Under Second Round Review at *Journal of Experimental Psychology: General*

POSITIVE CONSEQUENCES OF CONFLICT ON DECISION MAKING:

WHEN A CONFLICT MINDSET FACILITATES CHOICE

Jennifer Savary[1], Tali Kleiman[2], Ran R. Hassin[3], Ravi Dhar[1]

[1] Yale University
[2] New York University
[3] The Hebrew University

Abstract

Much research has shown that conflict is aversive and leads to increased choice deferral. In contrast, we propose that conflict can be beneficial. Specifically exposure to nonconscious goal conflict can activate a mindset that brings with it procedural benefits of coping with conflict, without triggering the associated costs such as negative affect and stress. In a conflict mindset, then, people should be better able to confront and resolve tradeoffs. We test this proposition in four experiments, and demonstrate that priming conflicting goals before a decision increases choice in domains unrelated to the primed conflict. We further demonstrate that increased choice occurs because people in a conflict mindset process choice information more systematically, and rule out several alternative explanations for the results.

Keywords: Conflict, Choice, Deferral, Mindsets, Goals

Word Count: 2955

Conflict is present in many choices, from the mundane morning debate between oatmeal and a chocolate chip muffin, to more important decisions that pit professional success against personal life. Conflict is generally thought of as aversive, associated with depression, neuroticism and illness (Emmons & King, 1988), decreased task performance (Shah & Kruglanski, 2002), and impaired decision-making (Iyengar & Lepper, 2000; Tversky & Shafir, 1992). In contrast to this modal and intuitive view, we propose that conflict can also be beneficial. Specifically, we propose that a prior exposure to conflict can activate a mindset and use of cognitive procedures that facilitate making tradeoffs, and thus increase choice likelihood. As we will show, this conflict mindset brings with it the procedural benefits of coping with conflict without the associated costs such as negative affect (Luce, Bettman & Payne, 1999) or stress (Lazarus, 1993).

We test our proposal by examining the effects of the conflict mindset on individuals' willingness to make a decision. Extensive research on decision-making suggests that when individuals are conflicted among various options, they are less likely to make a choice (Iyengar & Lepper, 2000; Luce, 1998), a behavior known as choice deferral (Anderson, 2003; Dhar, 1997; Tversky & Shafir, 1992). Our main proposition is that priming conflicting goals activates a conflict mindset, which leads to more systematic processing of subsequent, unrelated choices. Prior research indicates that individuals who confront conflict consider more of the available information (Janis & Mann, 1977) and take more time when deciding (Bettman, Johnson, Luce & Payne, 1993; Greene, Sommerville, Nystrom, Darley & Cohen, 2001; Kleiman & Hassin, 2011). We propose that as a result of this increase in systematic processing of information, individuals in a conflict mindset are more likely to resolve tradeoffs and make choices. This

assumption is in line with classic decision research which demonstrates that individuals adopt more conflict confronting decision strategies when making repeated high-conflict decisions (Bettman et. al., 1993), and is also consistent with the notion that individuals choose more often when they have more information (Dhar & Simonson, 2003).

We base our predictions on two ideas. First, that high level, cognitive procedures (e.g., mindsets) can be stored in memory and activated by subtle cues (e.g., Bargh et. al., 2012; Galinsky & Moskowitz, 2000; Mussweiler, 2002; Xu & Wyer, 2008). Second, that although decision researchers have generally documented an avoidant response to conflict, proactively confronting and attempting a systematic resolution is also an established response to conflict (Janis & Mann, 1977; Folkman & Lazarus, 1988). Thus, the strongest test of our mindset hypothesis would demonstrate that nonconscious conflict (i.e. incidentally primed conflict) facilitates choice by increasing systematic processing in domains unrelated to the conflict prime (Xu & Wyer, 2008). Moreover, priming conflict, rather than consciously introducing it, has the advantage of activating the relevant procedural benefits without activating the negative affect traditionally associated with high conflict (Luce et. al., 1999).

Accordingly, we activate conflict outside of awareness by priming conflicting goals, and look for effects on choice in domains unrelated to the primed conflict. We demonstrate that nonconscious goal conflict decreases the likelihood of selecting options associated with conflict avoidance (Experiments 1 and 4), due to a more systematic information processing associated with a conflict mindset (Experiment 2), and not due to other factors (Experiment 3).

Experiment 1

Experiment 1 tests our basic hypothesis that priming conflicting goals facilitates choice in subsequent, unrelated decisions.

Method

Two hundred and three adults (83 males, M_{age} = 39.1, SD = 14.0) were recruited from an online panel for a series of ostensibly unrelated studies. Sample sizes for all experiments were determined in advance. Due to idiosyncratic features of the survey platform, totals occasionally vary from round numbers. Participants were randomly assigned to either the Control condition or one of two nonconscious goal conflict conditions (henceforth the Conflict conditions). Two distinct Conflict conditions were used to ensure that results cannot be attributed to specific content used in the primes, but instead are due to a general conflict mindset. Participants first completed a lexical decision task that served as the priming manipulation. Letter strings appeared on the screen and participants had to decide whether they formed a word (21 trials) or a non-word (14 trials). In each of the Conflict conditions, 7 words related to one goal, and another 7 to a conflicting goal. Hence, in one Conflict condition participants saw 7 words related to a career goal (e.g., promotion, raise), and 7 words related to the conflicting socializing goal (e.g., party, drinks). The second Conflict condition included words relating to a health goal (e.g., fitness, active) and the conflicting indulgence goal (e.g., decadent, chocolate). We use this procedure to simultaneously prime two conflicting goals, which activates a motivational conflict mindset outside of participants' awareness (Kleiman & Hassin, in press).

Following the priming task, participants completed a standard choice deferral task (Dhar, 1997), choosing between two apartments that differed on commute time and size, and between two cell phones that differed on price and model. Crucially, participants could either select one of the two options (i.e., resolve the conflict by making a choice), or decide to keep searching (i.e., avoid the choice by selecting the option: "continue to look for other cell phones before

deciding"). The modal finding in this paradigm is that high-conflict decisions are associated with decreased choice resolution (Luce, 1998).

Finally, participants were asked a series of questions to assess whether the priming manipulation resulted in heightened conflict awareness. They indicated on a 1 to 9 scale the extent to which they felt conflicted, in a deliberative mindset, how committed they were to each of the primed goals, and their current mood (See Table 1 in the online supplemental material for all awareness and affect questions).

Results and Discussion

Our primary dependent measure is the aggregate number of times one of the available options was selected, instead of deferring the choice. No difference emerged between the two Conflict conditions (p=.68), so we collapsed them for the main analysis[1]. A one-way ANOVA[2] on choice incidence revealed that participants in the Conflict conditions were significantly more likely to make a choice than those in the Control condition ($M_{conflict}$=73.0%, SE=3.0% vs. $M_{control}$=60.5%, SE=4.8%), $F(1,201)=5.3$, $p<.03$, $\eta^2=.026$. No differences were found between the Conflict and Control conditions for any of the conflict awareness measures or self-reported mood, all ps>.1.

These results support our hypothesis that priming a conflict mindset decreases choice deferral in domains unrelated to the primed conflict. Moreover, awareness ratings suggested that

[1] Planned contrasts comparing Control with each separate Conflict condition revealed similar results; $M_{workvssocialize}$=74.3%, SE=4.3%, $t(200)=2.2$, $p<.03$; $M_{healthyvsindulge}$ = 71.8%, SE=4.1%, $t(200)=1.8$, $p = .07$.
[2] For all studies we also conducted (1) a logistic regression using clustered standard errors to account for possible non-independence of observations (Nichols & Schaffer, 2007), and (2) a mixed logit model (Baayen, Davidson & Bates, 2008; Jaeger, 2008). Results are equivalent across model type. See Table 2 in the online supplemental material for results.

the conflict prime increases choice incidence even though participants are not aware that they are in a conflict mindset. We further test awareness in Experiment 2.

Experiment 2

We hypothesized that the conflict mindset facilitates choice because it evokes more systematic processing of the information related to the choice. Experiment 2 tests this hypothesis by measuring how much information participants search for, and how much time they spend making their choices (Bettman et. al., 1993; Greene et. al., 2001; Kleiman & Hassin, 2011). We employ a serial mediation model (Preacher & Hayes, 2008) to test if these factors account for the effect of conflict on choice likelihood. In addition, we have proposed that this process occurs nonconsciously, and thus hypothesize that awareness of the conflict mindset should not mediate the effect of the conflict mindset on choice.

Method

Seventy nine students (28 males) were randomly assigned to either the Conflict or Control conditions. Using the same task as in Experiment 1, Conflict participants were primed with conflicting studying and socializing goals. Students then saw 5 choice problems similar to those used in Experiment 1 (Partner, Apartment, Theater, Album, Cell Phone[3]), in which they could either select one of two options presented, or decide to keep looking. To examine participants' decision-making process, we used an information display board analogous to Mouselab (Johnson, Payne, Schkade & Bettman, 1989) in which the values for each attribute were hidden under a closed box when the screen loaded, and participants had to hover the mouse over each box to see the information it contained. The computer program recorded the time

[3] We used five choices in this experiment to ensure sufficient power when analyzing process data.

participants spent on each choice and the amount of information viewed (i.e., number of boxes opened). After making their choices participants were probed for conflict awareness and mood as in Experiment 1.

Results and Discussion

A one-way ANOVA with the number of times participants chose one of the options as the dependent variable revealed that participants in the Conflict condition were more likely to make a choice than Control participants ($M_{conflict}$=82%, SE=2.4% vs. $M_{control}$=71%, SE=4.0%), $F(1,77)=5.0$, $p<.03$, $\eta^2=.06$. This replicates the results of Experiment 1 using a different goal conflict, a different population and different decisions.

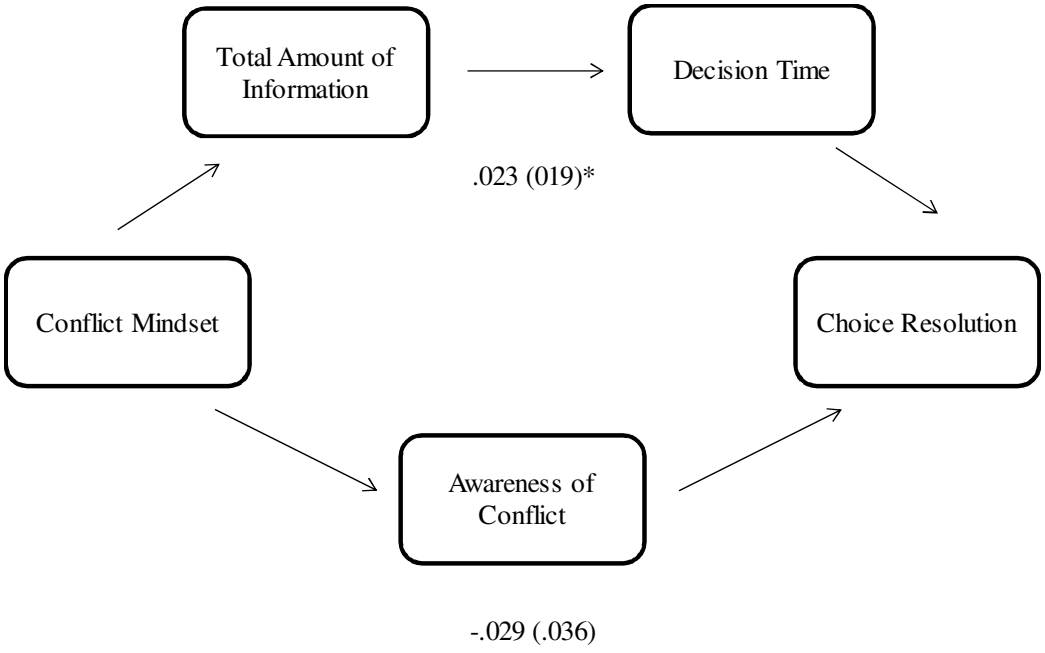
Process measures. We next examined the extent of systematic processing (see Table 1 for means and standard errors). Conflict primed participants viewed more information $F(1,394)=4.5$, $p<.04$, $\eta^2=.01$ and tended to take more time to make their decision $F(1,77)=3.4$, $p=.06$, $\eta^2=.04$. As in Experiment 1 the Control and Conflict conditions did not differ on the awareness or mood measures, all ps>.1.

Table 1. Means (Standard Errors) for Process Measures in Experiment 2

Condition	Amount of Information Viewed	Decision Time (seconds)
Control	12.7(.57)	17.3(1.1)
Conflict	14.4(.56)	20.6(1.4)

To test our proposed process, measures of amount of information viewed, decision time, and conflict awareness were entered into a serial bootstrap model for multiple mediators (Preacher & Hayes, 2008). As predicted, there was a significant positive path indicating that conflict prime increases the amount of information viewed, which increases decision time and results in greater choice (*95%CI*=.001, .088), see Figure 1. Importantly, as expected, conscious awareness of conflict did not mediate the effect of conflict on choice (*95%CI*=-.131, .027), and no indirect paths that include conflict awareness were significant.

Figure 1. Results of Experiment 2: Amount of information viewed and decision time mediate the effect of conflict on choice



Notes: Point estimates of the indirect effects are reported, values in parentheses are a bootstrap estimate of the standard error. * Indicates the 95% bias-corrected confidence interval excluded 0.

Results of Experiment 2 are consistent with the notion that participants in a conflict mindset processed information more systematically compared with those who were not. They viewed more information and thus took longer to make their decisions. The shift to systematic information processing mediated the increase in choice likelihood.

Experiment 3

Experiment 3 was designed to test two assumptions critical to the conflict mindset proposal. First, our theory predicts that activating a conflict mindset requires priming two goals that conflict with one another. Therefore priming only one goal should not lead to the increase in choice incidence observed in previous experiments. Second, we have posited that the conflict mindset facilitates conflict resolution due to increased use of cognitive procedures that lead to more systematic processing of the choice information. Therefore the conflict mindset should not show benefits on a task that does not generate conflict. Thus in Experiment 3 we sought to replicate the results of the prior studies while (1) ensuring that it is the conflict mindset, rather than priming any single goal, that brought about our effects, and (2) testing if the procedural benefits of the conflict mindset are specific to resolving choice conflict.

Method

Three hundred and nine adult participants (112 males, $M_{age} = 35.7$, $SD = 15.0$) recruited from an online pool were randomly assigned to conditions in a 3 (Control vs. Conflict vs. Single goal) X 2 (task has conflict vs. task with no conflict) between participants design. In the Conflict and Control conditions primes were identical to those used in Experiment 1. Participants in the Single Goal condition were exposed to the same career goal words used in the Conflict condition, but the words relating to socializing were replaced with neutral fillers. Orthogonally,

half the participants then saw two choices that require making tradeoffs (the Album and Theater choices from Experiment 2), while the other half completed an evaluation task that does not require making tradeoffs. In the evaluation task participants were simply asked to rate as many pictures as they wanted before choosing to stop (adapted from Vohs & Heatherton, 2000). Last, all participants were probed for awareness and mood as in the previous experiments.

Results and Discussion

Replicating results of Experiments 1 and 2, Conflict participants were more likely to make choices than Control participants, $M_{conflict}$=86%, SE=3.2% vs. $M_{control}$=75%, SE=4.7%, $F(1,99)=4.0$, $p<.04$ $\eta^2=.04$. However, consistent with our conflict mindset theory, Conflict and Control participants rated a similar number of pictures, $M_{conflict}=14.1$, $SE=1.9$ vs. $M_{control}=12.8$, $SE=2.0$, $F(1,101)=.26$, $p>.61$ $\eta^2=.003$. These results suggest that the benefits of a conflict mindset are specific to facilitating the resolution of choice conflict, and do not reflect a general increase in motivation on any task.

Next, we did not find evidence to support a single goal priming explanation for the change in choice incidence. Instead, Conflict participants were more likely to make a choice than participants in Control and the Single Goal Conditions, $M_{conflict}$=86%, SE=3.2%, $M_{control}$=75%, SE=4.7%, $M_{singlegoal}$=76%, SE=4.6%, $t(154)=-2.04$, $p<.05$, $\eta^2=.03$. As in previous studies, there was no significant difference between conditions on the awareness and mood measures, all ps>.1.

Experiment 4

In Experiment 4 we sought to conceptually replicate our findings using another common choice scenario: preference for an extreme versus a compromise option. The compromise option

is the alternative that has intermediate attribute values relative to the other, more extreme options in a choice set (Simonson 1989). Similar to deferring choice, prior research has shown that selecting the compromise option is a form of conflict avoidance that occurs when avoiding the attribute tradeoffs required to choose between the extreme options (Dhar & Simonson, 2003). Because the conflict mindset results in more systematic processing of the choice information, we hypothesize that a conflict mindset will attenuate the preference for the compromise option, indicating a greater ability to make tradeoffs and resolve conflicts.

Method

One hundred fifty nine adults (47 males, M_{age} = 37.9, SD = 14.3) recruited from an online panel were assigned to either the Conflict (career vs. socialize) or Control condition and primed as in Experiment 1. Participants then chose between three hotels that varied on price and distance to the beach, and between three MacBooks that varied on weight and battery life. The attributes were negatively correlated, such that the alternative most attractive on one attribute was also least attractive on the other attribute (i.e. the extreme options). Participants were asked to choose among the three options. Finally, participants were asked about awareness and mood as in the previous experiments.

Results and Discussion

Our primary dependent measure was the aggregated number of times each participant resolved the choice by selecting an extreme option. A one-way ANOVA revealed that Conflict participants were more likely to choose one of two extreme options than those in the Control condition ($M_{conflict}$=55.1%, SE=3.90% vs. $M_{control}$=41.1%, SE=3.85%), $F(1,157)=6.4$, $p<.02$,

η^2=.039. As in the previous experiments, no differences were found between the Conflict and Control conditions on the awareness or mood measures, all *p*s>.1.

These results provide converging evidence that the conflict mindset increases choice resolution, using a different choice measure.

GENERAL DISCUSSION

The negative consequences of conflict are well understood (Emmons & King, 1988; Shah & Kruglanski, 2002). This paper examines whether conflict can have positive consequences. In four experiments we demonstrated that priming conflicting goals before a decision activates a mindset, or set of cognitive procedures that facilitate conflict resolution on unrelated choice tasks. We further demonstrated that these results occur because participants primed with a conflict mindset spend more time searching for information (Experiment 2), that the effect holds with multiple goal conflicts (Experiment 1) and different choice measures (Experiment 4). We also show that the effect is specific to resolving conflict-orientated tasks, and cannot be explained by mere goal priming or general increase in motivation (Experiment 3).

Implications for choice under conflict

Ample research has shown that conflict can lead to costly choice deferral (Dhar, 1997; Iyengar & Lepper, 2000). This has sometimes been explained by individuals' choice of an emotional coping strategy (Folkman & Lazarus, 1988; Luce et al., 1999), in which they deal with the conflict by fleeing the choice. The current work investigates the effect of a conflict mindset on decision-making, and demonstrates that exposure to conflict can activate a conflict mindset and may have the opposite effect, causing individuals to adopt cognitive procedures that facilitate systematic decision processes and lead to increased choice.

Implications for nonconscious goal pursuit

The first generation of research on nonconscious goal pursuit focused on the pursuit of one goal at a time (Aarts & Custers, 2010; Fishbach & Ferguson, 2007). Recently, it has been suggested that goal conflict can also occur outside conscious awareness, and effect information processing by making it less biased (Kleiman & Hassin, in press). The current work demonstrates that an active conflict in one domain can facilitate resolution of a conflict in a different, unrelated domain.

Taken together the results in the current paper shed light on the role of conflict in facilitating choice. Much attention has been focused on instances where conflict leads to avoiding choice. This work suggests that the traditional view of conflict as causing a paralytic flight from choice may not tell the whole story.

REFERENCES

Anderson, C. (2003). The psychology of doing nothing: Forms of decision avoidance result from reason and emotion. *Psychological Bulletin, 129(1),* 139-166.

Custers, R. & Aarts, H. (2010). The Unconscious Will: How the Pursuit of Goals Operates Outside of Conscious Awareness. *Science, 2*, 47-50.

Baayen, R. H., Davidson, D. J., & Bates, D. M. (2008). Mixed-effects modeling with crossed random effects for subjects and items. *Journal of Memory and Language*, *59*(4), 390-412.

Bargh, J. A., Schwader, K. L., Hailey, S. E., Dyer, R. L., & Boothby, E. J. (2012). Automaticity in social-cognitive processes. Trends in Cognitive Science, 16(12), 593-605

Bettman, J. R., Johnson, E. J., Luce, M. F., & Payne, J. W. (1993). Correlation, conflict, and choice. *Journal of Experimental Psychology: Learning, Memory, and Cognition, 19,* 931-951.

Dhar, R. (1997). Consumer Preference for a No-Choice Option. *Journal of Consumer Research 24(2),* 215-231.

Dhar, R., & Simonson, I. (2003). The effect of forced choice on choice. *Journal of Marketing Research*, 146-160.

Duffy, E. (1962). *Activation and Behavior.* Oxford, England: Wiley.

Emmons, R. & King, L. (1988). Conflict among personal strivings: Immediate and long-term implications for psychological and physical well-being. *Journal of Personal and Social Psychology, 54(6),* 1040-1048.

Fishbach, A. & Ferguson, M. (2007). The goal construct in social psychology. In A. Kruglanski & T. Higgins, *Social psychology: Handbook of basic principles* (2nd ed.). (pp. 490-515). New York, NY: Guliford Press.

Folkman, S. & Lazarus, R. (1988). Coping as a mediator of emotion. *Journal of Personality and Social Psychology, 54(3),* 466-475.

Galinsky, A. & Moskowitz, G. (2000). Perspective-taking: Decreasing stereotype expression, stereotype accessibility, and in-group favoritism. *Journal of Personality and Social Psychology*, 78(4). 708-724.

Greene, J.D., Sommerville, R.B., Nystrom, L.E., Darley, J.M., & Cohen, J.D. (2001). An fMRI investigation of emotional engagement in moral judgment. Science, Vol. 293, Sept. 14, 2001, 2105-2108.

Iyengar, S. & Lepper, M. (2000). When Choice is Demotivating: Can one desire too much of a good thing? *Journal of Personality and Social Psychology*, 79(6), 995-1006.

Jaeger, T. F. (2008). Categorical data analysis: Away from ANOVAs (transformation or not) and towards logit mixed models. *Journal of Memory and Language*, 59(4), 434-446.

Janis, I. & Mann, L. (1977). *Decision making: A psychological analysis of conflict, choice, and commitment*. New York, NY: Free Press.

Johnson, E. J., Payne, J. W., Schkade, D.A., & Bettman, J. R. (1986). *Monitoring information processing and decisions: The mouselab system.* Unpublished manuscript, Center for Decision Studies, Fuqua School of Business, Duke University.

Kleiman, T. & Hassin, R.R. (2011). Non-conscious goal conflicts. *Journal of Experimental Social Psychology, 47(3)*, 521-532.

Kleiman, T. & Hassin, R.R. (in press). When Conflicts Are Good: Non-conscious Goal Conflicts Reduce Confirmatory Thinking. *Journal of Personality and Social Psychology.*

Lazarus, R. (1993). Coping theory and research: Past, present, and future. *Psychosomatic Medicine, 55(3),* 234-247.

Luce, M. F. (1998). Choosing to avoid: Coping with negatively emotion laden consumer decisions. *Journal of Consumer Research, 24,* 409–433

Luce, M. F. , Bettman, J. R. , & Payne, J. W. (1999). Emotional trade-off difficulty and choice. *Journal of Marketing Research, 36*, 143–159.

Mussweiler, T. (2002). The malleability of anchoring effects. *Experimental Psychology, 49(1),* 67-72.

Nichols, A., & Schaffer, M. (2007). Clustered errors in Stata. In *United Kingdom Stata Users' Group Meeting*.

Preacher, K. & Hayes, A. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods, 40(3),* 879-891.

Simonson, I. (1989). Choice based on reasons: The case of attraction and compromise effects. *Journal of Consumer Research*, *16*(September), 158-174.

Shah, J. & Kruglanski, A. (2002). Priming against your will: How accessible alternatives affect goal pursuit. *Journal of Experimental Social Psychology, 38(4),* 368-383.

Tversky, A. & Shafir, E. (1992). Decision under conflict: An analysis of choice aversion. *Psychological Science, 6,* 358-361.

Vohs, K. D., & Heatherton, T. F. (2000). Self-regulatory failure: A resource-depletion approach. *Psychological Science*, 11(3), 249-254.

Xu, A. & Wyer, R. Jr. (2008). The comparative mind-set: From animal comparisons to increased purchase intentions. *Psychological Science*, 19(9), 859-864.