

Memory of Counterintuitive Content with Enhanced Credibility

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Introduction:

Background

Globally, people believe in religious miracles. How do such myths spread?

Minimally Counterintuitive (MCI)

MCI's memory bias

Minimally counterintuitive contents (MCI) are **more memorable** than intuitive contents (INT) or excessively counterintuitive contents (e.g., Norenzayan et al., 2006).

Table 1. The examples of MCI and INT used in Norenzayan et al. (2006).

INT	MCI
(Closing)(door)	(Thirsty)(door)
(Thirsty)(cat)	(Closing)(cat)
(Four-legged)(table)	(Confused)(table)
(Confused)(student)	(Four-legged)(student)
(Drying)(coat)	(Mischievous)(coat)
(Mischievous)(comment)	(Drying)(comment)

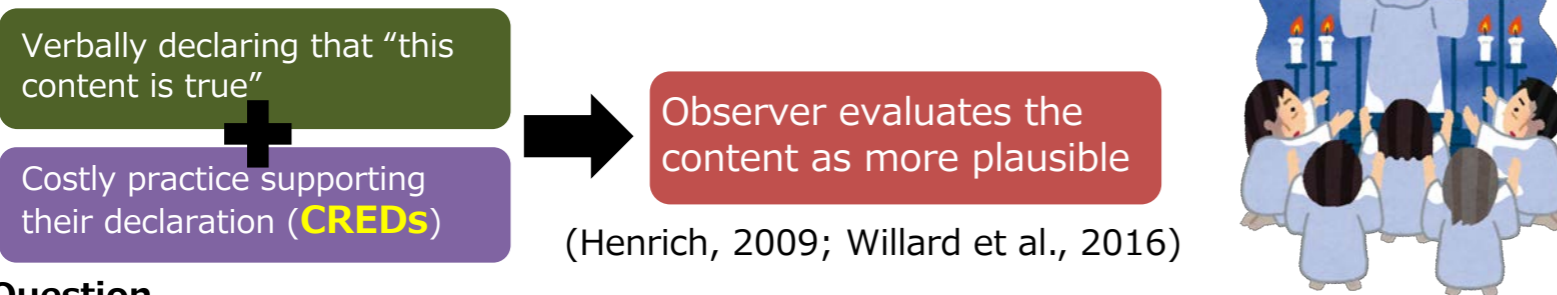


Did MCI's memory bias let the religious myths including MCI spread?
 ⇔ Though MCI had an advantage in terms of memorability, **it was not accepted as true** (Willard et al., 2016)

How have religions including implausible MCI become plausible?

CREDs (Credibility-Enhancing Displays)

Actions for enhancing contents' credibility by the speaker



Question

Even if the credibility is enhanced, in order to spread as a religious belief, the advantage of memory needs to be maintained.
 ⇒ By presenting CREDs with less credible MCI contents, more attention would be directed to judging the authenticity, and the memory advantage would be more enhanced.

Purpose

This study examined the effect of CREDs on the memory advantage of MCI.

Hypothesis

When the credibility is enhanced by CREDs, the memory advantage of MCI content is enhanced.

Method:

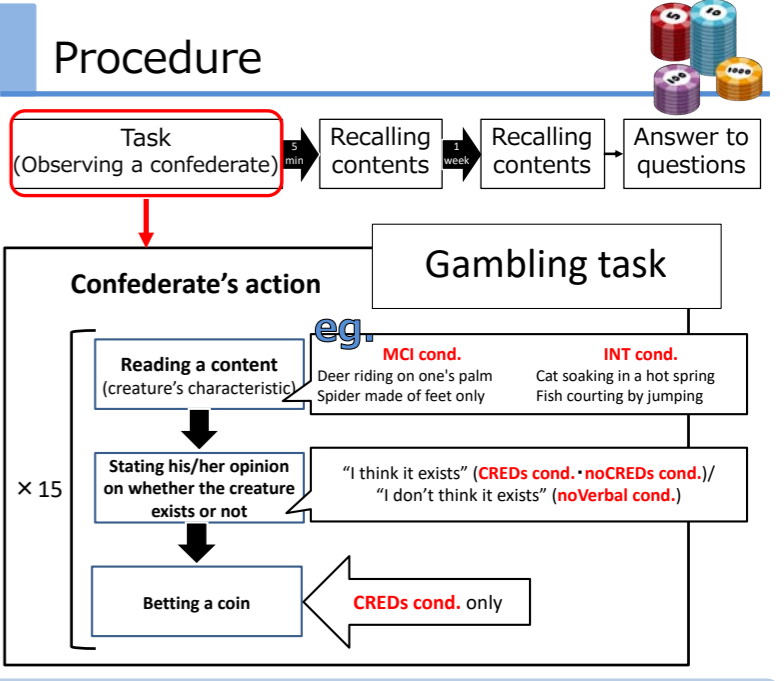
Two-week experiment was conducted.

Participants

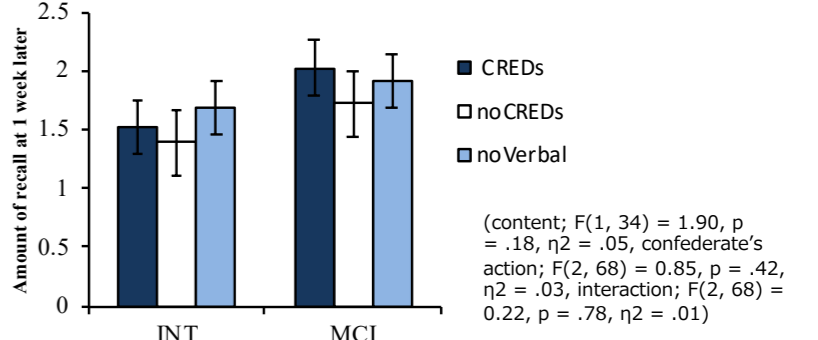
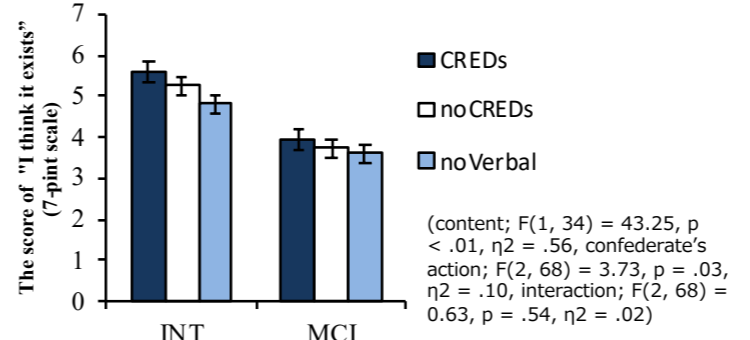
Participants were 36 students (26 female, 10 male, average of age is 19.4 ± 1.34 (SD)).

Design

- ◆ 2 (content; MCI/INT, between groups) × 3 (confederate's action; CREDs/noCREDs/noVerbal, within groups)
- ◆ Used scales
 - Attitudes towards Paranormal Phenomena Scale (APPE; 小坂・坂田・川上, 2017)
 - Critical thinking disposition scale (平山・楠見, 2004)



Result and Discussion:



Main effects of content and confederate's action were Sig. (the interaction was not). → **prior research was replicated.**
 ⇔ None of the multiple comparisons in confederate's action was Sig.

Main effects of content and confederate's action and the interaction were not Sig. → **hypothesis was not supported.**
 The impact of CREDs was so weak that subject's memories might not be influenced by confederate's action.

Table 2. Multiple regression analysis for each condition's amount of recall 1 week later

variables	CREDs ($R^2 = .311^*$)					noCREDs ($R^2 = .214$)					noVerbal ($R^2 = .071$)				
	b	SE	β	t	p	b	SE	β	t	p	b	SE	β	t	p
Sex (male = 1)	0.68	0.38	.312	1.78	.085+	0.53	0.50	.200	1.07	.294	-0.08	0.43	-.038	-0.19	.851
Age	-0.25	0.13	-.346	-1.95	.061+	-0.21	0.17	-.240	-1.26	.216	-0.09	0.14	-.133	-0.64	.524
Doubt about the experiment	-0.24	0.15	-.274	-1.52	.138	-0.11	0.20	-.104	-0.54	.592	-0.02	0.17	-.027	-0.13	.899
Content (MCI = 1)	0.73	0.34	.370	2.16	.039*	0.45	0.43	.189	1.04	.309	0.29	0.37	.155	0.78	.442
Critical thinking disposition	0.41	0.26	.244	1.55	.131	0.71	0.34	.348	2.07	.047*	0.32	0.29	.201	1.10	.281

- Only in CREDs cond., **a main effect of content was Sig.**
- There is a possibility that **the memory advantage is relevant to not only content's trait but also social influence such as speaker's costly actions.**

Reference: Henrich (2009). The evolution of costly displays, cooperation and religion: credibility enhancing displays and their implications for cultural evolution. *Evolution and Human Behavior*, 30, 244-260. 小坂 孝 (2004). 批判的思考態度が結論導出プロセスに及ぼす影響—証拠評価と結論生成課題を用いた検討—。教育心理学研究, 52, 186-198. 小坂 孝・坂田 浩之・川上 正浩 (2017). 不思議現象に対する態度改訂版尺度の妥当性検証 (2) 日本心理学会第81回大会発表論文集, 2C-015. Norenzayan, A., Atran, S., Faulkner, J., & Schaller, M. (2006). Memory and mystery: the cultural selection of minimally counterintuitive narratives. *Cognitive Science*, 30(3), 531-553. Willard, A.K., Henrich, J., & Norenzayan, A. (2016). Memory and Belief in the Transmission of Counterintuitive Content. *Human Nature*, 27, 221-243.