

Counterfactual Thinking in Autobiographical Memory: The Direction and Function Analysis



Zeynep Adıgüzel & Sami Gülgöz
Department of Psychology, Koç University, Turkey



KEY POINTS

People based their strategies in hypothetical situations on previous most alike memories

Trade-off between what really happened and what could have happened

INTRODUCTION

- Counterfactual thinking is constructing mental representations about the past in which things might have occurred differently (Cheung et al. 2017).
- Has affective consequences (De Brigard et al., 2013)
- Upward Counterfactual Thinking: «What could have been better»
 - The negative emotion associated with not having the desired outcome is heightened (Markmen et al., 1993).
- Downward Counterfactual Thinking: «What could have been worse»
 - Thinking possible outcomes that would have turned out worse than reality can improve affect and enhance mood (Markmen et al., 1993).
- Little is known about affective antecedents.
- The directive function of autobiographical memory : It aids us in solving problems in the present and predicting future events (Baddeley, 1987), by providing flexibility to comprehend the past and to predict future outcomes (Lockhart, 1989).
- The purpose of the current study was to study the frequency that people use past events to determine future actions and how counterfactuals are used.

METHOD

Participants

- 83 participants (15 M; 67 F; 1 N/A) with an age range of 18-87 years old (M=23.41, SD=10.58)

Procedure

- They completed an online survey via Qualtrics
- Presented with 4 (2 positive and 2 negative) hypothetical scenarios in randomized order
- They were asked to
 - write what they would do in these scenarios
 - rate the likelihood of experiencing them,
 - report their most similar memories to the scenarios and
 - a counterfactual situation to their memories.

Coding

- Memory and Scenario-completion valence:** 5-point Likert Scale (1: very negative, 5: very positive).
- Strategy similarity:** Compared the strategy used both in memories and scenarios (1=low, 3=high similarity)
- Direction of counterfactuals:** Compared the change from memories to counterfactuals (downward, neutral, upward).
- Each was coded by 2 independent raters (Consistency was at least 80%). All discrepancies resolved by discussion.

RESULTS

Differences between scenarios

We found responses to scenarios to be very different from each other in terms of most measures. Based on the results, we conducted scenario-based analyses.

Strategy Similarity

	Scenario			
	Exam	Transportation	Benevolence	Meeting
Low	11.1%	9.9%	0%	33.3%
Medium	6.3%	5.6%	3.6%	11.1%
High	82.5%	84.5%	96.4%	55.6%

Table 1
Strategy Similarity Across Conditions

- In all conditions (M=2.71, SD=.66; M=2.75, SD=.63; M=2.96, SD=.19; M=2.23, SD=.93), the strategy similarity between hypothetical scenarios and the most alike autobiographical memories was significantly higher than low similarity (1) (t(62)=20.67, p<.05; t(70)=23.51, p<.05; t(54)=77.09, p<.05; t(35)=7.89, p<.05, respectively).

Direction of Counterfactual Thinking

	Scenario			
	Exam	Transportation	Benevolence	Meeting
Downward	69.4%	65.7%	81.5%	52.8%
Neutral	19.4%	27.1%	18.5%	19.4%
Upward	11.3%	7.1%	0%	27.8%

Table 2
Direction of Counterfactuals Thinking Across Conditions

- In exam condition, one-way ANOVA revealed that memory valence was associated with direction of counterfactual thinking, (F(2, 59)=18.34, p<.05). Tukey test revealed that participants who had more positive memory valence (M=3.65, SD=.96) generated downward counterfactual thinking, whereas participants who had more negative memory valence (M=2.07, SD=.61) generated upward counterfactual thinking or remained neutral (M=2.08, SD=1.02). In the other conditions, the relationship was not significant.

- In exam condition, one-way ANOVA revealed that scenario-completion valence was associated with direction of counterfactual thinking (F(2, 59)=6.68, p<.05). Tukey test showed that participants who responded to the scenario negatively (M=2.78, SD=.86) generated upward counterfactual thinking, whereas participants who responded positively to the scenario (M=3.51, SD=.52) generated downward counterfactual. Participants who responded with neutral ends (M=2.87, SD=.98) generated both downward and upward counterfactual thinking.
- There was no relationship between likelihood of scenarios and direction of counterfactuals in all conditions.

DISCUSSION

Strategy Similarity

- People based their strategies in hypothetical situations on previous similar memories, emphasizing role of autobiographical memory in strategy setting and problem-solving abilities.

Direction of Counterfactual Thinking

- Affective content of the memory may make a difference in determining the direction of CF.
- People always generated the worse alternative, even in initially positive scenarios, which might be due to imagining an alternative when things are better is only the worse.
- After more positive memories, people generated downward counterfactual thinking. However, after neutral or more negative memories, people generated upward counterfactual thinking. This can be likened to an emotion regulation mechanism.
- When people negatively responded to the scenario, they generated upward counterfactual thinking. When people positively responded to the scenario, they generated downward counterfactual thinking. However, when they ended the scenarios in a neutral way, they generated both.
- Overall, there is a similar opposite pattern in terms affect before and after generating counterfactual thoughts.
- We found a trade-off pattern between what really happened and what could have happened.

CONTACT

Zeynep Adıgüzel
zadiguzel13@ku.edu.tr