

Dichotomous thinking, IQ and reasoning

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Introduction

Background: Dichotomous thinking (i.e., a tendency to see the world as black and white) involves inaccurate assessment of social problems and, as a result, prejudice leading to socially undesirable consequences (Dawkins & Wong, 2005; Shermer, 2015).

Objective: The aim of this study was to investigate the relationship between the dichotomous thinking tendency and inappropriate reasoning, inference processes.

Methods

Participants and Procedure

In total, 361 (194 females) Japanese undergraduates (*Mean* age = 19.8 years. *SD* age = 3.2 years).

Materials

Dichotomous Thinking The Dichotomous Thinking Inventory (Oshio, 2009). It is composed of three subscales: preference for dichotomy, dichotomous belief, and profit-and-loss thinking.

IQ Test Cattell's Cultural Fair Intelligence Test (Cattell & Tsujioka, 1963; *N* = 130), the Tanaka-Binet Intelligence Scale (Tanaka, Okamoto, & Tanaka, 2003; *N* = 126), and the syllogism-solving task (*N* = 105) were used. The syllogism-solving (reasoning) task included measurement of response time. The distribution of participants' response times showed a negative skew and was normalized using logarithmic transformations.

Results

- Dichotomous Thinking were negatively correlated with performance scores from the cognitive tasks (Table 1, 2).
- We examined the relationships between dichotomous thinking, response time, and task performance (score) using path analysis (Figure. 1)

Table 1 Results of meta-analysis of correlation coefficients between dichotomous thinking and IQ

	IQ tests				
	<i>k</i>	ρ	95%CI	<i>z</i>	<i>Q</i>
Dichotomous thinking					
Total	3	-0.22	[-0.32, -0.11]	-4.04	0.24
Preference for dichotomy	3	-0.18	[-0.27, -0.07]	-3.33	0.31
Dichotomous belief	3	-0.23	[-0.33, -0.13]	-4.41	3.05
Profit-and-loss thinking	3	-0.11	[-0.21, -0.01]	-2.11	0.21

Notes. ρ refers to population correlation coefficients; 95%CIs not inclusive of zeroes indicate significant correlations in bold.

Conclusion

- Dichotomous thinking tendency is involved in inappropriate reasoning.
- Dichotomous belief is involved in not taking time for reasoning.
- Preference for dichotomy is involved in taking time for reasoning.

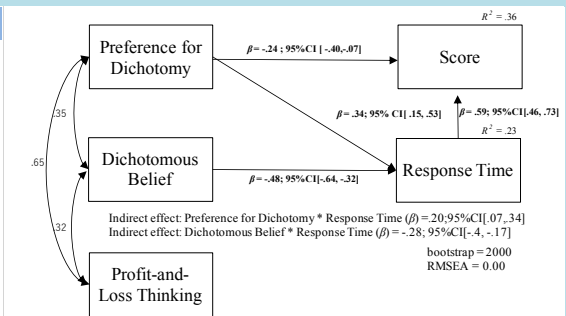


Table 2 Correlations between dichotomous thinking and IQ

	IQ tests							
	Cattell's Cultural Free Test		Tanaka-Binet Intelligence Scale		Syllogism			
	<i>r</i>	95%CI	<i>r</i>	95%CI	Score		Response Time	
Dichotomous thinking								
Total	-0.22	[-0.38, -0.05]	-0.18	[-0.34, -0.01]	-0.24	[-0.41, -0.05]	-0.03	[-0.22, .16]
Preference for dichotomy	-0.21	[-0.37, -0.04]	-0.17	[-0.33, .01]	-0.14	[-0.32, .05]	-0.17	[-0.35, .02]
Dichotomous belief	-0.20	[-0.36, -0.03]	-0.15	[-0.32, .03]	-0.36	[-0.52, -0.18]	-0.36	[-0.52, -0.18]
Profit-and-loss thinking	-0.14	[-0.30, .03]	-0.11	[-0.28, .07]	-0.08	[-0.27, .11]	-0.10	[-0.09, .29]
<i>Mean</i>	122.98		108.00		5.73		2.42	
<i>SD</i>	12.10		11.93		2.84		0.41	
<i>N</i>	130		126		105		105	

Notes. *r* refers to correlation coefficients; 95%CIs not inclusive of zeroes indicate significant correlations in bold.