

Universal Storytelling Through EP Theories

Evolutionary psychology theories explain storytelling's universality by identifying five adaptive functions, with supporting evidence from multiple human populations.

Abstract

Ten studies using evolutionary psychology theories provide a coherent account of storytelling's universality. Several accounts posit that storytelling evolved as an adaptation that (1) transmits survival-relevant information (Bietti et al. 2018; Scalise Sugiyama & Sugiyama 2009), (2) strengthens social bonds and collective cooperation (Boyd 2009; Costabile et al. 2018), (3) protects children via cautionary narratives (Scalise Sugiyama & Sugiyama 2011), (4) enhances cognitive capacities—expanding episodic memory and aiding future planning (Scalise Sugiyama 2011b), and (5) preserves culture through intergenerational knowledge transfer (Boyd 2017; Scalise Sugiyama 2011a).

Theoretical frameworks such as the social brain hypothesis, adaptive information transmission, and cognitive adaptation are invoked to explain how language evolution and social cognition underpin these functions. Evidence drawn largely from studies of foraging societies and general human populations indicates that EP theories offer a plausible explanation for why storytelling is a universal human activity, even though explicit cross-cultural validation remains limited.

Paper search

Using your research question "Can EP theories explain why storytelling is a universal human activity?", we searched across over 126 million academic papers from the Semantic Scholar corpus. We retrieved the 50 papers most relevant to the query.

Screening

We screened in papers that met these criteria:

- **EP Framework:** Does the study examine or apply evolutionary psychological theories or frameworks in relation to storytelling?
- **Cross-Cultural Analysis:** Does the study investigate storytelling behaviors across multiple cultures OR provide cross-cultural comparative analysis of narrative practices?
- **Functional Analysis:** Does the study analyze cognitive, social, or evolutionary functions of storytelling?
- **Biological Mechanisms:** Does the research investigate neurological or psychological mechanisms underlying storytelling behavior?
- **Developmental Aspects:** Does the study examine developmental aspects of storytelling abilities in humans?
- **Review Type:** Is this a systematic review or meta-analysis examining storytelling from an evolutionary perspective OR an original research study?
- **Empirical Evidence:** Does the study present or analyze empirical data (rather than being purely theoretical or opinion-based)?
- **Theoretical Framework:** Does the study go beyond purely literary analysis to include theoretical frameworks relevant to psychology or evolution?

We considered all screening questions together and made a holistic judgement about whether to screen in each paper.

Data extraction

We asked a large language model to extract each data column below from each paper. We gave the model the extraction instructions shown below for each column.

- **Theoretical Framework:**

Identify the primary evolutionary psychology or theoretical framework used to explain storytelling. Look in the introduction, theoretical discussion, or conclusion sections. If multiple frameworks are used, list them in order of prominence. If no explicit framework is mentioned, write "Not specified".

Specific things to look for:

- Explicit mention of evolutionary psychology theories
- Social brain hypothesis
- Core social motives theory
- Adaptive information transmission theories
- Cognitive adaptation explanations

Extract the exact theoretical perspective as quoted in the text, and note the key explanatory mechanisms proposed for storytelling's universality.

- **Core Explanatory Mechanisms for Storytelling:**

Identify the specific mechanisms proposed to explain why storytelling is a universal human activity. Look for:

- Specific adaptive functions of storytelling
- Cognitive or social advantages of narrative transmission
- Evolutionary benefits described

Extract verbatim quotes explaining these mechanisms. If multiple mechanisms are proposed, list them in order of importance. Focus on explanations directly related to evolutionary psychology or adaptive advantages.

Potential mechanisms might include:

- Information transmission
- Social learning
- Group cohesion
- Survival knowledge transfer
- Motive satisfaction

If no clear mechanisms are identified, write "No specific mechanisms described".

- **Types of Evidence Used:**

Catalog the types of evidence used to support the theoretical claims about storytelling. Look throughout the paper, but especially in methods and evidence sections.

Categories to identify:

- Ethnographic evidence
- Archaeological evidence
- Cognitive science findings
- Comparative primate research
- Developmental psychology research
- Cross-cultural comparisons

For each type of evidence found, extract:

1. The specific type of evidence
2. A brief description of how it supports the theoretical claim
3. Any quantitative or qualitative details provided

If no clear evidence is presented, write "No substantive evidence provided".

- **Analytical Approach:**

Describe the primary analytical or research approach used in the study. Look in methodology, methods, or approach sections.

Potential approaches:

- Theoretical review
- Comparative analysis
- Conceptual synthesis
- Interdisciplinary interpretation

Extract:

- The specific analytical approach
- Key methodological steps
- Disciplines or research domains integrated

If the approach is not clearly defined, write "Analytical approach not specified".

Results

Characteristics of Included Studies

Study	Study Type	Population Focus	Evolutionary Psychology Framework	Key Findings	Full text retrieved
Bietti et al., 2018	Theoretical review	General human populations	Adaptive collective sensemaking	Storytelling serves adaptive functions of manipulating behavior, transmitting information, and maintaining social bonds ^[p1_q2_1]	Yes
Boyd, 2009	Theoretical exploration	General human populations	Evolutionary adaptation	Storytelling is an adaptation offering survival advantages through social cognition and cooperation ^[p2_q2_1]	Yes
Boyd, 2017	Conceptual synthesis	Early humans to modern societies	Social brain hypothesis	Storytelling evolved from mimesis to language, enabling exploration of human possibilities ^[p3_q2_1]	Yes
Costabile et al., 2018	Theoretical review	General human populations	Core social motives theory	Narratives satisfy core social motives (belonging, understanding, control, self-enhancement, trust) ^[p4_q2_2]	No

Study	Study Type	Population Focus	Evolutionary Psychology Framework	Key Findings	Full text retrieved
Lauer, 2022	Interdisciplinary interpretation	Early humans to modern societies	Social brain hypothesis	Storytelling evolution linked to language, childhood, and fireside gatherings[^{p5_q2_1}]	Yes
Scalise Sugiyama & Sugiyama, 2009	Conceptual synthesis	Foraging societies	Cognitive adaptation	Oral traditions store and transmit survival-relevant information[^{p6_q2_2}]	No
Scalise Sugiyama & Sugiyama, 2011	Theoretical review	Foraging societies	Adaptive information transmission	Monster stories serve to protect children by discouraging wandering[^{p7_q2_2}]	Yes
Scalise Sugiyama, 2011a	Theoretical review	Foraging societies	Adaptive information transmission	Storytelling facilitates inter-generational knowledge transfer in foraging societies[^{p8_q2_2}]	No
Scalise Sugiyama, 2011b	Theoretical review and interdisciplinary interpretation	Foraging societies	Adaptive information transmission	Storytelling expands episodic memory and aids in planning for foragers[^{p9_q2_2}]	Yes
Yang, 2013	Theoretical review and interdisciplinary interpretation	Modern workplace	Evolutionary psychology	Storytelling serves adaptive functions in workplace settings[^{p10_q2_2}]	Yes

Our search identified 10 studies examining the evolutionary psychology of storytelling. Key characteristics of these studies include:

- Study types :
 - 6 theoretical reviews (including 2 combined with interdisciplinary interpretation)
 - 2 conceptual syntheses
 - 1 theoretical exploration
 - 1 interdisciplinary interpretation
- Population focus :
 - 4 studies focused on foraging societies
 - 3 studies examined general human populations
 - 2 studies covered early humans to modern societies
 - 1 study focused on the modern workplace
- Evolutionary psychology frameworks :
 - 3 studies used adaptive information transmission
 - 2 studies employed the social brain hypothesis
 - 1 study each for adaptive collective sensemaking, evolutionary adaptation, core social motives theory, cognitive adaptation, and evolutionary psychology
- Key observations :
 - The studies we reviewed used diverse frameworks, indicating that the evolutionary role of storytelling is examined from multiple theoretical perspectives in the literature we found.
 - The focus on foraging societies (4 studies) and general human populations (3 studies) suggests an interest in understanding storytelling's evolutionary origins and universal human aspects among the reviewed studies.

Thematic Analysis

Evolutionary Adaptations Supporting Storytelling

1. Language Evolution

- Boyd (2017) proposes that language invention was driven by the need to pool information beyond shared experiences, enabling efficient narrative forms.
- Lauer (2022) emphasizes language evolution as a precondition for human storytelling, enabling ostensive signaling.

2. Social Brain Development

- The social brain hypothesis, featured in Boyd (2017) and Lauer (2022), suggests human cognitive capacities evolved to manage complex social relationships^[p3_q1_8]
- This development is proposed to have allowed for understanding others as intentional and mental agents through storytelling.

3. Cognitive Mechanisms

- Scalise Sugiyama & Sugiyama (2009) describe oral traditions as cognitive artifacts shaped by memory constraints.
- Scalise Sugiyama (2011b) argues that storytelling expands episodic memory, which is integral to generating possible future scenarios (i.e., planning).

- These studies propose cognitive mechanisms that suggest storytelling may be more than a cultural practice, potentially representing a cognitive adaptation.

Adaptive Functions of Universal Storytelling

1. Information Transmission

- Bietti et al. (2018) highlight storytelling's role in transmitting information while avoiding the costs of first-hand acquisition.
- Scalise Sugiyama & Sugiyama (2009) argue that oral traditions serve as a means of storing and transmitting information useful for survival and reproduction.
- This function is particularly emphasized in studies focusing on foraging societies, where knowledge transfer is crucial for survival.

2. Social Cohesion

- Bietti et al. (2018) identify maintaining social bonds or group-level cooperation as a key adaptive function of storytelling.
- Boyd (2009) argues that storytelling encourages cooperation and fosters creativity.
- Costabile et al. (2018) emphasize narratives' ability to satisfy core social motives, including belonging and trust, which contribute to social cohesion.

3. Cultural Preservation

- Boyd (2017) suggests that storytelling allows early humans to learn more about their kind than they could experience firsthand, facilitating cultural transmission.
- Scalise Sugiyama (2011a) emphasizes storytelling's role in intergenerational knowledge transfer, particularly in foraging societies.

Development and Transmission Patterns

1. Child Development Role

- Scalise Sugiyama & Sugiyama (2011) propose that monster stories serve to protect children by discouraging wandering, highlighting storytelling's adaptive function in child safety.
- Lauer (2022) emphasizes the pivotal role of childhood in the evolution of collaborative intentionality, which is crucial for storytelling.

2. Intergenerational Transfer

- Scalise Sugiyama (2011a) argues that storytelling is a crucial means by which adults transfer knowledge to juveniles in forager groups.
- This pattern of old-to-young transmission is seen as evidence of storytelling's adaptive function in preserving and transmitting crucial survival information.

3. Memory Systems

- Scalise Sugiyama (2011b) argues that storytelling expands episodic memory, which is integral to planning and generating possible future scenarios.
- This suggests that storytelling not only transmits information but also enhances cognitive capabilities related to memory and future planning.

Evidence Synthesis Table

Adaptive Function	Supporting Evidence	Evolutionary Psychology Explanation	Cross-Cultural Validation
Information Transmission	Oral traditions store survival-relevant information (Scalise Sugiyama & Sugiyama, 2009)[^{p6_q2_9}]	Enhances survival and reproduction by efficiently sharing crucial knowledge	We found limited cross-cultural evidence in the reviewed studies
Social Cohesion	Narratives satisfy core social motives (Costabile et al., 2018)[^{p4_q2_8}]	Promotes group cooperation and social bonding, increasing collective fitness	Some cross-cultural evidence, but primarily theoretical
Child Protection	Monster stories discourage child wandering (Scalise Sugiyama & Sugiyama, 2011)[^{p7_q2_10}]	Increases offspring survival rates in dangerous environments	Limited to foraging societies, needs broader validation
Cognitive Enhancement	Storytelling expands episodic memory (Scalise Sugiyama, 2011b)[^{p9_q2_13}]	Improves planning and decision-making capabilities, enhancing individual and group survival	Theoretical claim, limited empirical evidence
Cultural Preservation	Intergenerational knowledge transfer (Scalise Sugiyama, 2011a)[^{p8_q2_13}]	Ensures survival of crucial information across generations	Focus on foraging societies, needs broader cultural validation

We found five distinct adaptive functions of storytelling, each supported by evidence from different studies:

- Information Transmission
- Social Cohesion
- Child Protection
- Cognitive Enhancement
- Cultural Preservation

The supporting evidence varied across studies:

- We found evidence related to oral traditions for Information Transmission
- We found evidence related to social motives for Social Cohesion
- We found evidence related to monster stories for Child Protection
- We found evidence related to episodic memory expansion for Cognitive Enhancement
- We found evidence related to intergenerational knowledge transfer for Cultural Preservation

Regarding cross-cultural validation:

- We found limited cross-cultural evidence for 1 study

- We found some cross-cultural evidence, but primarily theoretical, for 1 study
- We found validation limited to foraging societies for 2 studies
- We found theoretical claims with limited empirical evidence for 1 study

Overall, the cross-cultural validation appears limited across all studies, with a focus on foraging societies in some cases.

Synthesis of Evolutionary Psychology Explanatory Power

Convergent Evidence

1. Cross-cultural Patterns

- The reviewed studies suggest some cross-cultural patterns in storytelling, particularly in its adaptive functions.
- Recurring themes across different studies and contexts include:
 - Information transmission
 - Social cohesion
 - Cultural preservation
- However, it's important to note that the majority of studies focus on foraging societies or general human populations, with limited explicit cross-cultural comparisons.

2. Developmental Universals

- Several studies highlight the role of storytelling in child development and intergenerational knowledge transfer:
 - Lauer (2022) emphasizes the importance of childhood in the evolution of collaborative intentionality, which is crucial for storytelling.
 - Scalise Sugiyama & Sugiyama (2011) propose a universal pattern of using monster stories to protect children.
- These developmental aspects suggest some universal features of storytelling across cultures, although more diverse cultural perspectives are needed to strengthen this claim.

3. Adaptive Benefits

- The consistent emphasis on adaptive benefits across studies provides convergent evidence for the evolutionary psychology explanation of storytelling's universality.
- Proposed adaptive functions include:
 - Information transmission
 - Social cohesion
 - Cognitive enhancement
 - Cultural preservation
- These functions offer a framework for understanding why storytelling might be a universal human activity.

Alternative Explanations

1. Cultural Evolution

- While the reviewed studies primarily focus on evolutionary psychology explanations, it's important to consider the role of cultural evolution in the universality of storytelling.

- The development and transmission of storytelling practices may be influenced by cultural factors that interact with biological adaptations.
- This interaction could potentially lead to universal patterns through non-genetic inheritance mechanisms.

2. Social Learning

- The emphasis on storytelling as a means of social learning and information transmission suggests that its universality might also be explained through general social learning theories.
- This perspective focuses more on the immediate functional benefits of storytelling rather than its evolutionary origins.
- While not necessarily contradicting evolutionary psychology explanations, it offers an alternative lens for understanding storytelling's universality.

3. Cognitive Development

- The role of storytelling in cognitive development, particularly in expanding episodic memory and aiding in planning, suggests that its universality might be partly explained by general cognitive development processes.
- This perspective would emphasize the ontogenetic development of storytelling abilities rather than their phylogenetic origins.

In conclusion, the studies we reviewed suggest a theoretical framework that supports evolutionary psychology explanations for the universality of storytelling. However, the lack of extensive empirical studies and cross-cultural validations limits the strength of these conclusions. The recurring themes of information transmission, social cohesion, and cognitive development across studies suggest promising avenues for future research. However, more diverse cultural perspectives and empirical testing would be needed to strengthen the evolutionary psychology explanations for storytelling's universality and to fully assess alternative explanations.

References

- Brian Boyd. "On the Origin of Stories: Evolution, Cognition, and Fiction," 2009.
- . "The Evolution of Stories: From Mimesis to Language, from Fact to Fiction." *Wiley Interdisciplinary Reviews: Cognitive Science*, 2017.
- Chulguen Yang. "Telling Tales at Work," 2013.
- G. Lauer. "Language, Childhood, and Fire: How We Learned to Love Sharing Stories." *Frontiers in Psychology*, 2022.
- Kristi A. Costabile, Randi Shedlosky-Shoemaker, and Adrienne B. Austin. "Universal Stories: How Narratives Satisfy Core Motives." *Emerging Perspectives on Self and Identity*, 2018.
- L. Bietti, Ottilie Tilston, and Adrian Bangerter. "Storytelling as Adaptive Collective Sensemaking." *Topics in Cognitive Science*, 2018.
- Michelle Scalise Sugiyama. "The Forager Oral Tradition and the Evolution of Prolonged Juvenility." *Front. Psychology*, 2011.
- . "The Forager Oral Tradition and the Evolution of Prolonged Juvenility." 2011.
- Michelle Scalise Sugiyama, and Lawrence S. Sugiyama. "'Once the Child Is Lost He Dies': Monster Stories Vis-a-Vis the Problem of Errant Children," 2011.
- . "A Frugal (Re)Past: Use of Oral Tradition to Buffer Foraging Risk," 2009.