量）、厚道、見義勇為
	自私 、傲慢、要（愛）面子、 小氣
Noxious Violativeness	禽獸、下賤、淫蕩、兇殘、邪惡、狼心狗肺、卑賤、下流、壞蛋
Dependency/Fragility	嬌滴滴、嬌氣、天真、孩子氣
	男子漢、老練、獨立、成熟、深沈

Simple Mind/Unselfishness

我喜歡去學習外國的歷史和政治 (7)

我喜歡那些對事情有獨特見解的人 (43)



Lenient,
Magnanimous



Group Working
Condition



Act Bravely for a
Justice Cause

Simple Mind/Unselfishness

別人常說我是個完美主義者 (50)

我通常把自己逼得很緊，以求達到目標 (8)

即使花很多時間，在工作上，我還是力求精確 (38)



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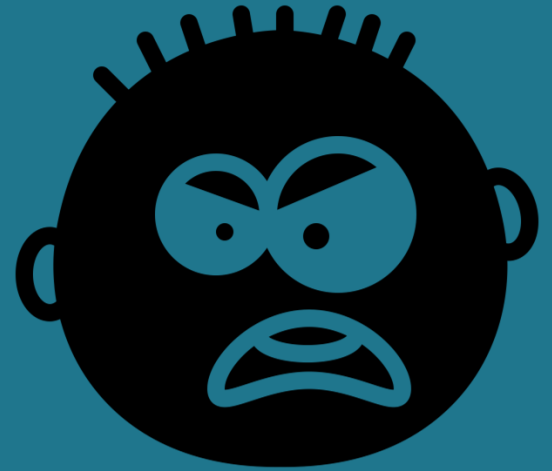
有時候其他人認為我太頑固 (15-)



Lenient,
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Group Working
Condition



Act Bravely for a
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Conclusion

HEXACO model could be reproduced in Taiwanese samples

but there might be other factor(s) left for further investigation