

Will You Train Harder for the Next Marathon? The Effect of Counterfactual and Prefactual Thinking on Marathon Runners' Intentions.

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Abstract

According to the literature, imagining how things would have been better in the past (counterfactual thinking) serves to prepare for future, highlighting prescriptions that can be converted in future intentions and in a more appropriate behavior. This view implicitly assumes that people think about controllable elements in their counterfactual thoughts and that the content of imaginary thoughts about the past and the future is the same. However, some studies (Ferrante, Giroto, Stragà, & Walsh, 2013) found a temporal asymmetry between past and future hypothetical thinking: thinking about how a failure could be a success in the future (prefactual thinking) elicit more controllable elements than thinking about how the same failure could have been a success in the past. In the present study, we replicated and extended previous findings in a more ecological setting. Athletes who have just run a marathon were asked to generate counterfactual or prefactual thoughts. The results showed the same temporal asymmetry found in Ferrante et al. (2013). In addition, we found that focusing on training, instead of focusing on other elements, resulted in a greater intention to train harder for the next marathon in the prefactual condition, but not in the counterfactual condition. Taken together, these findings question the postulated preparatory function of counterfactual thinking.

Keywords: Counterfactual thinking; Prefactual thinking; Preparatory function; Prediction; Intention.

Introduction

Imagining how things could have been different in the past (counterfactual thinking) and how things could be different in the future (prefactual thinking) are two fundamental abilities of human being. Whereas prefactual thinking has gained the researchers' attention quite recently, a larger body of literature has studied counterfactual thinking. Research showed that people are more likely to generate counterfactual thoughts after negative than after positive events (Roese & Hur, 1997), to imagine better alternatives to reality (i.e., upward counterfactuals; Roese & Olson, 1997), and to imagine what they could have done differently to obtain a better outcome (Giroto, Legrenzi, & Rizzo, 1991; Markman, Gavanski, Sherman, & McMullen, 1993). Given these findings, the main postulated function of counterfactual thinking is to prepare the individual for the future (for a review see Epstude & Roese, 2008): the prescriptions included in counterfactual thoughts can be turned into behavioral intentions and, as a consequence, in a more appropriate behavior in similar future occasions.

Nevertheless, some studies provided contrasting evidence regarding the frequency of controllable prescriptions in

counterfactual thinking (Ferrante, Giroto, Stragà, & Walsh, 2013; Giroto, Ferrante, Pighin, & Gonzalez, 2007; Pighin, Byrne, Ferrante, Gonzalez, & Giroto, 2011). Giroto and colleagues (2007) found that, whereas readers of a story tended to modify, in their counterfactual thoughts, elements that were under the control of the protagonist (in line with the literature), participants who actually experienced a failure tended to modify elements that constrained their past attempt, such as the rules of the task (i.e., uncontrollable elements). Subsequent studies showed that thinking about how a failure could have been a success results in significantly less controllable modifications than thinking about how the same failure could be a success in the future (Ferrante et al., 2013). These results questioned the postulated preparatory function of counterfactual thinking: if counterfactual thinking serves to provide elements useful for future improvement, imagining a better past should be similar to imagining a better future.

In the present study we aimed to replicate and extend previous results in a more ecological setting. In previous studies (Giroto et al., 2007; Ferrante et al., 2013), participants were presented with a given task twice (e.g. syllogism, scramble word quizzies), generating prefactual or counterfactual thoughts between the two trials of the tasks. But a potential drawback of this paradigm is that people were asked to solve a task for which they were not prepared and possibly perceived as trivial. In ecological situations, in which involved participants are prepared to face the event, controllable elements could be more available.

We chose to analyze counterfactual and prefactual thoughts of athletes who have just run a marathon. In such a setting, participants are very involved and trained, and controllable modifications, such as the extent of their training, should be more available. However, our previous results (Ferrante et al., 2013) showed a temporally asymmetry in hypothetical thinking and seem to support a preparatory function only for prefactual thoughts. In order to provide more evidence on this issue, we asked participants to report their intention to train harder in the future. If counterfactual thinking has a preparatory function, counterfactual statements should be converted in behavioural intentions (Epstude & Roese, 2008, Smallman & Roese, 2009), and participants who think about training in their counterfactuals should report a greater intention to train harder in the future.

In the present experiment we collected information on participants expertise as runners and on the actual marathon. Then, we asked them to generate counterfactual or

prefactual thoughts. Given that previous studies (Stragà, 2014) showed that participants who generated controllable counterfactuals tended to be more confident in a future improvement, we asked participants to make some improvement predictions. Finally, we asked them to report their intention to train harder for the next marathon.

Method

Participants

Seventy-four athletes (Male = 86%, $M_{age} = 46.00$, $SD_{age} = 10.80$) participated in the experiment. Participants were recruited right after running a marathon (“Maratona Sant’Antonio” in Padova or “Maratona d’Europa” in Trieste).

Procedure

Participants were randomly assigned to counterfactual or prefactual condition, and they were asked to fill in a questionnaire. First, participants were asked to indicate some general information, information on their expertise as runners and their finishing time in the actual marathon. Then, we asked participants to evaluate their performance and to rate their satisfaction with their performance.

Next, according to the condition, participants completed the sentence “*The marathon would have been better for me, if...*” (counterfactual condition, $n = 39$) or the sentence “*Next marathon will be better for me, if...*” (prefactual condition, $n = 35$). After completing the sentence, only participants who expressed their willingness to run other marathons in the future completed the next part. After reporting when they would run the next marathon, they rated the likelihood of obtaining a better results in the next marathon and they estimated their finishing time. Finally, they reported their intention to training harder for the next marathon.

Coding of the open-ended responses: Following Ferrante and colleagues (2013), responses to the counterfactual/prefactual statements were coded as controllable or uncontrollable. In particular, we coded as controllable all the elements that participants can control and change before or during the next marathon, that is: amount of training, effort, race strategies (e.g., speed variations during the race) and controllable physical conditions (e.g., rest, feeding). We coded as uncontrollable elements that referred to external conditions (e.g., weather, route) and uncontrollable physical problems (e.g., pain, injury).

Results

Preliminary analysis

Seven participants reported general comments instead of actual counterfactual or prefactual thoughts, so they were removed from the analysis, leaving 67 participants. There was no difference between conditions in pre-manipulation measures. These measures did not have a relevant impact on

our focal measures, so we did not report them in the subsequent results.

Content of thoughts

As regarding the content of thoughts, in line with previous studies (Ferrante et al., 2013) prefactual thinking elicited significantly more controllable modifications than counterfactual thinking (85% vs. 62%, respectively). Nevertheless, controllable modifications in counterfactual thinking reached 62%. Looking more deeply into the elements that participants changed, the majority of controllable modifications in counterfactual thinking referred to training.

Predictions and intention

Two participants reported that they did not intend to run other marathons and four participants wrote that their predictions referred to other type of races instead of a typical marathon, so we did not consider these participants in the subsequent analysis.

As regards the improvement prediction, in line with previous findings (Stragà, 2014), results showed that participants who generated controllable modifications were more confident in a future improvement than participants who generated uncontrollable modifications. No other effect was found.

We computed the amount of improvement expected by participants subtracting the time spent in the actual marathon from the expected time in the next marathon. The results showed only a marginally significant interaction between content and condition, but pairwise comparisons showed no significant effects.

As regards the intention to train harder in the future, we recoded participants generated thoughts as “training” or “not training” modifications. In this way, we checked if the counterfactual/prefactual thoughts that modified the amount of training were transformed in behavioral intentions. Results showed that that, whereas in the prefactual condition participants who modified the amount of training in their thoughts actually intended to train harder than participants who modified other elements, in counterfactual condition this effect was not found.

Discussion

In present study, we replicated previous findings (Ferrante et al., 2013, Stragà, 2014) in a more ecological setting and extended our understanding of the effect of counterfactual and prefactual thinking. Three main results were found. First, prefactual thinking elicited significantly more controllable modifications than counterfactual thinking, replicating the results of Ferrante et al. (2013). Second, after generating a controllable counterfactual or prefactual thought as opposed to an uncontrollable one, participants were more confident in future improvement (in line with Stragà, 2014), even if no effect was found when they estimated the amount of their improvement. Finally, the present experiment showed a new interesting result:

generating counterfactual thoughts referred to training, instead of other factors, did not increase the intention to train harder in the future. Conversely, prefactual thoughts that focused on training resulted in a greater intention to train harder in the future than prefactual thoughts that focused on other elements. This finding strongly questions the preparatory function assigned to counterfactual thinking (Epstude & Roese, 2008): if counterfactual thoughts are useful for future improvement and they are converted in behavioral future intentions, a counterfactual that modifies the amount of training (e.g., “The marathon would have been better for me if I trained harder”) should result in greater intention to train harder for the next marathon, as happened in prefactual condition. If the primary function of counterfactual thinking is not to prepare for the future, we can only speculate about its possible role. Our data can be in line with a sense-making function: counterfactual thinking could serve to explain the past and to find relevant factors that prevented a better outcome. However, the question is still open.

Moreover, in this setting we found an increase of controllable counterfactuals with respect to previous studies, mainly due to the training modifications, even if they did not affect the intention to train harder. Given these results, in the future studies we aim to replicate the training effect on intention in laboratory, manipulating the training availability before and after the task. In summary, this experiment supports our previous findings in a very different context, showing the robustness of our results, and brings new light to the effect of hypothetical thinking on intentions. The exploration of this effect is necessary for achieving a deeper understanding of the mechanisms underpinning counterfactual thinking.

References

- Epstude, K., & Roese, N. J. (2008). The functional theory of counterfactual thinking. *Personality and Social Psychology Review, 12*, 168-192.
- Ferrante, D., Giroto, V., Stragà, M., & Walsh, C. (2013). Improving the past and the future: A temporal asymmetry in hypothetical thinking. *Journal of Experimental Psychology: General, 142*, 23-27.
- Roese, N. J., & Hur, T. (1997). Affective determinants of counterfactual thinking. *Social Cognition, 15*, 274-290.
- Roese, N. J., & Olson, J. M. (1997). Counterfactual thinking: The intersection of affect and function. In M. P. Zanna, (Ed.), *Advances in experimental social psychology* (Vol. 29, pp. 1-59). San Diego, CA: Academic Press.
- Markman, K. D., Gavanski, I., Sherman, S. J., & McMullen, M. N. (1993). The mental simulation of better and worse possible worlds. *Journal of Experimental Social Psychology, 29*, 87-109.
- Giroto, V., Ferrante, D., Pighin, S., & Gonzalez, M. (2007). Postdecisional counterfactual thinking by actors and readers. *Psychological Science, 18*, 510-515.
- Giroto, V., Legrenzi, P., & Rizzo, A. (1991). Event controllability in counterfactual thinking. *Acta Psychologica, 78*, 111-133.
- Pighin, S., Byrne, R. M., Ferrante, D., Gonzalez, M., & Giroto, V. (2011). Counterfactual thoughts about experienced, observed, and narrated events. *Thinking & Reasoning, 17*, 197-211.
- Smallman, R., & Roese, N. J. (2009). Counterfactual thinking facilitates behavioral intentions. *Journal of experimental social psychology, 45*, 845-852.
- Stragà, M. (2014). *Il passato che crea il futuro: l'influenza dell'esperienza vissuta sulla formazione di previsioni e intenzioni*. Doctoral dissertation, Department of Life Sciences, University of Trieste.