Does Recalibration Foster Subsequent Deliberation?

Russell H. Fazio[1] Javier A. Granados Samayoa[1] Evava S. Pietri[2]

An interesting question has arisen regarding the mechanism by which recalibration has exerted the effects we have observed in many experiments involving a variety of judgments. It has been suggested that recalibration may prompt individuals to deliberate more extensively, not only during the actual recalibration exercise, but also with respect to any judgments that individuals are asked to make subsequently. Greater deliberation during recalibration itself is an expected consequence of receiving feedback regarding the accuracy of one's responses. The question under consideration is whether recalibration results in a motivational tendency to deliberate more extensively when making subsequent judgments. Such a possibility has never struck us as very plausible, in no small part because the judgmental tasks we have employed are so different in content than the BeanFest recalibration task (see Fazio, Pietri, Rocklage, & Shook, 2015, for a review). After having deliberated more extensively during recalibration on the basis of the feedback that individuals receive about the bean stimuli, why would they continue to deliberate extensively regarding entirely new judgments typically presented as a new task? Moreover, some experiments have observed effects one to two weeks following recalibration (Rocklage, Pietri, & Fazio, 2015; Pietri & Fazio, 2017). It seems unlikely that enhanced motivation to deliberate would persist across such a time interval.

Nevertheless, we decided to examine this question more directly by considering the extent to which participants deliberate -- the time they take to make decisions -- both during recalibration and in a subsequent task. If our skepticism regarding any persistent effect of recalibration on deliberation tendencies is warranted, then latencies on a subsequent task will not differ between the recalibration and control conditions. However, latencies during the actual recalibration exercise should differ, with those in the recalibration condition responding more slowly as they consider the stimuli in relation to the feedback they have been receiving. The latter prediction was examined using a large dataset that was aggregated across multiple recalibration experiments. The aggregated sample consisted of 477 participants who had made judgments of either 124 or 125 beans during the test phase of the recalibration experiment. For 302 participants, the trials consisted of 25 game or *training* beans as they are labelled below and 100 *novel* beans; for the other 175, 20 training beans were presented during the test phase and 104 novel beans. The control condition consisted of a total sample of 220 participants; they received no feedback during the test phase. The recalibration condition involved 257 participants who received feedback about the correctness of their responses on each trial of the test phase. This aggregated data set provided the opportunity to examine how participants' response latencies during the test phase vary as a function of recalibration versus control condition, training versus novel trials, and the trial order.

A unique opportunity to examine whether recalibration affects deliberation on a subsequent task (one involving no corrective feedback) is provided by Experiment 1 of Pietri, Fazio, & Shook (2013). This experiment aimed to examine whether recalibrating participants through the BeanFest paradigm would result in their weighting positive and negative information more equally when generalizing their attitudes towards other, non-bean, novel objects. That is, would recalibration affect subsequent

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[1] Ohio State University
[2] Indiana University Purdue University Indianapolis

judgments of visual stimuli other than the beans employed in BeanFest? Participants had been randomly assigned to either a recalibration (*n*= 38) or control condition (*n*=40) involving the usual BeanFest stimuli. Immediately thereafter, participants were introduced to a second game called DonutFest. Through handouts they were asked to study and an initial classification phase, they learned that two types of donuts were good and another two types were bad. The critical test phase then occurred. It involved not only the presentation of the 40 training stimuli, but also 76 trials in which novel donuts were presented. The latencies from this DonutFest test phase allow us to examine whether participants who had undergone recalibration deliberate more extensively regarding judgments in a subsequent task. In other words, the latency data can address whether any deliberative mindset that is evoked during the BeanFest recalibration exercise persists, affecting judgment times in a subsequent unrelated task.

Latencies During BeanFest

Let's first examine the latency data from the BeanFest test trials of the large, aggregated sample. Following standard practice, the latencies (in milliseconds) were log transformed so as reduce the skewness of the distributions. These data then were analyzed via a multilevel model involving Condition (effects coded as -1 and +1 for control and recalibration, respectively), Type of Bean (effects coded as -1 and +1 for training and novel stimuli, respectively), and Order (the trial number). The three variables and their interactions were treated as fixed effects. The model specified random intercepts and random slopes for the Type and Order variables across participants.

The fixed effects from the model are shown below.

Estimates of Fixed Effects

Parameter	Estimate	Std. Error	df	t	Sig.
Intercept	3.115990	.006668	532.430	467.337	.000
Condition	.029605	.006668	532.430	4.440	.000
Type	.073376	.002758	3640.756	26.601	.000
Order	-.000520	7.803297E-5	643.714	-6.666	.000
Condition * Order	.000297	7.803297E-5	643.714	3.811	.000
Condition * Type	-.001301	.002758	3640.756	-.472	.637
Type * Order	-.000192	3.913468E-5	58284.518	-4.900	.000
Condition * Type * Order	4.852820E-5	3.913468E-5	58284.518	1.240	.215

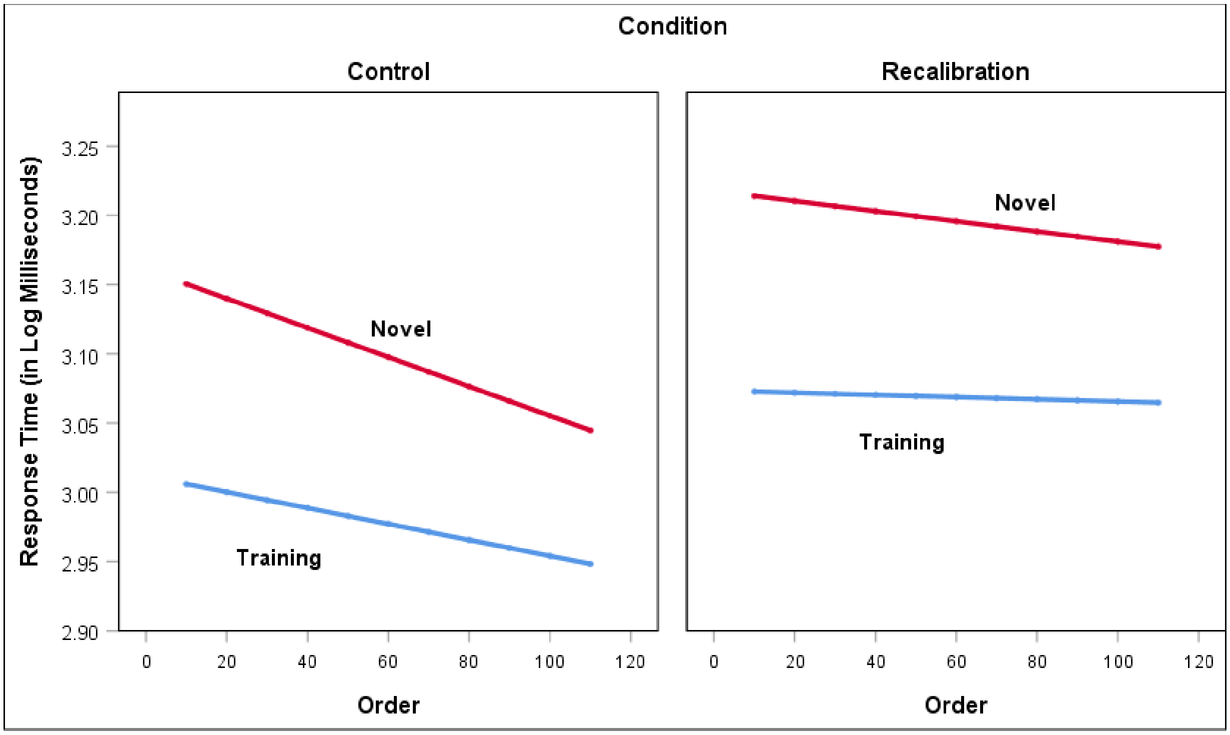

Figure 1. Response latencies as a function of Condition, Stimulus Type, and Trial Order.
Importantly, a number of expected effects are evident, and are illustrated in Figure 1 above. The type of bean mattered substantially. Participants were appreciably slower responding to the novel beans than the original training stimuli. Moreover, they responded faster as the trials progressed, although this was more evident for the training stimuli than the novel stimuli (as indicated by the significant Type by Order interaction). However, most relevant to the present issues, both a main effect of Condition and a Condition by Order interaction emerged. Participants in the recalibration condition responded more slowly than the control participants, and their speed improved less as the trials progressed. Given that the recalibration participants were receiving feedback about the correctness of their responses, these effects are just as one would expect. The feedback led recalibration participants to deliberate more extensively.

Latencies During DonutFest

We now can turn to the critical data from Pietri et al. (2013). These are the latencies with which participants responded to the training and novel stimuli during the DonutFest test phase. Importantly, this outcome measure was identical for all participants. However, some had undergone recalibration via BeanFest immediately prior to DonutFest, whereas others had not.

Once again, the latencies (in milliseconds) were log transformed so as reduce the skewness of the distributions. These data then were analyzed via a multilevel model parallel to that detailed above: Condition (effects coded as -1 and +1 for control and recalibration, respectively), Type of Donut (effects coded as -1 and +1 for training and novel stimuli, respectively), and Order (the trial number). As before, the three variables and their interactions were treated as fixed effects, and the model specified random intercepts and random slopes for the Type and Order variables across participants.

The fixed effects from the model are shown below.

Estimates of Fixed Effects

Parameter	Estimate	Std. Error	df	t	Sig.
Intercept	3.116878	.013778	78.793	226.225	.000
Condition	-.007187	.013778	78.793	-.522	.603
Type	.046040	.005858	459.358	7.859	.000
Order	-.001069	.000157	86.889	-6.805	.000
Condition * Order	.000136	.000157	86.889	.863	.391
Condition * Type	.000394	.005858	459.358	.067	.946
Type * Order	-.000113	8.248406E-5	8874.939	-1.370	.171
Condition * Type * Order	8.347983E-5	8.248406E-5	8874.939	1.012	.312

Just as one would expect, the multilevel model revealed highly significant effects of both Stimulus Type and Order. As illustrated in Figure 2 below, participants responded more slowly to the novel donuts than to the training stimuli they had earlier mastered. In addition, participants responded more quickly as the trials progressed. No other effects were evident. Most importantly, there were NO effects of condition.

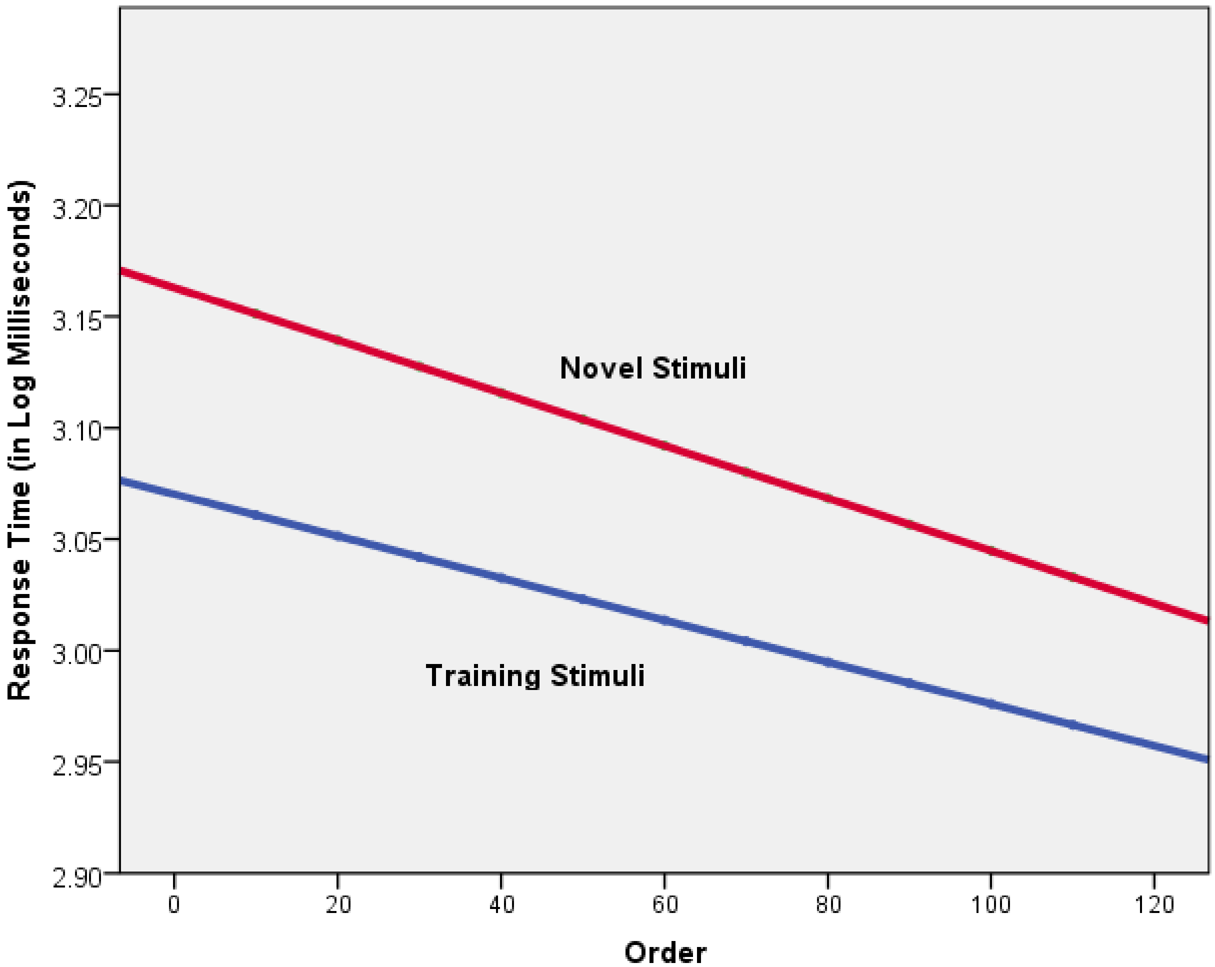

Figure 2. Response latencies as a function of Stimulus Type and Trial Order.

Conclusion

The data offer no support for the speculation that recalibration induces individuals to adopt a more deliberative mindset when making subsequent judgments. Despite the clear evidence that the response latencies during DonutFest were sufficiently sensitive to reveal the expected effects of stimulus type and trial order, no effect of condition emerged. Participants who had earlier undergone recalibration responded just as quickly as those in the control condition. Thus, the findings strongly suggest that the effects of recalibration that have been observed on subsequent judgments in numerous past experiments cannot be attributed to the recalibration exercise having induced a persistent motivation to deliberate.

References

Fazio, R. H., Pietri, E. S., Rocklage, M. D., & Shook, N. J. (2015). Positive versus negative valence: Asymmetries in attitude formation and generalization as fundamental individual differences. In J. M. Olson & M. P. Zanna (Eds.), *Advances in Experimental Social Psychology* (Vol. 51, pp. 97-146). Burlington: Academic Press.

Pietri, E. S., & Fazio, R. H. (2017). Recalibrating valence weighting biases to promote changes in rejection sensitivity and risk-taking. *Journal of Experimental Social Psychology*, *68*, 1-10.

Pietri, E. S., Fazio, R. H., & Shook, N. J. (2013). Recalibrating positive and negative weighting tendencies in attitude generalization. *Journal of Experimental Social Psychology*, *49*, 1100-1113.

Rocklage, M. D., Pietri, E. S., & Fazio, R. H. (2017). The weighting of positive vs. negative valence and its impact on the formation of social relationships. *Journal of Experimental Social* Psychology, *73*, 65-75.