

TESTING DIFFERENT METHODS TO MANIPULATE PARTICIPANTS' BELIEF IN FREE WILL

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INTRODUCTION

Belief in free will (FW) has been shown to have impacts on cognitive functions, behavior, emotions and attributions of moral responsibility, e. g. cheating (Vohs & Schooler, 2008), helping behavior (Baumeister, Masicampo, & DeWall, 2009), preconscious motor preparation (Rigoni, Kuhn, Sartori, & Brass, 2011), action monitoring (Rigoni, Wilquin, Brass, & Burle, 2013), conformity (Alquist, Ainsworth, & Baumeister, 2013), gratitude (MacKenzie, Vohs, & Baumeister, 2014), and support for retributive punishment (Shariff et al., 2014).

Published replication studies on these findings as well as empirical evidence from German speaking samples are sparse.

Aim of this work was to test whether methods to manipulate belief in FW will reported in the literature are still successful when adapted to German language.

METHOD & RESULTS

	STUDY 1	STUDY 2	STUDY 3
Data collection	Paper-pencil	Paper-pencil	Online questionnaire
Exp. manipulation (adapted from Vohs & Schooler, 2008)	Reading of text passages from <i>The Astonishing Hypothesis</i> (Crick, 1995)	Velten-style procedure (Velten, 1968): Rephrasing of statements	Velten-style procedure (Velten, 1968): Rephrasing of statements
Design	Two groups (deterministic vs. control)	Three groups (deterministic vs. control vs. FW)	Three groups (deterministic vs. control vs. FW)
Manipulation check	FAD-Plus (Paulhus & Carey, 2011) and one item regarding belief in FW (visual analogue scale)	FAD-Plus (Paulhus & Carey, 2011) and one item regarding belief in FW (five-point Likert scale)	Two items regarding belief in determinism and belief in FW (visual analogue scale)
Power analysis	$d=1.2$, $\alpha=.01$, Power=.99	$d=0.48$, $\alpha=.05$, Power=.95	$d=0.39$, $\alpha=.01$, Power=.99
Source of ES estimation	Vohs & Schooler (2008)	Vohs & Schooler (2008)	Alquist, Ainsworth, & Baumeister (2013)
Sample size required	$n=32$ /each group	$n=24$ /each group	$n=63$ /each group
Sample	100% students; 73.2% ♀; age: $M=21.9$ yr ($SD=4.2$); $n=34+36$ (deterministic + control group)	100% students; 57.3% ♀; age: $M=21.7$ yr ($SD=3.03$); $n=25+26+24$ (deterministic + control + FW group)	51.1% students; 71.1% ♀; age: $M=37.2$ yr ($SD=14.54$); $n=88+118+109$ (deterministic + control + free will group)
Results	No significant differences found for the subscales of FAD+ and the single manipulation check item	No significant differences found for the subscales of FAD+ and the single manipulation check item	Determinism-Rating: $H(2)=7.12$, $p=.028$; $Mdn=52.5 / 45.5 / 46.0$ (deterministic / control / FW gr.) Free Will-Rating: $H(2)=8.37$, $p=.015$; $Mdn=61.5 / 67.0/72.0$ (deterministic / control / FW gr.)

DISCUSSION

Significant differences between experimental groups with respect to belief in FW and belief in determinism were found only in study 3 which was conducted as online experiment to achieve a higher sample size. Successful experimental manipulations among samples with smaller size as reported in literature could not be replicated. Reasons might be based on translation of the material, age or proportion of students in the sample. The sample in study 3 was more diverse regarding age and educational level indicating that belief in FW could be more successful manipulated in a sample different from the easily accessible undergraduate participants.

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