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Claremont McKenna College

The Future Self: Promoting Prosocial Decision-Making Through
Motivated Episodic Simulation

Submitted to
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and
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by
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for
Senior Thesis
Spring 2020 & Fall 2020
November 30, 2020

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simulation

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Acknowledgements

I would first like to thank my thesis advisor, Professor Sharda Umanath, Ph.D. for her ongoing support throughout my research and time at Claremont McKenna College. I would also like to express my deepest gratitude to Professor Piercarlo Valdesolo, Ph.D. for his mentorship and encouragement, and for prompting my interest in psychology. I would also like to thank the many professors and friends at the Claremont Colleges who have inspired me throughout my college career. Last, I would like to thank my family for the unwavering love and support they have given me my entire life. I am forever thankful to all who have provided support, love, and wisdom through the past four years.

Abstract

Vividly imagining the future self can help inform our present decisions. Given that most attempts aimed at understanding the prosocial effect of imagining future episodes have focused on sensory properties, little is known about how prosocial motivations can explain the link between episodic simulation and helping intentions. Here, the current research investigated whether altruistically and reputationally motivated simulation of helping behavior promote a willingness to help a person in need. The study found that imagining helping episodes increased willingness to help relative to a control manipulation, especially when reputational concerns were made salient. Path modeling analyses revealed that the prosocial effect of motivated simulation was mediated by future self-continuity (i.e., the perceived connectedness to the future self). These results shed light on a previously unexplored mechanism underlying the relationship between episodic simulation and prosocial intentions. Implications for future research in prosocial behavior, future-oriented cognition, and moral self-concept is discussed.

Keywords: episodic simulation, prosocial behavior, reputation, future self-continuity

The future self: Promoting prosocial decision-making through motivated episodic simulation

Humans are extraordinarily prosocial. However, the tendency to engage in acts of kindness is puzzling as prosocial behavior often incurs a cost to oneself for the benefit of others. Why are humans so willing to help others in need? Researchers have found multiple psychological motivations that encourage prosocial behavior (Batson, 1987; Batson & Powell, 2003; Benabou & Tirole, 2006; Hoffman, 2008; Penner et al., 2005). While early research examined altruistic motivations of helping, recent social psychological accounts suggest that prosocial behavior can be, and often is, driven by selfish motivations (Barasch et al., 2014; Nowak & Sigmund, 2005). Indeed, there are evidence to show that seemingly altruistic acts are motivated by observability (Lacetera & Macis, 2010; Shariff & Norenzayan, 2007; Yoeli et al., 2013), reputational concern (Romano et al., 2017; Simpson & Willer, 2015; Van Vugt & Hardy, 2010), and moral self-image maintenance (Jordan, Mullen, & Murnighan, 2011; Ploner & Regner, 2013; West & Zhong, 2015).

Recent studies in the domain of prosocial behavior have begun to explore the cognitive and neural mechanisms that underlie people's willingness to help others. This line of research has primarily investigated how our perceptions of people in need, our ability to adopt thoughts and feelings of others, and our subsequent emotional reactions dynamically interplay in our decision to help (Chakroff & Young, 2014; Morelli et al., 2014; Singer & Lamm, 2009; Zaki & Ochsner, 2012). These studies have examined the effect of cognitive mechanisms on facilitating willingness to help via theory of mind and

perspective taking (see Chakroff and Young, 2014). Yet, prosocial behavior is not always motivated by concern for others' well-being, but is also guided by self-interested motives.

Here, the present study asked whether the prosocial effect of simulating helping behavior can be heightened by targeting different motivations of helping. More specifically, can simulating future scenarios increase the saliency of selfish motivations, such as reputational concern, to promote prosocial behavior? To explore this possibility, the current research investigated the role of motivation driven simulation on people's willingness to help. The study aimed to utilize episodic simulation, the ability to imagine events in a specific time and place, to increase participants' willingness to help, and to further examine whether selfish and selfless motivations of helping influence the prosocial effect of episodic simulation.

Episodic Simulation and Prosocial Behavior

Episodic simulation entails the ability to imagine our future self in a specific time and place (Atance & O'Neil, 2001; Schacter, Addis, & Buckner, 2008). Drawing on many similar mental processes as episodic memory (Rubin & Umanath, 2015; Schacter et al., 2008; Szpunar, Spreng, & Schacter, 2014), episodic simulation recombines details from our memory to anticipate future events and to guide decision-making (Schacter & Addis, 2007; Schacter et al., 2012; Szpunar, 2010).

Recent work on future thinking suggests that episodic simulation may also inform moral cognition (Fowler & Gaesser, 2020; Morris, Gaesser, & Cushman, 2018; Rubin et al., 2014), and particularly, moral decisions about whether we should help others in need (Gaesser, Keeler, & Young, 2018; Gaesser & Schacter, 2014). This work finds that prosocial behavior is not simply rooted in the ability to consider others' thoughts and

feelings, but is also influenced by the mental construction of helping in our minds (Gaesser, 2013; Gaesser & Schacter, 2014).

This prosocial function of episodic simulation is driven by various cognitive mechanisms. For example, consistent with previous findings on imagination inflation (D'Argembeau & Van der Linden, 2012; Garry & Polaschek, 2000; Thomas, Bulevich, & Loftus, 2003), studies find that vividness of scene imagery reliably predicts participants' likelihood of helping a random stranger (Gaesser & Schacter, 2014; Gaesser, Keeler, & Young, 2018). Episodic simulation and prosocial behavior have also been shown to interact with spatial processing (Gaesser, Keeler, & Young, 2018), temporal distance (D'Argembeau & Van der Linden, 2004), affect (Benoit, Szpunar, & Schacter, 2014; Gaesser, DiBiase, & Kensinger, 2017), and group membership (Gaesser, Shimura, Cikara, 2020).

What these studies on episodic simulation of helping behavior have in common is that they instruct participants to imagine how they can positively help the person in need, ostensibly framing helping as an altruistic act. Hence, much less is known about how different prosocial motivations can explain the link between episodic simulation and helping behavior. There is ample evidence to show that people are not always selfless and self-sacrificial. For example, current literature on indirect reciprocity show that when reputation is at stake, people tend to engage more in prosocial behavior (Romano et al., 2017; Simpson & Willer, 2015; Van Vugt & Hardy, 2010). In other words, people can be very strategic in their decision to help as they are more inclined to help in situations that provide indirect benefits to one's reputation. While there is little empirical evidence on how episodic simulation interacts with varying prosocial motivations, several existing

findings provide reason to suspect that simulating different motivations of helping may influence prosocial intentions.

Future Self-Continuity

Future self-continuity revolves around the idea that there is an empathy gap between the present and the future self (Hershfield, 2011). This relationship is important as it influences how people make long-term decisions. While feeling closer to the future self motivates decisions with long-term benefits, people often perceive their future self as an other, and therefore discount the value of future benefits of present decisions (Byran & Hershfield, 2012; Hershfield & Bartels, 2018).

Future self-continuity, in essence, maps decisions as an intertemporal choice (Hershfield, 2011). When we are able to successfully assign equal value to the interests of the future self, we can effectively suppress our present desires in favor of future benefits. One way that we can bridge the empathy gap between the current and the future self is to better understand the present-future tradeoff of our decisions by making the consequences to the future self more vivid. To this end, vividness interventions have been designed to change the way people perceive their future selves. These interventions have been applied in multiple contexts, such as savings (Hershfield, John, & Reiff, 2018), diets (Kuo et al., 2016), and delinquency (Van Gelder et al., 2015).

There are several mechanisms that are worth highlighting. First, studies on future self-continuity focus on shifting the attention to the self (Byran & Hershfield, 2012). This contrasts with studies on episodic simulation which are primarily interested in how perspective taking and empathy can influence helping behavior. Importantly, studies on episodic simulation find mixed evidence for the effect of perspective-taking on

willingness to help (see Gaesser et al., 2018). Although the direct cause of this inconsistency has yet to be explored empirically, one possible explanation is that people may not feel a strong social connectedness to a random stranger. This is true in real life settings (Zaki, Bolger, & Ochsner, 2008; Zaki, 2014), and perhaps may even be more difficult in simulation tasks that involve binding together details of the broader scene. On the other hand, the future self is characteristically more similar and relevant to the present self, and therefore may have a greater influence on people's prosocial tendencies.

Secondly, future self-continuity studies are more person-centric (Hershfield, 2011; Hershfield & Bartels, 2018). There is evidence to show that self-referential processing plays a role in motivating and attaining future goals (Bartels & Rips, 2010; D'Armentano et al., 2010). Notably, Gaesser, Horn, & Young (2015) hypothesized that if episodic simulation is mainly driven by sensory qualities, then scene imagery should predict willingness to help independent of the identity of the imagined helper. However, the authors find that when self-reference is the most prominent feature of the subject's prosocial judgement, then self-referential processing moderated the effect of episodic simulation on intentions to help. This study, consistent with the future self-continuity literature, hints at the role of the imagined self in promoting prosocial intentions.

If in fact a self-directed simulation is more effective in decisions that involve a present-future trade-off, then one way of facilitating greater willingness to help is to make the future benefits of helping more salient. For example, when attention is directed to the future benefits of helping, people may use that information as input to their decision to help others.

Overview of Current Research and Hypothesis

In the present study, I investigated whether altruistically or reputationally motivated episodic simulation of helping behavior can have different consequences on prosocial intentions. Drawing on previous episodic simulation manipulations (Gaesser et al., 2015; Gaesser et al. 2016; Gaesser & Schacter, 2014; Gaesser et al., 2018), I examined the impact of an Altruistic Helping task and Reputational Helping task relative to a No Helping task on willingness to help. Following previous findings, I predicted that imagining a helping episode will increase self-reported intention to help regardless of motivation, and that these effects on prosocial intentions will be independently mediated by scene imagery. More importantly, I predicted that imagining episodes that make reputational concerns more salient will be more effective in promoting willingness to help than imagining episodes that are altruistically motivated.

Furthermore, I also tested for a potential mediating role of future self-continuity. For instance, are people more likely to help after vividly imagining the helping scene because they are subsequently more likely to feel connected to their future self? Although recent work has focused on sensory aspects of episodic simulation, I hypothesized that an alternative mechanism that can dynamically interact with the prosocial functions of episodic simulation is future self-continuity. Hence, while the primary focus of the present study was to manipulate prosocial motivations and study its effect on willingness to help, a secondary aim was to examine the role of future self-continuity in mediating the relationship between episodic simulation and prosocial decision-making.

Method

Participants

A total of 58 undergraduates completed the experiment for partial fulfillment of a course requirement. Participants completed the experiment fully online via Qualtrics and provided informed consent to participate in the experiment. The experiment lasted approximately 30 minutes.

A power analysis of the effect size ($f = 0.25$) corresponding to the central contrast of interest in relevant prior work (Gaesser & Schacter, 2014) indicated that running 43 participants in the lab conservatively allows detection of behavioral differences across conditions.

3 participants were excluded for one of the following reasons: (1) they imagined someone else helping rather than imagining themselves ($n = 1$); (2) they failed to provide appropriate descriptions of what they generated ($n = 2$). The final sample thus included 55 participants ($M_{\text{age}} = 19.22$ years, $SD = 1.07$, age range = 18-22, 69.1% female).

Procedure

After providing consent, participants were informed that the study investigated how people respond to stories from the media. Before proceeding to the experimental trials, participants completed two practice trials to familiarize themselves with the study design. Each practice trial presented the participants with a sample scenario and an example of a response from other participants in the past (Gaesser & Schacter, 2014).

Participants were asked to closely follow instructions during the experimental trials and were told that they would later be asked a series of questions regarding the responses they generated. Participants were then presented with six brief stories of

everyday events involving a person in need of help (e.g., “This person is locked out of his house”). The scenarios that were used in this experiment are a subset of those used in previous work (Gaesser & Schacter, 2014). The stories were presented one at a time in plain text for 10 seconds to motivate close attention. Stories were then removed and an instruction prompting the participants to imagine themselves was presented.

For the two helping conditions (Altruistic Helping and Reputational Helping), participants were instructed to imagine a positive interaction specific in time and place and to generate as much detail as possible. For the Altruistic Helping task, subjects were told to focus on how their decision to help can positively impact the person in need, directing the participant’s simulating efforts to empathizing with the person in the scenario. For the Reputational Helping task, subjects were asked to imagine how their decision to help will be perceived by third parties observing their behavior. In the No Helping condition, participants were simply instructed to imagine what they would do in the given scenario. Comparing these conditions allowed me to investigate whether imagining an episode of helping facilitates prosocial intentions beyond a baseline reaction to learning about another person’s plight.

After the performance of each simulation task, participants were prompted to type a brief description of the helping event that they imagined. These short descriptions were used to complement other measures in evaluating task compliance.

Following the completion of the simulation task, participants completed a post-task survey assessing their willingness to help (i.e., How likely would you be to help in this situation?; 1 not at all – 7 very willing). Participants also reported ratings for theory of mind and perspective taking (i.e., When you imagined helping, did you consider the

person's thoughts and feelings? 1 not at all – 7 strongly considered). To assess the vividness of scene imagery and the related sensation of mentally visiting the event (Gaesser & Schacter, 2014), participants were asked to rate the imagined events for scene coherence, scene detail, and pre-living. Participants also reported how connected they felt to their imagined self to explore the mediating effect of future self-continuity (e.g., To what extent did you feel connected to your imagined self? 1 not at all – 7 very realistic). Moreover, three items measuring reputational concern were adapted from Beersma and Van Kleef (2011) to ensure that reputational concerns did in fact differ between conditions (e.g. Did you consider how others would think about you? 1 not at all – 7 strongly considered). As a manipulation check, participants were asked to indicate whether they imagined 'themselves' or 'someone else'. Ratings were collected immediately after the participants completed the simulation task on a trial-by-trial basis, instead of after completing all trials. This design facilitated comprehension online.

After completing the post-task survey, participants were given five seconds to clear their minds before being presented with the next scenario. Participants then repeated the above procedure for all six stories, completing two simulation task for each condition in randomized order.

At the end of the study, participants completed a brief demographic questionnaire and were thanked and debriefed.

Results

Vividness, future self-continuity, and reputation scores.

To ensure that the scale was reliable, internal consistency was calculated for measures of vividness, future self-continuity, and reputation. Reliability analyses

indicated that measures of vividness of scene imagery ($\alpha = .88$), future self-continuity ($\alpha = .82$), and reputation ($\alpha = .92$) were all consistent. The scores were thus averaged for these items to form an index for each measure. Consistent with predictions, participants reported increased vividness of scene imagery when imagining a helping episode.

Participants experienced greater vividness in the Altruistic Helping condition ($M=5.54$, $SD=1.09$) than the No Helping condition ($M=4.84$, $SD=1.17$), $t(54) = 5.083$, $p < 0.01$, and greater vividness in the Reputational Helping condition ($M=5.75$, $SD=1.04$) than in the No Helping condition, $t(54) = 7.09$, $p < 0.01$. Participants also reported that they perceived a greater connection to their future self in the Altruistic Helping condition ($M=5.02$, $SD=1.10$) than in the No Helping condition ($M=4.63$, $SD=1.18$), $t(54) = 2.56$, $p < 0.05$, and in the Reputational Helping condition ($M=5.64$, $SD=0.97$) than in the No Helping condition, $t(54) = 6.15$, $p < 0.01$. The difference in future self-continuity between the Altruistic Helping condition and the Reputational Helping condition was also significant, $t(54) = 4.33$, $p < 0.01$.

Reputational concern manipulation.

The manipulation effectively raised reputational concerns. The Reputational Helping condition ($M=4.52$, $SD=1.47$) showed significantly higher concern about one's own reputation compared to both the No Helping condition ($M=3.25$, $SD=1.42$), $t(54) = 7.759$, $p < 0.01$, and the Altruistic Helping condition ($M=3.32$, $SD=1.57$), $t(54) = 6.279$, $p < 0.01$. The difference between the Altruistic Helping condition and No Helping condition was not significant $t(54) = 0.437$, $p = 0.66$.

Willingness to help by condition.

A repeated measures ANOVA (Altruistic Helping; Reputational Helping; No Helping) on ratings of willingness to help across conditions revealed the predicted main effect, $F(2,54) = 16.79$, $p < 0.01$, indicating that willingness to help differed significantly across the three conditions. To investigate which conditions were driving the differences in willingness to help, a pairwise comparison was conducted using Bonferroni Correction. Participants were more willing to help in the Reputational Helping condition ($M=5.50$, $SD=1.17$), compared to the No Helping condition ($M=4.56$, $SD=1.19$), $p < 0.01$. Likewise, participants were more willing to help in the Altruistic Helping condition ($M=5.16$, $SD=1.02$) compared to the No Helping condition, $p < 0.01$. The difference in willingness to help in the Reputational Helping condition compared to the Altruistic Helping condition was marginally significant, $p = 0.07$. This pattern of results provide initial evidence for the effect of motivated simulation of helping behavior on prosocial intentions (see Figure 1).

The effect of motivated simulation on willingness to help through vividness.

To further investigate the underlying mechanisms driving the effect of motivated simulation on willingness to help, I conducted a path modeling analysis with willingness to help as the dependent variable, motivated simulation condition (Altruistic Helping vs. Reputational Helping) as the independent variable, and vividness as the proposed mediator (Hayes, 2017) (see Figure 2). The mediation model was tested through a bootstrapping path analysis which calculated a distribution of the effect with 5000 iterations (PROCESS macro, Hayes, 2017). Statistical significance with alpha at 0.05 is indicated by 95% confidence interval (CI) not crossing a null value of 0. The results of

the analysis indicated that the effect of motivated simulation, without accounting for the mediator, was significant, $b = 0.46$, $t(107) = 2.43$, $p < 0.05$. However, the indirect coefficient was not significant, $b = 0.07$, $SE = 0.07$, $95\% CI = -0.66, 0.24$. In short, vividness of scene imagery did not mediate the relationship between motivated simulation and willingness to help.

However, it is worth noting that the mediation model found a significant relationship between vividness and willingness to help, $b = 0.39$, $t(107) = 4.17$, $p < 0.01$. Previous studies have in fact found consistent evidence that vividness of the imagined episode contributes to willingness to help when people imagine helping more broadly (Gaesser et al., 2017; Gaesser et al., 2018). Therefore, while scene imagery did not mediate the relationship between the two helping conditions (Altruistic Helping and Reputational Helping) and willingness to help, vividness of the helping episode can still be a significant predictor of willingness to help when simulation of helping behavior is conceptualized in a broader sense. Hence, to replicate previous findings, a path modeling analysis with willingness to help as the dependent variable, helping condition (Altruistic Helping and Reputational Helping vs. No Helping) as the independent variable, and vividness as the proposed mediator was conducted (see Figure 3). The analysis confirmed previous findings as the indirect mediation path from the helping condition to vividness to willingness to help was significant, $b = 0.27$, $SE = 0.10$, $95\% CI = 0.10, 0.47$. More specifically, the analysis revealed partial mediation as the direct path from helping condition to willingness to help remained significant after controlling for scene imagery, $b = 0.50$, $t(161) = 2.63$, $p < 0.01$.

The effect of motivated simulation on willingness to help through future self-continuity.

A secondary aim of the study was to explore the role of future self-continuity in mediating the relationship between episodic simulation and prosocial decision-making. To this end, a path modeling analysis was conducted with willingness to help as the dependent variable, motivation condition (Altruistic Helping vs. Reputational Helping) as the independent variable, and future self-continuity entered as a proposed mediator (see Figure 4). The indirect mediation path from the motivation condition to future self-continuity to willingness to help was significant, $b = 0.17$, $SE = 0.08$, $95\% CI = 0.03, 0.35$. Moreover, the direct path from motivation condition to willingness to help ($b = 0.46$, $SE = 0.19$, $p = 0.02$) was reduced to non-significance after controlling for future self-continuity ($b = 0.29$, $SE = 0.19$, $p = 0.12$), providing evidence for full mediation.

Discussion

There are different motivations underlying people's decision to engage in prosocial behavior. However, extant research on the prosocial effects of episodic simulation has focused on sensory properties of the imagined scene, and thus neglected the role of motivational processes. Here, I investigated whether different prosocial motivations influence the extent to which episodic simulation of helping behavior can increase helping intentions. In the present study, people reported greater willingness to help when engaging in motivated simulation of helping behavior. More specifically, people expressed greater intentions to help when the imagined helping scenario raised reputational concerns, relative to altruistic and neutral manipulations. In line with previous findings, the effect of vivid scene imagery on helping intentions was replicated,

but vividness did not account for the difference in helping intentions between the two experimental conditions. Interestingly, future self-continuity was shown to play a significant role in mediating the link between motivated episodic simulation and helping behavior, providing evidence for a previously unexplored mechanism underlying this relationship.

Episodic Future-Thought

Taken together, the results of the study suggest that motivational processes serve an important role in explaining the prosocial effects of episodic simulation. The present study demonstrated that motivated episodic simulation, both altruistic and reputational, increased participant's willingness to help relative to the control condition. These results support prior theories on episodic future thought. The ability to simulate alternative pasts and hypothetical futures is a goal-directed process (Taylor & Schneider, 1989; Schacter et al., 2008). In particular, future-oriented cognition involves more than simple imagery as episodic simulation enables us to preview the subjective value of the future event, inducing motivational incentives that inform our decision-making process (Benoit, Gilbert & Burgess, 2011; Benoit, Szpunar, & Schacter, 2014). Hence, while previous studies have examined the role of sensory properties of imagined scenes, the current research provides new empirical evidence that comports well with previous findings on the goal-directed nature of episodic future thinking.

Prosocial Motivations and Reputation

The central question at hand was whether altruistically or reputationally motivated simulation of helping behavior can have different consequences on prosocial intentions. Consistent with previous studies (Gaesser & Schacter, 2014; Gaesser et al., 2015; Gaesser

et al., 2017), people reported greater willingness to help when they simulated a helping episode. Notably, this prosocial effect of episodic simulation was stronger when people were driven by reputational motives. The results therefore support the hypothesis that reputational concern can be a powerful motivator of prosocial behavior. The finding that imagining the future self can increase observability and in turn, the saliency of the future self's reputation is also crucial. Previous studies manipulated reputation by making behavior public (Yoeli et al., 2013), providing symbolic rewards (Gallus, 2017; Lacetera & Macis, 2010), or inducing social pressure (Panagopoulous, 2010; Gerber, Green, & Larimer, 2010). The results of the current study suggest that imagining hypothetical scenarios can also be used to raise reputational concerns, when the imagined scene is sufficiently vivid.

The current research may also be considered in light of prior work on theory of mind and episodic simulation. Previous studies have used a similar experimental design in which participants were instructed to engage in perspective taking by focusing on the person in need. If helping behavior is solely driven by pure altruism (Andreoni, 1990), then we would expect such manipulation to show consistent effects on prosocial behavior. However, results have not been consistent as some studies find that theory of mind does not account for the prosocial effect of episodic simulation (Gaesser & Schacter, 2014; Gaesser et al., 2015), while other studies conclude that theory of mind effectively promotes prosocial intentions (Gaesser et al., 2017). Instead, the findings of this study suggest that we can dissociate different motivations of helping. For instance, while altruistic motivations of helping did increase willingness to help, more people were attracted to the goal of protecting and enhancing one's reputation. This behavior may be

explained by theories on public self-awareness. For the Reputational Helping condition, participants were instructed to imagine how their behavior would be perceived by a third party. Hence, one explanation would be that people may have responded to the presence of bystanders in their imagined scene, which may have raised concerns about the potential impression they may make on others and in turn, stimulated helping behavior. (Prentice-dunn & Rogers, 1982; Van Bommel et al., 2012).

An alternative explanation is that disclosing signals of oneself as a prosocial individual is intrinsically rewarding. For instance, Tamir and Mitchell (2012) find that people show a consistent preference for answering questions about the self, and these tendencies are magnified when they are informed that the information would be disclosed to others. In their study, the behavior was accompanied by an increase in activity in brain regions associated with reward outcomes, suggesting that people willingly engage in costly behavior because self-disclosure is intrinsically rewarding. Similar neuroeconomic studies have consistently found that the striatum and ventral midbrain, regions of the brain that are sensitive to reward, are activated when people engage in prosocial behavior (Harbaugh et al., 2007, Izuma et al., 2010, Moll et al., 2006, Telzer et al., 2010). Hence, another possibility to why participants exhibited greater prosocial intentions in the Reputational Helping condition may be that the participants perceived helping as an opportunity to signal one's prosocial identity, a process that is rewarding in nature.

Vividness

The current study also replicated the finding that vivid mental representations of a helping episode influence willingness to help (Gaesser & Schacter, 2014; Gaesser, Horn, & Young, 2015; Gaesser, Keeler, & Young, 2018). However, the present findings portray

a more intricate relationship between scene imagery and helping intentions. For instance, while vividness played a role in facilitating prosocial decisions when people imagined helping more broadly (i.e. Altruistic Helping and Reputational Helping compared to No Helping condition), vividness no longer informed willingness to help when motivational processes were introduced to the model. As such, the prosocial effect of episodic simulation is not entirely attributable to the vividness of scene-related representations.

Future Self-Continuity

If vividness does not fully explain the relationship between episodic simulation and prosocial behavior, what other mechanisms are at play? An open question has been whether future self-continuity contributes to the prosocial effect of episodic simulation. Critically, the present study find novel evidence to suggest that when the future self is vivid and salient, the imagined episode can raise concerns about one's future reputation and motivate prosocial behavior. According to research on temporal discounting, people characteristically care less about future outcomes and behave in a manner that is considered irrational and shortsighted (Frederick, Loewenstein, and O'Donoghue 2002). One of the reasons why we often fail to consider the long-term consequences of our actions is because we often perceive our future selves as if they are other people (Hershfield & Bartels, 2018). One way of addressing this issue is by allowing people to simulate future scenarios, which in turn motivates future-oriented behavior by allowing people to form a greater emotional bond with the future self (Benoit, Gilbert, & Beurgess, 2011; Ersner-Hershfield, Wimmer, & Knutson, 2009; Pronin & Ross, 2006). Hence, just as empathy towards others increases prosocial behavior (Schwartz, 1970), a heightened empathetic connection with the future self may also motivate prosociality. While

vividness interventions utilizing the effect of future self-continuity has been applied in financial decisions (Hershfield et al., 2011), dietary choices (Rutchick et al., 2018), and ethical decisions (Van Gelder et al., 2013), this is the first study to test its role in prosocial decision-making.

Future Directions

The current research provides evidence for a novel model that begins to show how future self-continuity interacts with episodic simulation to promote prosocial intentions. Hence, an important question that remains unanswered is whether this increase in prosocial intentions translates to actual behavior. There are some reasons to believe that motivated simulations of the future can also influence behavior. Studies on implementation intentions suggest that when intentions are linked to mental representations of future scenarios, the imagined episode can later cue the intention (Gollwitzer, 1999; Seifert & Patalano, 2001; Taylor & Pham, 1996). Furthermore, when people simulate future episodes, expectations are formed which provides a foundation for action and increases the likelihood of completing that action (Oettingen & Mayer, 2002). Recent works that examined the relationship between episodic simulation and helping behavior have found that people do behave prosocially after imagining a helping episode, but its effect on behavior is weaker than the effect on intentions (Gaesser, Keeler, & Young, 2018; Gaesser, Shimura, & Cikara, 2020). However, previous studies have mainly focused on sensory based mechanisms without considering the role of motivational processes. Hence, future studies should examine whether motivation driven simulation can help bridge the intention-action gap.

Here, the present study measured prosocial intentions immediately after the participants simulated helping behavior. Such an approach limits our ability to predict whether the prosocial effect of episodic simulation will have a lasting impact on one's prosocial tendencies. Recent studies find that by imagining a hypothetical scenario is sufficient to change self-knowledge (Meyer, Zhao & Tamir, 2019; Thornton, Weaverdyck, & Tamir, 2019). For instance, Meyer, Zhao and Tamir (2019) find that after simulating other people in similar contexts, participants considered the self to be more similar to the simulated other, and this effect persisted 24 hours after simulation. This finding showcases the malleable nature of our self-concept. Hence, an interesting avenue for future research is to study how simulation of helping behavior changes the moral self-concept. Relatedly, based on the current finding that simulating the future self has different consequences on prosocial intentions compared to simulating an unknown other, how does simulating the future self change one's perception about their own morality?

Based on the situated cognition theory, studies have also found that the future self is context sensitive (Robbins & Aydede, 2009; Oyserman, Destin, & Novin, 2015). These studies find that different identities become salient based on the context in which the present self is situated. For example, Oyserman, Design, and Novin (2015) find that although positive identities are motivating in success-likely contexts, negative future identities are significantly more motivating in failure-likely contexts. Therefore, uncovering the specific conditions in which positive and negative identities interact with imagined scenarios to facilitate prosocial behavior will be an exciting avenue to explore moving forward.

Conclusion

People often offer a helping hand to those in need, and their decision to help can be driven by different motivations. Understanding how motivations interact with simulations of the future to promote willingness to help can be fruitful in fostering greater prosocial behavior. The present study begins to reveal that although altruistically motivated simulations of the future can increase prosocial intentions, a simulated future that increases the saliency of future reputational benefits seems to have a greater prosocial effect. Moreover, it seems that episodic simulation has multiple mechanisms that influence prosocial decision-making. The study finds that prosocial decisions are not only facilitated by scene imagery, but also by engaging future self-continuity, especially when the reputation of the future self is brought to mind. These results shed light on the complex interplay of multiple mechanisms that underly the prosocial effect of episodic simulation and provide suggestive first findings for a previously unexplored mechanism. By better understanding the nuanced relationship between episodic simulation and willingness to help, we will one day be able to utilize the power of our imagination to foster greater prosociality in our society.

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Appendix

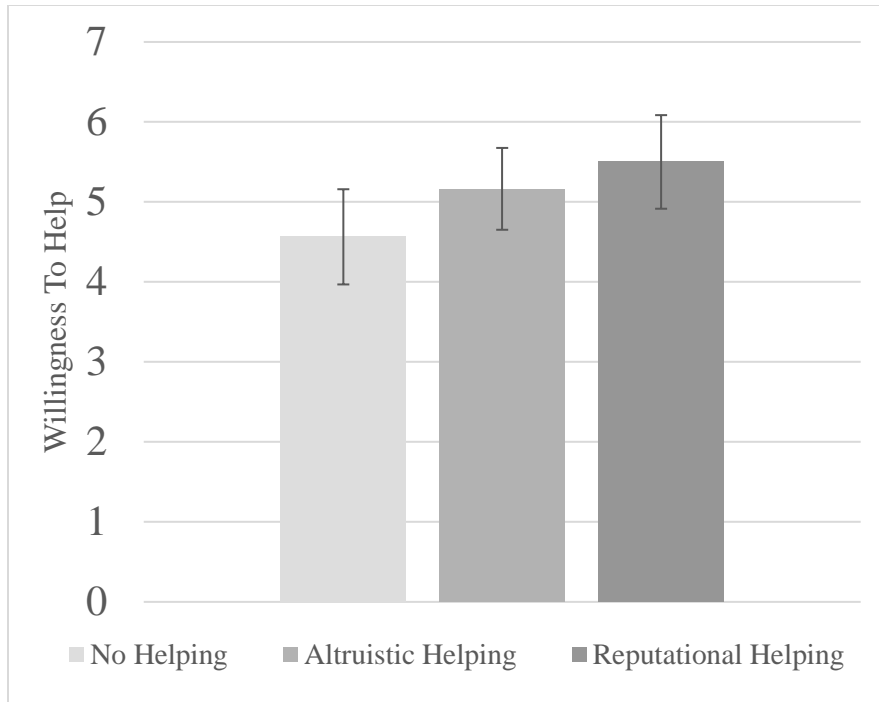


Figure 1. Willingness to help across conditions (1 not at all to 7 very willing). Error bars denote +/- SEM.

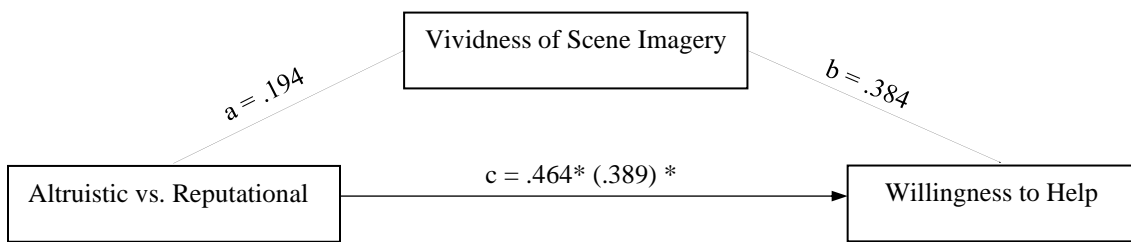


Figure 2. Mediation model on the relationship between motivation conditions (Altruistic Helping vs. Reputational Helping) and willingness to help mediated by vividness of scene imagery. The model presents regression coefficients for all paths and direct effect in parentheses for path c. Asterisks indicate significance at *p < .05, **p < .01, ***p < .001.

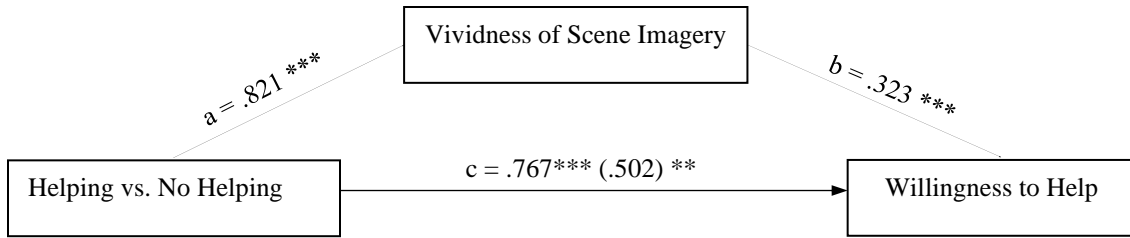


Figure 3. Mediation model on the relationship between helping conditions (Helping vs. No Helping) and willingness to help mediated by vividness of scene imagery. The model presents regression coefficients for all paths and direct effect in parentheses for path c. Asterisks indicate significance at * $p < .05$, ** $p < .01$, *** $p < .001$.

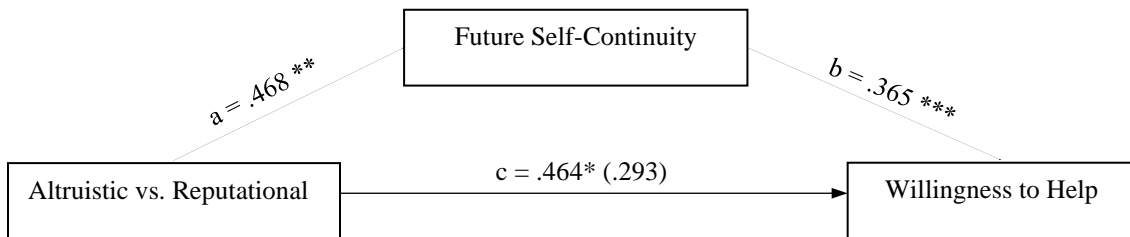


Figure 4. Mediation model on the relationship between motivation conditions (Altruistic Helping vs. Reputational Helping) and willingness to help mediated by future self-continuity. The model presents regression coefficients for all paths and direct effect in parentheses for path c. Asterisks indicate significance at * $p < .05$, ** $p < .01$, *** $p < .001$.