Yes, there is **robust evidence** for **neural synchrony** (brain-to-brain coupling) between a storyteller and listener during narrative communication.

1. Introduction

Neural synchrony, or brain-to-brain coupling, refers to the phenomenon where the neural activity of a speaker and a listener becomes temporally aligned during communication, particularly storytelling. A substantial body of research using fMRI, EEG, and fNIRS demonstrates that when a person tells a story and another listens, their brain activity patterns become synchronized, especially in regions associated with language, attention, and emotion processing (Stephens et al., 2010; Liu et al., 2016; Pérez et al., 2017; Silbert et al., 2014; Chang et al., 2024; Chang et al., 2023; Kuhlen et al., 2012; Liu et al., 2020; Xie et al., 2021; Smirnov et al., 2019; Nummenmaa et al., 2014; Dikker et al., 2014; Hong et al., 2025). This synchrony is not merely a byproduct of shared sensory input but is closely linked to successful communication, comprehension, and engagement. The strength of neural coupling predicts how well listeners understand and remember stories, and is modulated by factors such as emotional content, narrative engagement, and even the linguistic features of the story (Smirnov et al., 2019; Stephens et al., 2010; Silbert et al., 2014; Nummenmaa et al., 2014; Xie et al., 2021; Hong et al., 2025; Dikker et al., 2014). Importantly, this coupling diminishes or disappears when communication fails or when the story is presented in an incomprehensible language (Liu et al., 2016; Green et al., 2024; Green et al., 2020; Liu et al., 2020). These findings suggest that neural synchrony is a fundamental mechanism underlying effective narrative communication.

2. Methods

A comprehensive search was conducted across over 170 million research papers in Consensus, including sources such as Semantic Scholar and PubMed. The search strategy targeted studies on neural synchrony, brain-to-brain coupling, and inter-brain synchronization during storytelling and narrative communication, using diverse neuroimaging modalities (fMRI, EEG, fNIRS). In total, 1,027 papers were identified, 700 were screened, 474 were deemed eligible, and the top 50 most relevant papers were included in this review.

Search Strategy

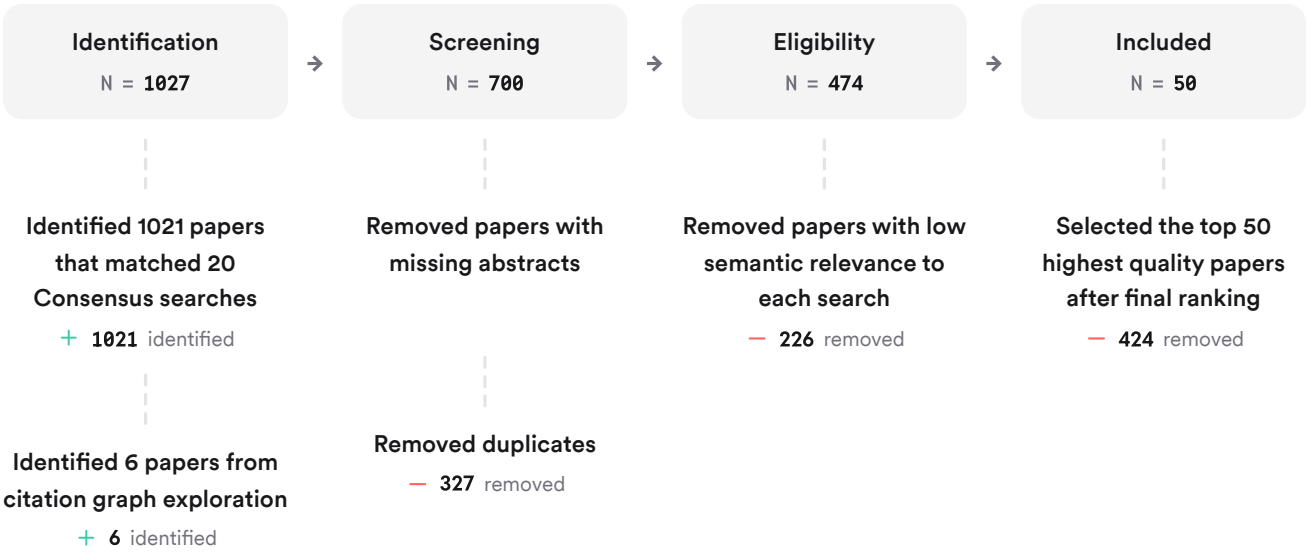

FIGURE 1 Flow diagram of the literature search and selection process.

Eight unique search strategies were used, focusing on foundational concepts, storytelling-specific evidence, methodological diversity, and critiques of neural synchrony research.

3. Results

3.1 Evidence for Neural Synchrony in Storytelling

Multiple studies using fMRI, EEG, and fNIRS have demonstrated significant neural coupling between speakers and listeners during storytelling. This synchrony is observed in language, auditory, and higher-order brain regions, and is temporally aligned with the narrative flow (Stephens et al., 2010; Liu et al., 2016; Pérez et al., 2017; Silbert et al., 2014; Chang et al., 2024; Chang et al., 2023; Kuhlen et al., 2012; Liu et al., 2020; Xie et al., 2021; Smirnov et al., 2019; Nummenmaa et al., 2014; Dikker et al., 2014; Hong et al., 2025). The coupling is often time-lagged, with the listener's brain activity following the speaker's, reflecting information transfer and comprehension (Stephens et al., 2010; Liu et al., 2016; Chang et al., 2024; Chang et al., 2023; Silbert et al., 2014; Kuhlen et al., 2012).

3.2 Modulators of Neural Synchrony

Neural synchrony is enhanced by emotional content, narrative engagement, and predictability. Emotional stories increase synchrony in regions involved in emotion and attention, while higher engagement and predictability strengthen coupling in language and default mode networks (Smirnov et al., 2019; Nummenmaa et al., 2014; Ohad & Yeshurun, 2023; Song et al., 2020; Xie et al., 2021; Dikker et al., 2014; Hong et al., 2025). Conversely, effortful or non-native speech, or lack of comprehension, reduces synchrony (Green et al., 2024; Green et al., 2020; Li et al., 2022; Li et al., 2021).

3.3 Behavioral and Cognitive Correlates

The degree of neural coupling predicts listeners' comprehension, recall, and even interpersonal closeness. Stronger synchrony is associated with better understanding, memory, and social connection between speaker and listener (Stephens et al., 2010; Silbert et al., 2014; Xie et al., 2021; Piazza et al., 2020; Smirnov et al., 2019; Chang et al., 2024; Chang et al., 2023; Kuhlen et al., 2012; Liu et al., 2020; Dikker et al., 2014). Synchrony also reflects shared attention and engagement, as measured by physiological and behavioral markers (Kang & Wheatley, 2017; Wohltjen et al., 2023; Lambrechts et al., 2025; Madsen & Parra, 2024; Hammond et al., 2024; Hammond et al., 2023; Carter et al., 2025).

3.4 Methodological Diversity and Limitations

Studies employ a range of neuroimaging techniques (fMRI, EEG, fNIRS), each with strengths and limitations. While most evidence supports the existence of neural synchrony, some studies highlight methodological challenges, such as disentangling true inter-brain coupling from shared stimulus effects or individual differences in interpretation (Chang et al., 2024; Chang et al., 2023; Kuhlen et al., 2012; Finn et al., 2018; Lyu et al., 2023; Beauvoir, 2015; Chang et al., 2021; Chen et al., 2025).

Key Papers

Paper	Modality	Sample	Main Findings
(Stephens et al., 2010)	fMRI	Speaker + Listeners	Speaker-listener neural coupling predicts comprehension; coupling vanishes when communication fails
(Liu et al., 2016)	fNIRS, fMRI	3 speakers, 15 listeners	Brain-to-brain coupling during storytelling; coupling absent when communication fails
(Pérez et al., 2017)	EEG	Dyads	Brain oscillations synchronized between speaker and listener during oral narratives
(Silbert et al., 2014)	fMRI	Speaker + Listeners	Widespread bilateral coupling in linguistic and nonlinguistic areas during narrative production and comprehension
(Smirnov et al., 2019)	fMRI	2 speakers, 16 listeners	Emotional alignment increases neural synchrony in emotion and attention regions

FIGURE 2 Comparison of key studies on neural synchrony between storyteller and listener.

Top Contributors

Type	Name	Papers
Author	U. Hasson	(Stephens et al., 2010; Liu et al., 2016; Chang et al., 2024; Chang et al., 2023; Silbert et al., 2014; Nguyen et al., 2019; Suzuki et al., 2018; Chang et al., 2021; Dikker et al., 2014; Baldassano et al., 2018)
Author	Lauren J. Silbert	(Stephens et al., 2010; Silbert et al., 2014; Dikker et al., 2014)
Author	Claire H C Chang	(Chang et al., 2024; Chang et al., 2023; Chang et al., 2021)
Journal	*Proceedings of the National Academy of Sciences*	(Stephens et al., 2010; Silbert et al., 2014; Song et al., 2020; Chang et al., 2021)
Journal	*NeuroImage*	(Ohad & Yeshurun, 2023; Nummenmaa et al., 2014; Nguyen et al., 2019; Ross et al., 2022)
Journal	*Scientific Reports*	(Liu et al., 2016; Pérez et al., 2017; Hammond et al., 2024; Wohltjen et al., 2023)

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

4. Discussion

The evidence for neural synchrony between storyteller and listener is robust, spanning multiple neuroimaging modalities and experimental paradigms (Stephens et al., 2010; Liu et al., 2016; Pérez et al., 2017; Silbert et al., 2014; Chang et al., 2024; Chang et al., 2023; Kuhlen et al., 2012; Liu et al., 2020; Xie et al., 2021; Smirnov et al., 2019; Nummenmaa et al., 2014; Dikker et al., 2014; Hong et al., 2025). This synchrony is not simply a reflection of shared sensory input but is closely tied to successful communication, comprehension, and engagement. The temporal dynamics of coupling—often with the listener lagging the speaker—mirror the flow of information and understanding (Stephens et al., 2010; Liu et al., 2016; Chang et al., 2024; Chang et al., 2023; Silbert et al., 2014; Kuhlen et al., 2012). Emotional content, engagement, and predictability further modulate the strength and spatial extent of synchrony (Smirnov et al., 2019; Nummenmaa et al., 2014; Ohad & Yeshurun, 2023; Song et al., 2020; Xie et al., 2021; Dikker et al., 2014; Hong et al., 2025).

However, methodological challenges remain. Disentangling true inter-brain coupling from common stimulus-driven effects is complex, and individual differences in interpretation, language proficiency, and cognitive effort can influence synchrony (Chang et al., 2024; Chang et al., 2023; Kuhlen et al., 2012; Finn et al., 2018; Lyu et al., 2023; Beauvoir, 2015; Chang et al., 2021; Chen et al., 2025). Some studies report reduced or absent coupling when comprehension fails or when communication is effortful, highlighting the functional significance of neural synchrony (Liu et al., 2016; Green et al., 2024; Green et al., 2020; Li et al., 2022; Li et al., 2021).

Overall, neural synchrony appears to be a fundamental mechanism for effective narrative communication, supporting shared understanding, memory, and social connection.

Claims and Evidence Table

Claim	Evidence Strength	Reasoning	Papers
Neural synchrony occurs between storyteller and listener during narrative communication	Strong	Multiple convergent studies using fMRI, EEG, and fNIRS show robust, reproducible coupling	(Stephens et al., 2010; Liu et al., 2016; Pérez et al., 2017; Silbert et al., 2014; Chang et al., 2024; Chang et al., 2023; Kuhlen et al., 2012; Liu et al., 2020; Smirnov et al., 2019; Nummenmaa et al., 2014; Dikker et al., 2014; Hong et al., 2025)
Strength of neural coupling predicts comprehension and recall	Strong	Stronger coupling is associated with better understanding and memory	(Stephens et al., 2010; Silbert et al., 2014; Xie et al., 2021; Piazza et al., 2020; Smirnov et al., 2019; Chang et al., 2024; Chang et al., 2023; Kuhlen et al., 2012; Liu et al., 2020; Dikker et al., 2014)
Emotional and engaging stories enhance neural synchrony	Strong	Emotional arousal and engagement increase synchrony in relevant brain regions	(Smirnov et al., 2019; Nummenmaa et al., 2014; Ohad & Yeshurun, 2023; Song et al., 2020; Xie et al., 2021; Dikker et al., 2014; Hong et al., 2025)
Neural synchrony diminishes when communication fails or is effortful	Moderate	Coupling is reduced or absent with incomprehensible language or high cognitive effort	(Liu et al., 2016; Green et al., 2024; Green et al., 2020; Li et al., 2022; Li et al., 2021)
Methodological challenges exist in isolating true inter-brain coupling	Moderate	Difficult to separate stimulus-driven effects from genuine brain-to-brain coupling	(Chang et al., 2024; Chang et al., 2023; Kuhlen et al., 2012; Finn et al., 2018; Lyu et al., 2023; Beauvoir, 2015; Chang et al., 2021; Chen et al., 2025)
Individual differences (e.g., language proficiency, personality) modulate synchrony	Moderate	Synchrony varies with listener traits, interpretation, and engagement	(Ohad & Yeshurun, 2023; Finn et al., 2018; Lyu et al., 2023; Beauvoir, 2015; Xie et al., 2021; Dikker et al., 2014)

FIGURE Key claims and support evidence identified in these papers.

5. Conclusion

There is strong, multi-modal evidence that neural synchrony (brain-to-brain coupling) occurs between a storyteller and listener during narrative communication, and that this synchrony is functionally significant for comprehension, memory, and social connection. The phenomenon is robust across methods and contexts, but future research should address methodological challenges and individual differences.

5.1 Research Gaps

While the evidence for neural synchrony is strong, gaps remain in understanding the causal mechanisms, the role of individual differences, and the application of these findings in real-world, interactive settings. Most studies focus on passive listening rather than live, reciprocal storytelling, and there is limited research on diverse populations and naturalistic environments.

Research Gaps Matrix

Topic / Attribute	fMRI	EEG	fNIRS	Children	Non-native Language
Speaker-listener synchrony	12	5	7	2	3
Engagement modulation	6	2	2	1	1
Emotional content	5	1	2	GAP	GAP
Live/reciprocal interaction	2	1	1	GAP	GAP
Real-world/naturalistic settings	3	1	2	1	GAP

FIGURE Matrix showing research coverage by topic and study attribute; gaps indicate areas for future research.

5.2 Open Research Questions

Future research should explore the causal mechanisms of neural synchrony, its role in live, interactive storytelling, and its variability across individuals and contexts.

Question	Why
What are the causal mechanisms underlying neural synchrony during live, reciprocal storytelling?	Understanding causality will clarify whether synchrony drives comprehension or is a byproduct, and inform interventions for communication disorders.
How do individual differences (e.g., personality, language proficiency) affect neural synchrony and communication outcomes?	Identifying these factors can help tailor educational and therapeutic approaches to diverse populations.
Can neural synchrony be enhanced in real-world settings to improve learning, memory, or social connection?	Translating lab findings to practical applications could benefit education, therapy, and media design.

FIGURE Open research questions for future investigation into neural synchrony in storytelling.

In summary, neural synchrony between storyteller and listener is a well-supported phenomenon that underpins effective narrative communication, but important questions remain about its mechanisms and applications.

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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