



When ‘Almost’ Becomes Memory: A Conceptual Model of Near-Miss Experiences, Counterfactual Simulation, and Memory Reconstruction

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Abstract

Near-miss experiences occur when an actual outcome appears to have been very close to an alternative outcome. Missing an examination pass mark by one point, narrowly losing a competition, or avoiding an accident by a small margin can produce thoughts about what might have happened if one detail had been different. Such thoughts represent forms of counterfactual thinking. Counterfactual thinking enables individuals to construct alternative versions of past events and can support learning, planning, emotional regulation, and decision-making. However, repeated counterfactual simulation may also interact with the reconstructive processes involved in remembering. Research on episodic counterfactual thinking suggests that imagining alternative versions of personal experiences recruits cognitive and neural processes that overlap with those involved in episodic memory and future-oriented mental simulation. This conceptual paper develops a framework connecting four processes: near-miss experience, counterfactual simulation, repeated mental rehearsal, and memory reconstruction. It introduces the term “phantom outcome” to describe an imagined alternative outcome that did not occur but becomes psychologically vivid and increasingly accessible through repeated simulation. The term is proposed as a conceptual construct and is not presented as an established form of false memory. The central proposition is that near-miss experiences may increase the accessibility and emotional significance of counterfactual alternatives. When such alternatives are repeatedly simulated, they may become increasingly available during later remembering. Through constructive memory processes and source-monitoring mechanisms, counterfactual information may subsequently influence the interpretation, elaboration, or reconstruction of the original event. This framework does not assume that imagined alternatives inevitably become false memories. Rather than proposing a participant-based survey, the present paper uses existing theoretical and neuroscientific literature to develop a conceptual model and identify mechanisms that can be examined experimentally in future research. The framework has potential relevance to cognitive psychology, memory science, education, sports psychology, accident research, decision-making, and gambling research.

Keywords: Near-Miss Experiences; Counterfactual Thinking; Episodic Counterfactual Thinking; Mental Simulation; Memory Reconstruction; Source Monitoring; Episodic Memory; Memory Reconsolidation; Regret; Phantom Outcome.

1. Introduction

Human beings remember what happened, but they also think about what could have happened.

A student who receives 49 marks when 50 marks are required to pass may think:

“If I had remembered one more answer, I would have passed.”

A person who misses a train by a few seconds may think:

“If I had left home earlier, I would have caught it.”

An athlete who loses a match by one point may think:

“If I had made that final move differently, I could have won.”

In each case, the alternative event did not occur. Nevertheless, the mind can construct it as a realistic possibility.

This ability is generally referred to as counterfactual thinking. Counterfactual thinking involves mentally representing alternatives to events that have already occurred. It allows people to compare actual outcomes with possible alternatives and can influence emotion, learning, judgment, and future behaviour (Roese, 1997; Byrne, 2016).

Near-miss experiences are particularly relevant because they create a strong perception that an alternative outcome was close to occurring. A clear failure may simply be interpreted as failure. A near-miss can instead produce the experience:

“I almost succeeded.”

The psychological distinction between “I failed” and “I almost succeeded” is important because the second interpretation contains an accessible alternative outcome.

Research on gambling near-misses demonstrates that objectively similar outcomes can produce different psychological and behavioural responses depending on their relationship to an imagined alternative outcome. Clark et al. (2009), for example, demonstrated that gambling near-misses can enhance motivation to continue gambling and recruit brain circuitry associated with winning.

At the same time, memory is not a literal recording of experience. Remembering involves reconstruction. Information from the original experience can interact with later knowledge, expectations, emotions, interpretations, and subsequently generated information.

This creates an important theoretical question: When an alternative outcome is repeatedly imagined following a near-miss, can the imagined alternative influence the subsequent reconstruction of the original event?

The present paper does not claim that imagined events automatically become memories. Instead, it proposes that repeated counterfactual simulation may interact with normal reconstructive memory mechanisms.

The paper therefore integrates several research domains:

- Near-miss experiences
- Counterfactual thinking
- Episodic counterfactual simulation

- Constructive memory
- Source monitoring
- Repeated mental simulation
- Memory reconsolidation

On the basis of these literatures, the paper proposes the Phantom Outcome Model.

2. Conceptual Background

2.1 Near-Miss Experiences

A near-miss can be conceptualized as an actual outcome that is perceived as being psychologically close to an alternative outcome.

Examples include:

- Failing an examination by one mark
- Missing a bus immediately before it departs
- Losing a sporting competition by a very small margin
- Narrowly avoiding an accident
- Reaching the final stage of a job-selection process but not receiving the position
- Nearly achieving a gambling win

The defining characteristic is therefore not simply negative outcome valence. Rather, it is the perceived closeness between the actual outcome and a salient alternative.

Teigen (1996) demonstrated that judgments of luck can depend on the perceived closeness of alternative outcomes. This suggests that near outcomes can influence emotional interpretation even when the objective outcome remains unchanged.

A simplified representation is:

Actual outcome → perceived alternative → comparison → emotional response

The greater the perceived closeness and plausibility of the alternative, the greater its potential psychological accessibility.

2.2 Counterfactual Thinking

Counterfactual thinking refers to mentally representing alternatives to events that actually occurred.

For example:

“If I had studied more, I might have passed.”

The factual component is:

I did not pass.

The counterfactual component is:

If something had been different, I might have passed.

Counterfactual thinking can serve several adaptive functions. It may help individuals:

- Identify causes of outcomes
- Learn from mistakes
- Plan future behaviour
- Regulate emotional responses

- Evaluate decisions
- Assign responsibility
- Prepare for similar situations

Counterfactual thinking should therefore not be considered inherently maladaptive. Its consequences may depend on its direction, content, controllability, emotional intensity, and repetition.

2.3 Episodic Counterfactual Simulation

Counterfactual thinking can range from a brief verbal thought to a detailed simulation of an alternative episode.

For example, an individual may not simply think:

“I could have won.”

Instead, the individual may construct a detailed alternative:

“I would have moved to the left, passed the ball, scored, and then the team would have celebrated.”

This represents episodic counterfactual simulation.

De Brigard et al. (2013) examined the neural basis of episodic counterfactual thinking and identified substantial overlap between neural systems involved in remembering personal experiences and constructing alternative versions of those experiences.

This overlap is theoretically important because it suggests that remembering an actual event and constructing an alternative version of that event involve related constructive processes.

3. Near-Misses as Triggers of Counterfactual Thinking

Near-miss experiences can be conceptualized as psychological bridges between reality and possibility.

Consider two examination outcomes:

Student A: 20/100 — Fail

Student B: 49/100 — Fail

Objectively, both students fail. Psychologically, however, Student B has a highly accessible alternative:

49 → 50 → Pass

This may facilitate an upward counterfactual:

“If I had answered one more question correctly, I would have passed.”

Similar processes may occur in sport, employment, accidents, relationships, and everyday decisions.

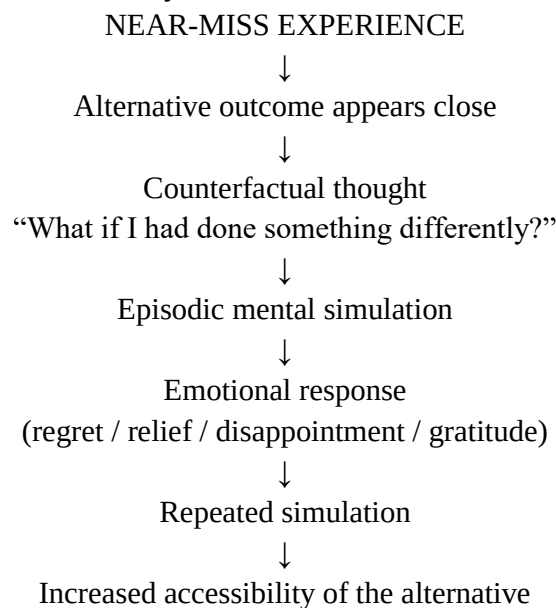
Near-misses therefore provide a particularly strong context for counterfactual generation because the alternative outcome is not completely hypothetical. It is perceived as being close to the actual outcome.

Research on gambling near-misses provides empirical support for the relationship between near-miss outcomes and counterfactual processing. Clark et al. (2009) found that near-miss outcomes can influence motivational responses and engage neural circuitry associated with winning.

However, evidence that near-misses generate counterfactual responses does not establish that counterfactual simulation subsequently changes memory.

That distinction is central to the present framework.

Figure 1. Conceptual Pathway from Near-Miss to Counterfactual Simulation



Note: This represents a conceptual framework rather than an established causal pathway.

4. Memory as a Constructive Process

4.1 Memory Reconstruction

Memory is not a perfect recording system.

When an event is remembered, stored information is reconstructed using information available during retrieval. Consequently, later remembering may reflect interactions between:

- The original experience
- Later knowledge
- Emotional responses
- Subsequent conversations
- Expectations
- Interpretations
- Imagined alternatives

This does not imply that memory is universally inaccurate. Rather, it indicates that remembering involves active reconstruction.

Bartlett (1932) demonstrated the reconstructive nature of remembering, while Schacter (1999, 2001) subsequently emphasized that memory errors and distortions can arise from the constructive processes involved in retrieval.

This theoretical perspective provides a basis for considering whether repeated counterfactual simulation can become relevant to later remembering.

4.2 Source Monitoring

An important component of memory reconstruction is source monitoring.

Source monitoring involves determining where a remembered piece of information originated.

For example:

“Did I experience this?”

or

“Did I imagine this?”

or

“Did someone tell me this?”

Johnson et al. (1993) proposed that memories contain characteristics that can assist source judgments. However, source discrimination can become difficult when information from different sources shares similar perceptual, contextual, or emotional characteristics.

Counterfactual simulation may create precisely such overlap.

Consider a near-accident.

Actual event:

“The vehicle stopped before reaching me.”

Counterfactual event:

“The vehicle hit me.”

The imagined event may contain elements derived from the real event while changing its outcome. Repeated simulation could therefore increase the accessibility and phenomenological richness of the imagined alternative. The critical issue is whether the individual continues to distinguish:

Experienced information

from

Simulated information.

4.3 Repeated Mental Simulation

Repetition can increase the accessibility of mentally generated information.

De Brigard et al. (2017) examined repetitive episodic counterfactual simulation and provided evidence that repeated simulation represents an important dimension of counterfactual cognition.

This distinction is important for the proposed framework.

The proposed mechanism is not:

One counterfactual thought changes memory.

Instead, the proposed mechanism is:

A near-miss increases the accessibility of an alternative; repeated and emotionally significant simulation may further increase the accessibility of that alternative, which may subsequently interact with reconstructive remembering.

This is a more cautious and theoretically testable proposition.

5. The Phantom Outcome: A Proposed Conceptual Model

This paper introduces the term phantom outcome.

A phantom outcome is defined as:

A psychologically vivid representation of an alternative outcome that did not occur but becomes increasingly accessible through repeated counterfactual simulation.

The term is deliberately conceptual.

It does not refer to:

- A literal second memory
- A hallucination
- A clinical symptom
- A guaranteed false memory
- A belief that the alternative actually occurred

Instead, the concept describes the psychological presence of an alternative possibility.

For example:

Actual event

49 marks → Fail

Counterfactual alternative

50 marks → Pass

Repeated simulation

“If I had remembered that answer...”

Possible phantom outcome

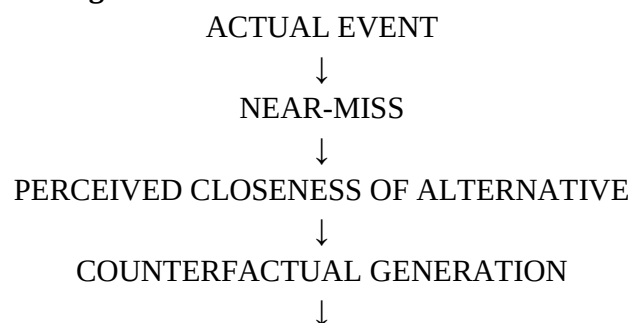
A vivid mental representation of having passed.

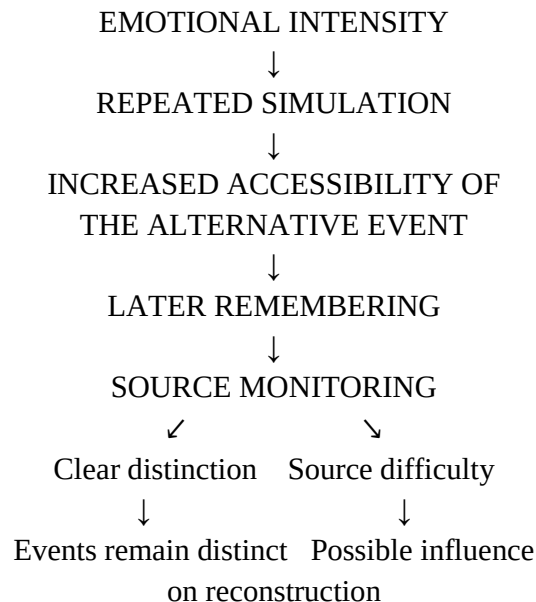
The phantom outcome may contain:

- People
- Places
- Actions
- Emotions
- Sensory details
- Expected consequences
- Social reactions

Many of these components may originate from the actual event and become reorganized within the simulated alternative.

Figure 2. The Phantom Outcome Model





The model therefore predicts a possibility, not an inevitable outcome.

6. Neuroscientific Basis

Research on episodic counterfactual thinking provides an important neuroscientific foundation for the model.

De Brigard et al. (2013) reported overlap between episodic counterfactual thinking and neural systems associated with remembering and constructing events. Relevant regions include the medial temporal lobe, posterior cingulate/retrosplenial cortex, inferior parietal regions, medial prefrontal cortex, and lateral temporal cortex.

This overlap is relevant because counterfactual simulation requires the construction of an event that did not occur.

The subjective plausibility of the alternative may also be important.

For example:

“If I had answered one more question, I would have passed.”

is closely connected to the original event.

By contrast:

“If I had become a professional athlete, my entire life would have been different.”

is considerably more remote.

Near-miss counterfactuals may therefore be particularly interesting because the imagined alternative is closely constrained by the actual event.

7. Memory Reconsolidation as a Possible Mechanism

Memory reconsolidation provides another possible theoretical mechanism through which retrieved memories may become susceptible to modification under certain conditions.

Nader et al. (2000) demonstrated in animal research that previously consolidated memories can, following retrieval under particular experimental conditions, become temporarily susceptible to modification before being stabilized again.

However, reconsolidation should not be treated as a universal explanation for autobiographical memory change.

The existence of reconsolidation mechanisms does not demonstrate that:

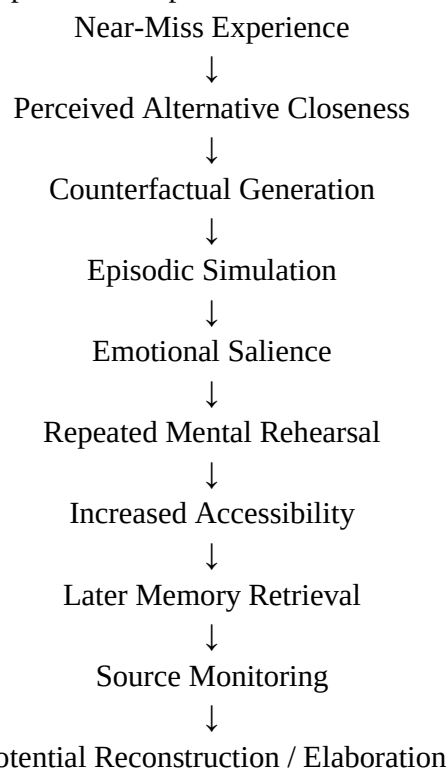
near-miss → counterfactual thought → memory modification automatically occurs.

Accordingly, the present framework treats reconsolidation as a possible biological mechanism rather than an established explanation of the proposed phenomenon.

The model instead suggests that future experimental work could determine whether retrieval of a near-miss event followed by repeated counterfactual simulation produces measurable changes in subsequent memory.

8. Proposed Theoretical Mechanism

The central proposition of the paper can be represented as follows:



The model predicts that the probability of influence should increase when several factors are present simultaneously:

1. The alternative outcome is perceived as highly close to the actual outcome.
2. The counterfactual is emotionally significant.
3. The imagined alternative is episodically detailed.
4. The alternative is repeatedly simulated.

5. The simulated event shares substantial features with the original event.

6. Source-monitoring demands are relatively high.

This does not mean that memory distortion must occur. Strong source monitoring may preserve a clear distinction between what happened and what was imagined.

9. Research Gap

Existing literature has established several components of the proposed framework.

First, counterfactual thinking is a fundamental component of human cognition and can influence emotion, learning, and behaviour (Roese, 1997; Byrne, 2016).

Second, near-miss outcomes can produce distinctive motivational and emotional responses, particularly when an alternative outcome appears close (Teigen, 1996; Clark et al., 2009).

Third, episodic counterfactual thinking overlaps with neural systems involved in episodic remembering and event construction (De Brigard et al., 2013).

Fourth, memory is reconstructive and depends partly on source-monitoring processes (Bartlett, 1932; Johnson et al., 1993; Schacter, 1999).

However, these findings leave an important theoretical question:

How does repeated counterfactual simulation following a near-miss interact with subsequent memory reconstruction?

The existing literature provides separate components of the framework, but the complete sequence remains insufficiently integrated:

Near-miss → counterfactual simulation → repeated simulation → later remembering

The present conceptual model addresses this gap by proposing a mechanism through which an imagined alternative may become psychologically prominent without assuming that it becomes a genuine autobiographical memory.

10. Applications

10.1 Education

Near-miss academic outcomes may produce particularly strong upward counterfactuals.

A student who narrowly fails may think:

“If I had studied one more chapter, I would have passed.”

Counterfactual thinking can be constructive when it identifies an actionable cause:

“Next time, I will revise that topic earlier.”

The distinction between constructive counterfactual thinking and repetitive counterfactual rumination may therefore be important in educational psychology.

10.2 Sports Psychology

Athletes frequently replay decisive moments.

A missed goal, unsuccessful shot, or tactical mistake can generate repeated counterfactual simulations.

Constructive simulation may produce:

“Next time, I will pass earlier.”

Repetitive simulation may instead remain focused on an unchangeable past:

“If only I had done something differently.”

The phantom outcome framework provides a theoretical perspective for understanding why some alternative scenarios become especially vivid after narrow losses.

10.3 Accident and Risk Research

Near-accidents can generate downward counterfactuals:

“I was lucky. It could have been much worse.”

Such thoughts may influence risk perception and later behaviour.

The framework may therefore be relevant to research examining how near-accidents are mentally represented and remembered.

10.4 Decision-Making

People frequently compare real decisions with imagined alternatives.

Counterfactual analysis can improve future decisions when it identifies controllable causes.

However, repeated comparison with alternative histories may also maintain regret.

The phantom outcome model provides a framework for examining how repeated mental alternatives may become increasingly prominent during subsequent reflection on decisions.

10.5 Gambling

Gambling provides a particularly clear context for near-miss psychology. Near-miss outcomes can influence motivation and engage neural systems associated with winning (Clark et al., 2009). The present framework extends this literature conceptually by asking whether repeated simulation of alternative gambling outcomes could influence later memory for gambling episodes. This remains a research question rather than an established finding.

11. Limitations

Several limitations should be acknowledged. First, phantom outcome is a proposed conceptual term rather than an established psychological construct. Second, the proposed relationship between repeated counterfactual simulation and subsequent memory reconstruction has not been established as a universal effect. Third, evidence from gambling near-miss research cannot automatically be generalized to all types of near-miss experiences. Fourth, memory reconsolidation is a complex biological process. Findings from controlled experimental paradigms cannot automatically be applied to everyday autobiographical memory. Fifth, individuals differ in their tendency to engage in counterfactual thinking and in their ability to distinguish imagined from experienced information. Sixth, emotional intensity can have complex relationships with memory and should not be assumed to produce either enhancement or distortion in every context.

Finally, the proposed framework is primarily theoretical. Its purpose is to organize existing evidence and generate experimentally testable predictions rather than to establish a causal effect.

12. Future Research

Future research should directly test the mechanisms proposed by the Phantom Outcome Model. Rather than relying exclusively on participant surveys, future work could employ experimental, behavioural, cognitive, and neuroscientific methods.

Potential experimental variables include:

- Degree of outcome closeness
- Counterfactual versus non-counterfactual reflection
- Frequency of counterfactual simulation
- Vividness of the imagined alternative
- Emotional intensity
- Perceived plausibility
- Similarity between actual and imagined events
- Source-monitoring accuracy
- Delayed memory performance

Experimental designs could compare conditions such as:

Near-miss + repeated counterfactual simulation

Vs.

Near-miss + neutral reflection

and

Clear outcome + repeated counterfactual simulation

Subsequent memory could then be examined using objective recognition, recall, source-monitoring, and discrimination measures rather than relying solely on retrospective survey responses.

Neuroimaging could further investigate whether repeated counterfactual simulation alters activity within networks involved in episodic retrieval and event construction.

Longitudinal designs could determine whether any influence on memory persists over days or weeks.

The strongest future research would therefore combine:

experimental manipulation + behavioural memory testing + source monitoring + neuroimaging, where appropriate.

13. Conclusion

Near-miss experiences create a distinctive psychological relationship between reality and possibility.

A person does not simply experience:

“I failed.”

Instead, the person may experience:

“I almost succeeded.”

That sense of “almost” can generate counterfactual thinking. When the counterfactual becomes detailed, it can develop into episodic simulation. When the simulation is repeatedly rehearsed, the imagined alternative may become increasingly accessible and emotionally significant.

The present paper proposes that this process may have implications for later remembering.

The proposed Phantom Outcome Model describes a theoretical pathway:

Near-miss → counterfactual generation → episodic simulation → repeated rehearsal → increased accessibility → later remembering → source monitoring → possible influence on reconstruction.

The concept of a phantom outcome does not imply that an imagined event becomes a genuine memory. Instead, it describes an alternative outcome that acquires psychological vividness despite never having occurred.

The central theoretical proposition is therefore:

What almost happened may become psychologically prominent through repeated simulation, and that psychological prominence may influence how the actual event is subsequently reconstructed.

Whether this influence produces measurable memory distortion, enhanced elaboration, altered interpretation, or no significant change remains an empirical question.

The value of the framework lies in connecting previously studied processes and generating experimentally testable predictions about the relationship between near-miss experiences, counterfactual simulation, and constructive memory.

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