

The Impact of Priming Free Will Beliefs on Career Decision-Making Self Efficacy: An Experimental Study

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Abstract: Belief or disbelief in free will has been widely researched recently, not only as a philosophical notion but as an influence on other beliefs and behaviour. Previous literature has shown strengthening or weakening belief in free will to be an uncomplicated feat but the present paper calls attention to this fallacy. Using an experimental design, we aimed to investigate if priming notions about free will would alter beliefs in free will and if that alteration would then influence career decision making self-efficacy among a sample of 72 Indian college students. The participants were randomly assigned to two conditions and were administered priming materials: research that supported either the existence of free will or opposed it. Free will beliefs and career decision-making self-efficacy were measured a week before and immediately after priming treatment using standardised measures. Data were analysed by comparing the participants' scores before and after the treatment. Results revealed that beliefs about free will remained unaltered in both conditions despite the priming, indicating their strength and pervasiveness. Consequently, career decision-making self-efficacy also remained unaffected. Several reasons for this have been elaborated. Our findings imply that beliefs about free will and determinism are robust and not easy to manipulate.

Keywords: Free Will, self-efficacy, career, decision-making

Introduction

The philosophical debate of whether free will exists or not is never-ending. However, the question of whether one's fate is in their own hands is less relevant to psychologists than whether one believes that one can control their fate. Free will is essentially a belief in choice and control over one's behaviour. This is contrary to the notion of determinism which claims that all events occur due to pre-existing causes and that humans cannot act otherwise even if they wanted. Direct attempts to understand how people generally construe the concept of free will reveal that it is seen as associated with fulfilling desires, making decisions based on conscious thought, and resisting external influences (Monroe & Malle 2010 ; Stillman et al, 2010). Disbelief in free will can lead to perceiving life as meaningless, drawing attention to limits in one's ability to control and higher life stress (Crescioni et al, 2011).

While philosophical views about free will remain at an impasse, psychologists have attempted studying the behavioural impacts of such beliefs. Within research-based settings, manipulating belief in free will often take the form of priming through messages and arguments that support the existence of free will or which point to free will being an illusion. These methods are shown to be effective in altering how people see the universe and their agency in it (Baumeister, Masicampo & DeWall, 2009; Rigoni et al., 2012; Vohs & Schooler, 2008). Making one's own choices and sticking to one's decisions rather than conforming to others in social situations is inhibited when belief in free will is decreased through manipulation (Alquist et al., 2013). Undermining free will belief has shown to result in maladaptive behaviours such as reduced belief in one's own ability to control impulses (Rigoni et al., 2012), negative impact on helping behaviour,

increase in antisocial tendencies (Baumeister, Masicampo & DeWall, 2009), as well as an increase in willingness to cheat (Vohs & Schooler, 2008). Rigoni et al., (2012) investigated whether undermining free will affects two aspects of self-control: intentional inhibition and perceived self-control. Participants were exposed to either anti-free will or to neutral messages. The two groups (no-free will and control) then performed a task that required self-control to inhibit a response. No-free will participants showed less intentional inhibitions than the control group, suggesting a reduction of self-control. Perceived self-control was also lower in the no-free will group.

Manipulating how people feel about free will and having a state of agency has been shown to enhance several aspects of quality of life such as life satisfaction, positive affect (Kondratowicz-Nowak & Zawadzka, 2018; Li et. al, 2017), gratitude, perceived meaning of life, and forgiveness towards relationship partners (Crescioni et. al, 2015). Belief in free will rather than determinism, then, has been shown to have an impact on self-agentic behaviour. The notion that one has control over a difficult situation and has the capability to make it through that situation can partly be understood as a consequence of belief in free will. This belief about one's capabilities to overcome problems is self-efficacy. The concept was first introduced by Bandura (1977) as a personal judgement of how well one can execute courses of action required to deal with prospective situations. Crescioni et. al (2015) found that belief in free will was significantly and positively correlated to self-efficacy and self-control, predicted higher levels of self-efficacy, and had a causal impact on setting ambitious and meaningful goals for oneself. People who were induced to believe in free will set goals which were more personally relevant and long-term than the control condition or the disbelief-in-free will condition.

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While beliefs in free will may be pertinent for behaviours, feelings of self-efficacy and even decision making, most research in this arena has been done in the Western context. There exists no literature studying the manipulation of free will beliefs and their impact on agency-related constructs among the Indian population, including the youth. This is despite the fact that a topic like free will and its impact on people must be investigated through a culture-sensitive lens. Empirical evidence suggests that folk intuitions about philosophical issues lead to different patterns of response between individuals of Western and Non-Western backgrounds (e.g., Kashima et al, 1995; Weinberg et al, 2001).

India is a land of ancient wisdom which has propagated the law of Karma since times immemorial. The very common phrase “what goes around comes around” is an illustration of the Karmic theory. According to this law, every action has an effect or a consequence that the individual must reap, enjoyable or painful. The universe responds, sooner or later, according to the quality of one's actions. A similar scientific concept, Newton's third law of motion, states that for every action or force in nature there is an equal and opposite reaction. The scientific evidence for Newton's theory, then, upholds the Karmic law. However, the theory of Karma also allows room for conscious choice and action. Even though the present situation that an individual encounters, is determined by past actions, the future is not predetermined as it will be based on how the individual reacts to the stimuli in the present, thus giving due weightage to volition. Free will and determinism both, then, exist to some extent as per the Indian philosophy. Such beliefs are, then, deeply endorsed by cultural conditioning. Given the complex understanding of free will and determinism in Indian culture, the present study aims to investigate the influence of belief in free will on decision-making and self-efficacy in the Indian context.

This article specifically focuses on the construct of career-based self-efficacy. A career can be defined as the combination and sequence of work roles that a person experiences throughout their lifetime (Super, 1980). Choosing a career can be stressful and involves several deliberations about interests, aptitudes and the scope for growth. Feelings of uncertainty about prospects of a career among students are quite common. However, fostering confidence in their ability to make suitable decisions regarding their future careers has been proved to be quite fruitful. Career self-efficacy is people's judgments of their abilities to perform career behaviours concerning career development, choice, and adjustment (Anderson & Betz, 2001). In general, if individuals have high career self-efficacy, they are likely to have specific career goals, be more motivated and task-focused rather than self-focused. They will have a greater tendency to set higher goals and objectives for themselves and will show more perseverance to effectively achieve those goals.

High career self-efficacy is found to be one of the best predictors of beginning career behaviours and influences exploration and employment outcomes (Niles & Sowa, 1992). Career self-efficacy beliefs determine motivation toward career behaviours. This indicates that career self-efficacy can mould an individual's entire approach when it comes to behaviours that will make or break their career. People with high career self-efficacy tend to see success for themselves and seek positive support and outcomes for their career ambitions. Lower career self-efficacy, on the other hand, can result in self-handicapping and enhanced fear of failure in career-related endeavours. Research has found that career self-efficacy is considered essential for successful job performance and can greatly influence work behaviours regardless of knowledge and skill (Bandura, 1977, 1986; Niles & Sowa, 1992).

Literature implicates belief in free will too, as a predictor of job performance (Stillman et. al, 2010). It was found out that belief in free will was positively correlated with four of the five measures of workplace performance: work effort, consistency, positive social impact, and general assessment. Research also suggests that people with free will enjoy greater self-efficacy and suffer less from helplessness (Baumeister & Brewer, 2012). Along with an increase in job performance, belief in free will can benefit decision making by reducing indecisiveness (Kokkoris, Baumeister, & Kühnen, 2019), implying difficulty in making decisions- whether big or small- across domains (Germeijs & De Boeck, 2002). In the process of choosing a career, many students face confusion and stay in two minds about what they want to pursue. Being indecisive while choosing a career can be challenging because it is an extremely crucial decision in one's life. This pressure might lead one to develop a fear of making the wrong decision. However, having the freedom to choose whatever career one may want and a belief in the fact that the individual's success or failure in that career will be a product of his or her own choices can reduce indecisiveness. Hence, the present study investigates how manipulating belief in free will can have an impact on career-based decision-making self-efficacy. By priming a belief in free will or non-free will, we aim to understand whether it will bring about a change in one's self-efficacy in making important career-related decisions which can have several practical implications on job performance, satisfaction, success and growth in the chosen field. It is hypothesised that priming free will beliefs would increase belief in free will which would then increase career decision making self-efficacy.

Method

Participants

The data for the study was collected by circulating Google forms amongst university students. Altogether, 114 participants filled out the pre-intervention questionnaire. Of these, 42 participants failed to respond to one of the two forms which

were required to be filled and thus 72 participants comprised the final sample who were assigned to either the free will condition ($n=38$) or the non-free will condition ($n=34$). The sample consisted of 14 males (19.44%) and 58 females (80.56%). All students were pursuing varied disciplines including Commerce, Sociology, Economics, English, and Mathematics. 45 respondents (62.5%) were under the age of 20 and 27 respondents were aged 20 - 25 years (37.5%). The mean age was 19.4 years.

Tools

Free Will and Determinism Plus Scale (FAD Plus), (Paulhus & Carey, 2011). This is a 27 item self-report measure of lay beliefs in free will and the three related constructs of scientific determinism, fatalistic determinism, and unpredictability independently. The authors of the tool report each of the subscales to show acceptable internal consistencies and construct validity. The items for free will include statements such as "People have complete control over the decisions they make." Responses were recorded on a five-point Likert scale.

The Short-Form Career Decision-Making Self-Efficacy Scale (SFCDMSE), (Oreshnick, 1986; Betz, Klein, & Taylor, 1996). This tool contains 20 items used to measure respondents' beliefs about whether they can complete tasks related to making decisions relevant to their career. The original Career Decision-Making Self-Efficacy Scale (CDMSE, Taylor & Betz, 1983) had 50 items making it lengthy and time-consuming and so the shorter version was developed for more appropriate assessment. Items from the original version which loaded highest on the general factor in Oreshnick's study (1986) were selected to comprise the SFCDMSE. Responses were recorded on a ten-point scale with 0 indicating 'not at all confident' and 9 indicating 'very confident'.

Procedure

Data was collected online in two stages over 2 weeks. The first form consisted of the two instruments (FAD-plus and CDMSE-SF). Data from this stage served as the baseline. The participants were then randomly assigned to one of the two conditions- free will and non-free will. The second form was circulated after one week, which included the priming material along with the two instruments. As the priming stimuli, the free will group read the pro-free will passage while the non-free will read the anti-free will passage. The priming stimuli were adapted from Zhao et al., (2014) which involved passages portrayed as excerpts from a scientific article. The free will condition passage supported the usefulness of volitional control for humankind and advocated that humans' behaviours are determined by their own desires and intentions. The passage is presented below:

Are people's attitudes and behaviours always controlled by volition? Can people's brains truly dominate people's reactions to various natural and social challenges? After conducting an

extensive field study, behavioural experiment, and neural cognitive study with functional MRI, the Cognition Research Centre at the University of Geneva concluded large numbers of human behaviours are indeed determined by our desire. A well-known cognitive psychologist, Professor George Levinger, the principal investigator of this project, also reviewed a large number of research findings from biology, psychology, archaeology, and cultural anthropology on people's attitudes and decisions. The results suggested that, in fact, plenty of people's attitudes and behaviours are controlled by themselves, like aggressive behaviours and altruistic behaviours. He concluded that such controllability of our behaviours increases our survival probability in evolution...

The non-free will condition passage supported the futility of belief in volitional control and advocated that human beings' actions are not determined by their desires and intentions. The passage is presented below:

Are people's attitudes and behaviours always controlled by volition? Can people's brains truly dominate people's reactions to the various natural and social challenges? After conducting an extensive field study, behavioural experiment, and neural cognitive study with functional MRI, the Cognition Research Centre at the University of Geneva concluded large numbers of human behaviours are indeed not determined by our desire. A well-known cognitive psychologist, Professor George Levinger, the principal investigator of this project, also reviewed a large number of research findings from biology, psychology, archaeology, and cultural anthropology on people's attitudes and decisions. The results suggested that, in fact, plenty of people's attitudes and behaviours are not controlled by themselves, like aggressive behaviours and altruistic behaviours. He concluded that such uncontrollability of our behaviours increases our survival probability in evolution...

After reading the passage, the participants had to write and explain the theme of the passage briefly to ensure its comprehension. They were then required to complete the tools and mail them back to the researchers.

Results and Analysis

The study aimed to assess if reading the priming material would alter the beliefs in free will and if that would influence the individuals' career decision making self-efficacy. The scores on the two questionnaires, FAD+ and CDSME-SF, were analysed using dependent t-tests. The scores on these tools before the intervention was administered served as the baseline, which was compared to the post-intervention scores to establish whether the manipulation had an impact on free will beliefs and if that impact led to a change in career decision making self-efficacy.

Table 1*Dependent Sample t-test of Free Will Condition Participants*

Variable	Pre-Intervention		Post-Intervention		t	p-value
	M	SD	M	SD		
Belief in Free Will	24.55	3.83	25.05	4.23	0.57	0.284
Career Self Efficacy	127.47	28.98	130.05	28.02	0.42	0.337

Belief in free will, measured by FAD+, was not significantly altered ($t_{37}=0.57$, $p=0.28$) after the intervention as revealed by the comparison of scores obtained by participants before ($M=24.55$, $SD=3.83$) and after ($M=25.05$, $SD=4.23$) reading the priming materials. Unsurprisingly since the belief manipulation was ineffectual, the career decision-making self-efficacy of the participants also remained unaffected ($t_{37}=0.42$, $p=0.33$).

Table 2*Dependent Sample t-test of Non-Free Will Condition Participants*

	Pre-Intervention		Post-Intervention		t	p-value
	M	SD	M	SD		
Belief in Free Will	24.03	4.49	23.56	4.77	-0.43	0.331
Career Self Efficacy	138.68	23.41	134.41	21.08	-0.88	0.192

The belief manipulation in the non-free will condition was also found to be ineffective ($t_{33}=-0.43$, $p=0.33$). The participants' belief in free will were insignificantly weakened (Pre-Intervention: $M=24.03$, $SD=4.49$; Post-Intervention: $M=23.56$, $SD=4.77$). In line with this, the career decision making self-efficacy scores were also not markedly impacted ($t_{33}=-0.88$, $p=0.19$). Thus, the hypothesis that priming would alter free will beliefs and this alteration would influence career decision-making self-efficacy was rejected.

Discussion

The present study aimed at assessing the effect of priming beliefs in free will on career decision making self-efficacy. Our results established that the manipulation which was directed towards amplifying or weakening the belief in free will did not achieve the intended results. Exposure to the passages on free will was unable to create a shift in the participants' belief systems. One explanation for this may lie in the nature of the passages themselves. The passages were brief and may not have contained enough convincing information to change the mindset of the participants. A psychological phenomenon that should be considered to explain these results is 'belief perseverance' which is the tendency to hold on to discredited beliefs (Ross et al., 1975). Belief perseverance is said to occur as a result of constructing causal stories about the currently held belief. People may be convinced that they have, or do not have,

a sense of control over their actions through general experiences and socialisation. Thus, their beliefs or disbeliefs in free will are maintained and even strengthened in the face of contradictory evidence. Schooler et al. (2014) found that studies similar to the present research used news and research articles ("Neuroscientists Discover How Free Will Works" or "Neuroscientists Discover That Free Will is an Illusion") and did not show a significant impact on the belief and disbelief in free will. This indicates that altering and manipulating such beliefs is more difficult than anticipated as per previous literature.

Beliefs in free will may be strong because they allow for a happier and more meaningful life where people's actions have significance and where the future is given more importance than the past (Feldman & Chandrashekhar, 2018). The association of a universe of indeterminism and free will with

positive life outcomes such as higher well-being, more prosocial as well as morally responsible behaviour explains why people find the belief in personal free will advantageous and adaptive, leading to fitness increasing behaviours (Smithdeal, 2016). A sense of control that results from believing in free will motivates action. For instance, the belief that intelligence is a malleable rather than a fixed quality results in more hard work and motivation and consequently better academic performance (Dweck, 1999). This exemplifies how belief in free will compels fitness-increasing behaviour and is thus adaptive. Similarly, people may also find comfort and utility in determinism. The notion of determinism may be appealing to those facing adversity as it allows for the belief that the factors leading up to the unfortunate circumstances were out of their control. Beliefs such as these from which people derive utility are resistant to change (Abelson, 1986). Alongside it may be noted that what sways people's beliefs in free will may be explained by the self-serving bias. People tend to attribute positive outcomes to personal dispositions and negative outcomes to external factors to maintain and enhance self-esteem (Forsyth, 2008). When individuals experience positive life outcomes, they may claim that it is a consequence of actions and decisions that were in their control. However, they may attribute failures to "the universe working against them" and factors like bad luck or interference by others that were simply not in their hands. Altering philosophical beliefs would perhaps require more powerfully worded arguments or even intensive sessions over a longer period to bring about an impact and to make a significant difference, at least with regard to the population studied in the present research.

Moreover, self-efficacy is domain-specific. The passages provided were generic in nature and made no references to career choices. The differences in the level of specificity in the nature of the passage and the construct being studied is something that could have impacted the results and should be investigated further. Furthermore, the research studies from which the concept of manipulating free will beliefs using written passages was adopted were conducted in laboratories. However, our study was conducted online due to the pandemic related lockdown. So, perhaps the online mode used to administer the priming material acted as a barrier to convincing participants to change their beliefs. The larger context within which the study was conducted, must be considered. The data collected occurred at a time when the COVID-19 pandemic was having unprecedented impacts on people's lives. The theory of threat-rigidity (Staw et al., 1981) suggests that individuals and groups tend to behave rigidly in threatening situations. A threat may result in restriction of information processing, such as a narrowing in the field of attention, a simplification in information codes, or a reduction in the number of channels used leading to a lack of flexibility in thinking and learning. Disaster-related research about this theory suggests that the primary psychological effects of a crisis are to create feelings of stress and anxiety in affected

individuals and that this elicits behavioural responses of withdrawal and reductions in critical information processing (Menninger, 1954; Glass, 1956). This theory then explains why, in the middle of the stressful pandemic, the participants may have faced rigidity in thinking patterns which led to the inadequacy of the intervention in successfully manipulating free will beliefs.

The success of such interventions in Western culture provides evidence that it is indeed possible to prime one's beliefs in free will. Therefore, one of the major implications of the present study finding insignificant results is the need to design culturally appropriate, longer interventions which can be piloted amongst the Indian population. Further, the passages used to prime one's beliefs should be more specific and related to the variables under study, career self-efficacy in this case. People's belief in their own free will can fluctuate across time according to changing circumstances (Baumeister & Brewer, 2012). This implies that belief and disbelief in free will can be context-specific. Belief in free will is, then, both a stable dimension and a flexible opinion that may be subject to variation depending on situations. Individuals may feel more in control in specific situations, thus experiencing free will, but may feel helpless and at the mercy of the universe in other situations. Passages may thus be designed to be more context-specific in nature.

Limitations and Directions for Future Research

The present study had the limitation of being conducted online. The online medium may have interfered with the process and weakened the impact of priming, leading to insignificant results. So, future studies may examine the impact of this priming in real-life settings. Further, our sample was relatively small and predominantly female. Future studies should aim to collect data from a larger and more representative sample to be able to make generalisations. Another limitation may lie with the method of priming. There is some evidence suggesting that priming research is difficult to replicate. Effects of the priming method should be examined by future studies to determine the most efficient priming procedure.

Conclusion

To conclude, we observed that manipulation attempts to alter beliefs in free will and determinism had no significant impact on the participants. This suggests that beliefs in abstract philosophical notions are complex and culturally conditioned, making them difficult to change. The present work is not in line with previous literature where significant results have been produced in changing free will beliefs through priming and adds to the literature by bringing to attention the difficulty of replicating results concerning such metaphysical belief systems. Our findings imply that since beliefs in free will and determinism are stable and pervasive, more intensive interventions are much more likely to be effective in changing them.

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References

- Abelson, R. P. (1986). Beliefs are like possessions. *Journal for the Theory of Social Behaviour*, 16(3), 223–250. <https://doi.org/10.1111/j.1468-5914.1986.tb00078.x>
- Alquist, J. L., Ainsworth, S. E., & Baumeister, R. F. (2013). Determined to conform: Disbelief in free will increases conformity. *Journal of Experimental Social Psychology*, 49(1), 80–86. <https://doi.org/10.1016/j.jesp.2012.08.015>
- Anderson, S. L., & Betz, N. E. (2001). Sources of social self-efficacy expectations: Their measurement and relation to career development. *Journal of Vocational Behavior*, 58(1), 98–117. <https://doi.org/10.1006/jvbe.2000.1753>
- Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, 84(2), 191–215. <https://doi.org/10.1037/0033-295x.84.2.191>
- Baumeister, R. F., & Brewer, L. E. (2012). Believing versus disbelieving in free will: Correlates and consequences. *Social and Personality Psychology Compass*, 6(10), 736–745. <https://doi.org/10.1111/j.1751-9004.2012.00458.x>
- Baumeister, R. F., Masicampo, E. J., & DeWall, C., N. (2009) Prosocial benefits of feeling free: Disbelief in free will increases aggression and reduces helpfulness. *Personality and Social Psychology Bulletin*, 35(2), 260–268. <https://doi.org/10.1177/0146167208327217>
- Betz, N. E., Klein, K. L., & Taylor, K. M. (1996). Evaluation of a short form of the Career Decision-Making Self-Efficacy Scale. *Journal of Career Assessment*, 4(1), 47–57. <https://doi.org/10.1177/106907279600400103>
- Crescioni, A., Ehrlinger, J., Alquist, J. L., Conlon, K. E., Baumeister, R. F., Schatschneider, C., & Dutton, G. R. (2011). High trait self-control predicts positive health behaviors and success in weight loss. *Journal of Health Psychology*, 16(5), 750–759. <https://doi.org/10.1177/1359105310390247>
- Crescioni, A. W., Baumeister, R. F., Ainsworth, S. E., Ent, M., & Lambert, N. M. (2015). Subjective correlates and consequences of belief in free will. *Philosophical Psychology*, 29(1), 41–63. <https://doi.org/10.1080/09515089.2014.996285>
- Dweck, C. S. (1999). *Self-theories: Their role in motivation, personality, and development*. Psychology Press. <https://psycnet.apa.org/record/1999-02577-000>
- Feldman, G., & Chandrashekar, S. P. (2018). Laypersons' beliefs and intuitions about free will and determinism: New insights linking the social psychology and experimental philosophy paradigms. *Social Psychological and Personality Science*, 9(5), 539–549. <https://doi.org/10.1177/1948550617713254>
- Forsyth, D. R. (2008). Self-serving bias. *International Encyclopaedia of the Social Sciences*. Macmillan Reference, USA. <https://scholarship.richmond.edu/jepson-faculty-publications/163/>
- Germeijs, V., & De Boeck, P. (2002). A measurement scale for indecisiveness and its relationship to career indecision and other types of indecision. *European Journal of Psychological Assessment*, 18(2), 113. <https://doi.org/10.1027//1015-5759.18.2.113>
- Glass, A. J. (1956). Psychologic considerations in atomic warfare. *United States Armed Forces Medical Journal*, 7, 625–639.
- Kashima, Y., Yamaguchi, S., Kim, U., Choi, S. C., Gelfand, M. J., & Yuki, M. (1995). Culture, gender, and self: A perspective from individualism-collectivism research. *Journal of Personality and Social Psychology*, 69(5), 925–937. <https://doi.org/10.1037/0022-3514.69.5.925>
- Kokkoris, M. D., Baumeister, R. F., & Kühnen, U. (2019). Freeing or freezing decisions? Belief in free will and indecisiveness. *Organizational Behavior and Human Decision Processes*, 154, 49–61. <https://doi.org/10.1016/j.obhdp.2019.08.002>
- Kondratowicz-Nowak, B., & Zawadzka, A. M. (2018). Does belief in free will make us feel good and satisfied. *Health Psychology Report*, 2, 1–9. <https://doi.org/10.5114/hpr.2018.73053>
- Li, C., Wang, S., Zhao, Y., Kong, F., & Li, J. (2017). The freedom to pursue happiness: Belief in free will predicts life satisfaction and positive affect among Chinese adolescents. *Frontiers in Psychology*, 7, 2027. <https://doi.org/10.3389/fpsyg.2016.02027>
- Menninger, K. (1954). Regulatory devices of the ego under major stress. *International Journal of Psychoanalysis*, 35, 412–420.
- Monroe, A. E., & Malle, B. F. (2010). From uncaused will to conscious choice: The need to study, not speculate about people's folk concept of free will. *Review of Philosophy and Psychology*, 1(2), 211–224. <https://doi.org/10.1007/s13164-009-0010-7>
- Niles, S. G., & Sowa, C. J. (1992). Mapping the nomological network of career self-efficacy. *The Career Development Quarterly*, 41(1), 13–21. <https://doi.org/10.1002/j.2161-0045.1992.tb00351.x>
- Oreshnick, C. A. (1986). *The Career Decision-Making Self-Efficacy Scale: Revision and further application* (Doctoral Thesis). Iowa State University.

Paulhus, D. L., & Carey, J. M. (2011). The FAD-Plus: Measuring lay beliefs regarding free will and related constructs. *Journal of Personality Assessment*, 93(1), 96-104. <https://doi.org/10.1080/00223891.2010.528483>

Rigoni, D., Kühn, S., Gaudino, G., Sartori, G., & Brass, M. (2012). Reducing self-control by weakening belief in free will. *Consciousness and cognition*, 21(3), 1482-1490. <https://doi.org/10.1016/j.concog.2012.04.004>

Ross, L., Lepper, M. R., & Hubbard, M. (1975). Perseverance in self-perception and social perception: biased attributional processes in the debriefing paradigm. *Journal of Personality and Social Psychology*, 32(5), 880-892. <https://doi.org/10.1037/0022-3514.32.5.880>

Schooler, J., & Nadelhoffer, T., Nahmias, E., & Vohs, K. (2014). Measuring and manipulating beliefs and behaviours associated with free will. In R. Mele (Ed.) *Surrounding Free Will: Philosophy, Psychology, Neuroscience*. Oxford university Press (pp. 72-94).

Smithdeal, M. (2016). Belief in free will as an adaptive, ungrounded belief. *Philosophical Psychology*, 29(8), 1241-1252. <https://doi.org/10.1080/09515089.2016.1219030>

Staw, B. M., Sandelands, L. E., & Dutton, J. E. (1981). Threat rigidity effects in organizational behavior: A multilevel analysis. *Administrative Science Quarterly*, 501-524. <https://doi.org/10.2307/2392337>

Stillman, T. F., Baumeister, R. F., Vohs, K. D., Lambert, N. M., Fincham, F. D., & Brewer, L. E. (2010). Personal philosophy and personnel achievement: Belief in free will predicts better job performance. *Social Psychological and Personality Science*, 1(1), 43-50. <https://doi.org/10.1177/1948550609351600>

Super, D. E. (1980). A life-span, life-space approach to career development. *Journal of Vocational Behavior*, 16(3), 282-298. [https://doi.org/10.1016/0001-8791\(80\)90056-1](https://doi.org/10.1016/0001-8791(80)90056-1)

Taylor, K. M., & Betz, N. E. (1983). Applications of self-efficacy theory to the understanding and treatment of career indecision. *Journal of Vocational Behavior*, 22(1), 63-81. [https://doi.org/10.1016/0001-8791\(83\)90006-4](https://doi.org/10.1016/0001-8791(83)90006-4)

Vohs, K. D., & Schooler, J. W. (2008). The value of believing in free will: Encouraging a belief in determinism increases cheating. *Psychological Science*, 19(1), 49-54. <https://doi.org/10.1111/j.1467-9280.2008.02045.x>

Weinberg, J. M., Nichols, S., & Stich, S. (2001). Normativity and epistemic intuitions. *Philosophical Topics*, 29(1), 429-460. <https://doi.org/10.5840/philtopics2001291/217>

Zhao, X., Liu, L., Zhang, X. X., Shi, J. X., & Huang, Z. W. (2014). The effect of belief in free will on prejudice. *PLoS ONE*, 9(3), e91572. <https://doi.org/10.1371/journal.pone.0091572>
