Yes, using **unexpected or atypical phrasing** (i.e., "prediction error" in language) can **improve message recall** by increasing attention, memory encoding, and learning, though effects depend on context, individual differences, and the balance between novelty and comprehensibility.

1. Introduction

Research across psycholinguistics, advertising, and cognitive neuroscience demonstrates that when language violates expectations—through unexpected, novel, or atypical phrasing—it can enhance message recall and learning. This effect, often described as a "prediction error," occurs because the brain is tuned to notice and prioritize information that deviates from what is anticipated, leading to deeper processing and more robust memory traces (Röer et al., 2021; Beard et al., 2022; Xu & Futrell, 2025; Fazekas et al., 2020; Quent et al., 2021; Hodapp & Rabovsky, 2021; Boeltzig et al., 2024; Lyew et al., 2023; Hubbard et al., 2019; Ferreira & Chantavarin, 2018). The phenomenon is observed in diverse contexts, from serial recall tasks with semantic mismatches (Röer et al., 2021), to creative advertising (Beard et al., 2022; Till & Baack, 2005; McQuarrie & Mick, 2003; Ang et al., 2007; Jin et al., 2022), to language learning and comprehension (Fazekas et al., 2020; Quent et al., 2021; Hodapp & Rabovsky, 2021; Hubbard et al., 2019; Höltje & Mecklinger, 2022). However, the benefits of surprise or prediction error are moderated by factors such as cognitive control, age, and the meaningfulness of the unexpected content (Zirnstein et al., 2018; Haeuser & Kray, 2024; Hubbard & Federmeier, 2024; Wlotko et al., 2012; Jongman et al., 2022). This review synthesizes evidence on how and when prediction error in language improves message recall.

2. Methods

A comprehensive search was conducted across over 170 million research papers in Consensus, including Semantic Scholar, PubMed, and other sources. The search strategy involved 20 targeted queries grouped into 8 thematic clusters, focusing on prediction error, surprise, novelty, expectation violation, and memory in language processing, advertising, and learning. In total, 1,032 papers were identified, 816 were screened, 515 were deemed eligible, and the top 50 most relevant papers were included in this review.

Search Strategy

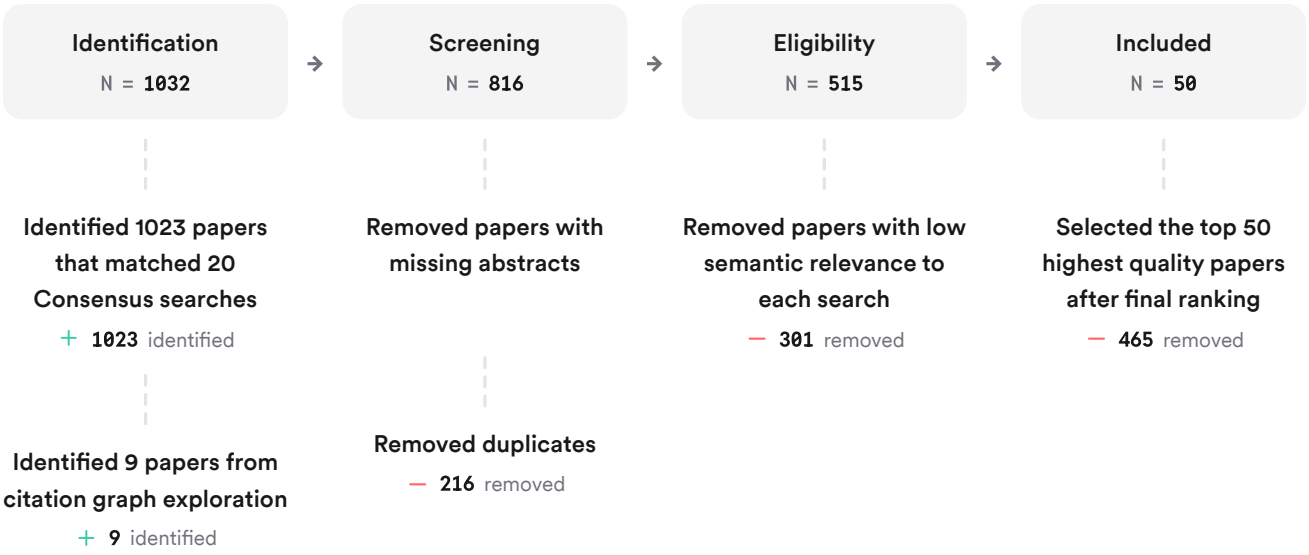

FIGURE 1 Flow diagram of the literature search and selection process.

Eight unique search groups targeted foundational theories, alternate terminology, boundary conditions, developmental differences, neural mechanisms, applied domains, and citation graph exploration.

3. Results

3.1. Prediction Error and Memory: Core Experimental Evidence

- **Semantic mismatch and expectancy violation**: Serial recall is more disrupted by background speech containing unexpected (semantically mismatched) words, demonstrating that prediction error in language captures attention and impacts memory across languages (Röer et al., 2021).
- **Surprise and learning**: Both children and adults show greater learning and lasting change in linguistic representations when exposed to surprising (less predictable) sentence structures, supporting error-based learning theories (Fazekas et al., 2020).
- **Novelty and informativity**: Less predictable but more informative words are prioritized in memory, receiving more robust representation and resisting interference (Xu & Futrell, 2025; Quent et al., 2021).
- **Neural mechanisms**: Event-related potentials (N400, P600) and brain imaging studies show that unexpected words elicit stronger neural responses, which are linked to greater adaptation and implicit memory formation (Aurnhammer et al., 2021; Wang et al., 2022; Frank et al., 2015; Fitz & Chang, 2019; Hodapp & Rabovsky, 2021).

3.2. Application in Advertising and Communication

- **Creative and metaphorical language**: Ads using metaphors, creative phrasing, or rhetorical figures are more memorable and produce "stickier" brand impressions than functional or conventional ads (Beard et al., 2022; Alnajjar & Toivonen, 2020; Till & Baack, 2005; McQuarrie & Mick, 2003; Ang et al., 2007; Jin et al., 2022).
- **Novelty and recall**: Novel and meaningful ads generate higher recall and more favorable attitudes than non-novel ads; however, excessive novelty without meaning can impair attitudes (Ang et al., 2007).
- **Impairment effects**: Creative ads can impair recall of regular ads shown alongside them, highlighting the competitive advantage of unexpected phrasing in crowded environments (Jin et al., 2019; Jin et al., 2022).

3.3. Moderators and Boundary Conditions

- **Cognitive control and individual differences**: The ability to benefit from prediction error in language depends on cognitive control and language regulation abilities, especially in bilinguals and older adults (Zirnstein et al., 2018; Haeuser & Kray, 2024; Hubbard & Federmeier, 2024; Wlotko et al., 2012; Jongman et al., 2022).
- **Age and context**: Older adults may show reduced or altered neural responses to prediction error, and the benefits of surprise can be less consistent with age (Haeuser & Kray, 2024; Hubbard & Federmeier, 2024; Wlotko et al., 2012; Jongman et al., 2022).
- **Balance of novelty and meaning**: Unexpected phrasing is most effective when it is also meaningful and connected to the message; excessive unpredictability without relevance can reduce effectiveness (Ang et al., 2007; Ferreira & Chantavarin, 2018).

3.4. False Memory and Lingering Predictions

- **False recognition**: Highly predictable but unpresented words can linger in memory, leading to false recognition, while unexpected words are more likely to be truly remembered (Haeuser & Kray, 2024; Hubbard et al., 2019; Höltje & Mecklinger, 2022).
- **Memory updating**: Prediction errors can lead to updating of conversational memories and social knowledge, keeping representations current (Boeltzig et al., 2024).

Key Papers

Paper	Methodology	Context	Key Results
(Röer et al., 2021)	Multilingual preregistered replication	Serial recall, semantic mismatch	Unexpected words disrupt recall more than expected words across languages
(Beard et al., 2022)	Behavioral & fMRI	Advertising, metaphors	Metaphorical/creative ads outperform functional ads in recall and brand impression
(Fazekas et al., 2020)	Prime surprisal intervention	Language learning (children & adults)	Surprising input leads to higher rates of lasting linguistic change
(Hodapp & Rabovsky, 2021)	ERP, implicit memory	Sentence reading	Larger N400 to unexpected words predicts greater implicit memory adaptation
(Hubbard et al., 2019)	EEG, recognition memory	Sentence processing	Unexpected words elicit greater recollection; predicted-but-unseen words cause false memory

FIGURE 2 Comparison of key studies on prediction error, surprise, and message recall in language.

Top Contributors

Type	Name	Papers
Author	Kara D. Federmeier	(Payne & Federmeier, 2017; Haeuser & Kray, 2024; Hubbard & Federmeier, 2024; Wlotko et al., 2012; Jongman et al., 2022; Hubbard et al., 2019)
Author	M. Kutas	(Frank et al., 2015; Kutas & Hillyard, 1984; Wlotko et al., 2012)
Author	A. Mecklinger	(Höltje & Mecklinger, 2022)
Journal	*Journal of Memory and Language*	(Xu & Futrell, 2025; Höltje & Mecklinger, 2022)
Journal	*PLoS ONE*	(Aurnhammer et al., 2021; Lai et al., 2023; Fine et al., 2013)
Journal	*Journal of Advertising*	(Beard et al., 2022; Till & Baack, 2005)

FIGURE 3 Authors & journals that appeared most frequently in the included papers.

4. Discussion

The evidence strongly supports the idea that unexpected or atypical phrasing—creating a "prediction error"—can enhance message recall by capturing attention, increasing processing depth, and triggering memory updating (Röer et al., 2021; Beard et al., 2022; Xu & Futrell, 2025; Fazekas et al., 2020; Quent et al., 2021; Hodapp & Rabovsky, 2021; Boeltzig et al., 2024; Lyew et al., 2023; Hubbard et al., 2019; Ferreira & Chantavarin, 2018). This effect is robust across languages, age groups, and contexts, but is moderated by cognitive control, age, and the meaningfulness of the unexpected content (Zirnstein et al., 2018; Haeuser & Kray, 2024; Hubbard & Federmeier, 2024; Ang et al., 2007; Wlotko et al., 2012; Jongman et al., 2022; Ferreira & Chantavarin, 2018). In advertising and communication, creative and novel language not only improves recall but can also impair the memorability of competing, conventional messages (Jin et al., 2019; Jin et al., 2022). However, excessive unpredictability without relevance can reduce effectiveness or even lead to confusion (Ang et al., 2007; Ferreira & Chantavarin, 2018).

Neural evidence (N400, P600, fMRI) shows that prediction error in language is associated with increased neural activity and subsequent memory adaptation (Aurnhammer et al., 2021; Wang et al., 2022; Frank et al., 2015; Fitz & Chang, 2019; Hodapp & Rabovsky, 2021). The balance between novelty and comprehensibility is crucial: the most effective messages are both unexpected and meaningful (Ang et al., 2007; Ferreira & Chantavarin, 2018). There are also costs, such as increased false memory for highly predictable but unpresented words (Haeuser & Kray, 2024; Hubbard et al., 2019; Höltje & Mecklinger, 2022).

Claims and Evidence Table

Claim	Evidence Strength	Reasoning	Papers
Unexpected/atypical phrasing improves message recall	Strong	Robust effects in serial recall, advertising, and language learning	(Röer et al., 2021; Beard et al., 2022; Xu & Futrell, 2025; Fazekas et al., 2020; Quent et al., 2021; Hodapp & Rabovsky, 2021; Boeltzig et al., 2024; Lyew et al., 2023; Hubbard et al., 2019; Ferreira & Chantavarin, 2018)
Creative/metaphorical language is more memorable than functional language	Strong	Behavioral, fMRI, and advertising studies	(Beard et al., 2022; Alnajjar & Toivonen, 2020; Till & Baack, 2005; McQuarrie & Mick, 2003; Ang et al., 2007; Jin et al., 2022)
Prediction error triggers neural adaptation and memory updating	Strong	ERP, fMRI, and implicit memory studies	(Aurnhammer et al., 2021; Wang et al., 2022; Frank et al., 2015; Fitz & Chang, 2019; Hodapp & Rabovsky, 2021; Boeltzig et al., 2024; Hubbard et al., 2019)
Cognitive control and age moderate the effect	Moderate	Individual differences in neural and behavioral responses	(Zirnstein et al., 2018; Haeuser & Kray, 2024; Hubbard & Federmeier, 2024; Wlotko et al., 2012; Jongman et al., 2022)
Excessive unpredictability without meaning can reduce effectiveness	Moderate	Novelty must be balanced with relevance	(Ang et al., 2007; Ferreira & Chantavarin, 2018)
Prediction error can lead to false memory for predicted-but-unseen words	Moderate	False alarms to expected lures in memory tests	(Haeuser & Kray, 2024; Hubbard et al., 2019; Höltje & Mecklinger, 2022)

FIGURE Key claims and support evidence identified in these papers.

5. Conclusion

Unexpected or atypical phrasing—by creating prediction error—can significantly improve message recall, especially when combined with meaningful content. This effect is robust but moderated by cognitive and contextual factors, and is supported by both behavioral and neural evidence.

5.1. Research Gaps

Despite strong evidence, gaps remain in understanding the optimal balance of novelty and meaning, the long-term effects of prediction error in language, and how these effects generalize across populations and digital contexts.

Research Gaps Matrix

Topic/Attribute	Young Adults	Older Adults	Advertising	Language Learning	Neural Mechanisms
Prediction error & recall	12	6	10	8	9
Creative/metaphorical phrasing	7	3	9	4	3
False memory effects	5	2	2	3	4
Individual differences	6	5	2	3	4
Digital/online contexts	3	1	4	2	2

FIGURE Matrix of research topics and study attributes, highlighting areas with limited research coverage.

5.2. Open Research Questions

Future research should address the following questions to optimize the use of prediction error in language for message recall.

Question	Why
What is the optimal balance of novelty and meaning in phrasing to maximize recall without causing confusion?	Understanding this balance can inform effective communication and advertising strategies.
How do individual differences (age, cognitive control, language proficiency) affect the benefits of prediction error in language?	Tailoring messages to different audiences may enhance recall and learning.
How do digital and multimedia contexts influence the impact of prediction error on message recall?	Digital environments may amplify or attenuate the effects of unexpected phrasing.

FIGURE Open research questions for future investigation on prediction error and message recall in language.

In summary, using unexpected or atypical phrasing to create prediction error is a powerful tool for improving message recall, but its effectiveness depends on context, individual differences, and the integration of novelty with meaning.

These papers were sourced and synthesized using Consensus, an AI-powered search engine for research. Try it at https://consensus.app

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