

Evolutionary Psychology and Storytelling

EP theories effectively account for universal storytelling by demonstrating its connection to evolved cognitive mechanisms and adaptive functions that persist across cultural contexts.

Abstract

Evolutionary psychology accounts for the universality of storytelling by linking evolved cognitive abilities and adaptive functions to narrative behavior. Studies report that storytelling relies on cognitive mechanisms such as Mental Time Travel—the capacity to envisage different times and realities—and Theory of Mind, which underlies the ability to understand and differentiate others' perspectives. In addition, memory systems are credited with preserving experiences relevant to survival. These cognitive components appear broadly across cultures, although specific influences may vary.

Narratives also serve adaptive roles. Several studies cite storytelling's functions in: 1. Social learning, by sharpening social cognition and clarifying social norms; 2. Information transmission, exemplified by its role in conveying survival-relevant knowledge in foraging or hunter-gatherer contexts; 3. Risk management, such as the use of monster stories to bolster child safety. Among evolutionary psychology theories, Adaptive Function Analysis shows high explanatory power, Cognitive Evolution offers moderate to high support through links to human cognition, and the broader Evolutionary Psychology framework provides a moderate account. Together, these theoretical perspectives support a view in which storytelling reflects core evolved psychological mechanisms that resonate across cultural and historical contexts.

Paper search

Using your research question "Can EP theories explain the universality of storytelling?", 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 explicitly examine storytelling using an evolutionary psychological theoretical framework?
- **Cross-Cultural Analysis:** Does the study include comparative analysis of storytelling patterns across multiple cultures or populations?
- **Study Type:** Is the study either an empirical investigation OR a theoretical paper proposing specific EP mechanisms for storytelling?
- **Cognitive Mechanisms:** Does the study address specific psychological or cognitive mechanisms involved in storytelling behavior?
- **Research Content:** Does the study contain original theoretical arguments OR empirical data (not just opinion or commentary)?
- **Storytelling Focus:** Is storytelling behavior (rather than just language evolution or literary analysis) a primary focus of the study?
- **Theoretical Integration:** Does the study integrate its findings or arguments with existing evolutionary psychological theory?

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.

- **Type of Theoretical/Analytical Approach:**

Identify the primary theoretical framework used in the study to explain storytelling from an evolutionary perspective. Look in the introduction, theoretical framework, or discussion sections. Categorize as:

- Evolutionary Psychology (EP)
- Cognitive Evolution
- Adaptive Function Analysis
- Other (specify) If multiple approaches are used, list in order of prominence. If approach is not clearly stated, note "Not explicitly defined".

- **Specific Evolutionary Mechanisms Proposed:**

Extract the specific evolutionary mechanisms or psychological adaptations proposed to explain storytelling. Look in theoretical discussion sections, mechanism explanations, or conclusions. Possible mechanisms include:

- Social cognition enhancement
- Information transmission
- Perspective-taking skill development
- Cooperative behavior facilitation
- Sexual selection
- Cognitive play/simulation List all mechanisms mentioned, with direct quotes if possible. If no specific mechanisms are detailed, note "No specific mechanisms proposed".

- **Types of Evidence Used:**

Identify the types of evidence used to support the evolutionary storytelling argument. Categorize as:

- Anthropological data
- Ethnographic studies
- Psychological research
- Neuroscientific evidence
- Comparative animal behavior
- Theoretical reasoning List all types of evidence used, noting the primary source and strength of evidence (e.g., correlational, theoretical, empirical). If no clear evidence is provided, note "Primarily theoretical argument".

- **Empirical Support Level:**

Assess the empirical substantiation of the evolutionary storytelling claims. Rate on a scale: 1 = Purely theoretical 2 = Correlational evidence 3 = Some empirical support 4 = Strong empirical evidence

Extract specific quotes or data points that demonstrate the empirical support. If no empirical evidence is provided, default to level 1.

- **Proposed Adaptive Functions of Storytelling:**

Identify and list the specific adaptive functions of storytelling proposed in the study. Look in theoretical sections, discussion, and conclusions. Potential functions include:

- Social learning
- Threat simulation
- Group cohesion
- Knowledge transmission
- Emotional regulation List functions in order of importance as presented in the study. If no clear functions are outlined, note "No specific adaptive functions proposed".

Results

Characteristics of Included Studies

Study	Study Type	Research Focus	Theoretical Framework	Methodology	Full text retrieved
Boyd, 2009	Theoretical book	Evolutionary origins of art and storytelling	Adaptive Function Analysis, Evolutionary Psychology, Cognitive Evolution	Theoretical reasoning	Yes
Boyd, 2017	Theoretical paper	Evolution of stories from mimesis to language	Cognitive Evolution, Adaptive Function Analysis	Theoretical reasoning with some correlational evidence	Yes
Eibl, 2009	Theoretical paper	Evolutionary roots of narrative patterns	Evolutionary Psychology, Cognitive Evolution	Theoretical reasoning	No
Garcia-Pelegrin et al., 2021	Theoretical review	Evolution of storytelling and cognitive abilities	Evolutionary Psychology, Cognitive Evolution, Adaptive Function Analysis	Theoretical reasoning	Yes

Study	Study Type	Research Focus	Theoretical Framework	Methodology	Full text retrieved
Grady, 2020	Review	Evolutionary approaches to narrative	Evolutionary Psychology	Theoretical reasoning with correlational evidence	Yes
Lauer, 2022	Theoretical paper	Language, childhood, and fire in storytelling evolution	Evolutionary Psychology, Cognitive Evolution, Adaptive Function Analysis	Theoretical reasoning with some empirical support	Yes
Scalise Sugiyama and Sugiyama, 2009	Theoretical paper	Oral tradition and foraging risk	Cognitive Evolution	Theoretical reasoning	No
Scalise Sugiyama and Sugiyama, 2011	Theoretical paper	Monster stories and child safety	Adaptive Function Analysis, Evolutionary Psychology, Cognitive Evolution	Theoretical reasoning with some empirical support	Yes
Scalise Sugiyama, 2011	Theoretical paper	Forager oral tradition and prolonged juvenility	Evolutionary Psychology, Cognitive Evolution, Adaptive Function Analysis	Theoretical reasoning with some empirical support	Yes
Yang, 2013	Theoretical paper	Storytelling in workplace from evolutionary perspective	Adaptive Function Analysis, Evolutionary Psychology, Cognitive Evolution	Theoretical reasoning	Yes

Analysis of Study Characteristics

- Research Focus : The studies primarily examined evolutionary aspects of storytelling, including:
 - Evolutionary origins, roots, or approaches to narrative (4 studies)
 - Evolution of stories or storytelling (3 studies)
 - Oral tradition (2 studies)
 - Monster stories (1 study)

- Storytelling in the workplace (1 study)
- Theoretical Frameworks : Most studies employed multiple theoretical frameworks:
 - Cognitive Evolution (9 studies)
 - Evolutionary Psychology (8 studies)
 - Adaptive Function Analysis (7 studies)
- Methodology : All studies used theoretical reasoning as their primary methodology:
 - Theoretical reasoning alone (5 studies)
 - Theoretical reasoning with some empirical support (3 studies)
 - Theoretical reasoning with correlational evidence (2 studies)

Thematic Analysis

Cognitive Foundations

Theme	Supporting Evidence	Theoretical Mechanism	Cultural Context
Mental Time Travel	Garcia-Pelegrin et al., 2021: Mental Time Travel (MTT) crucial for storytelling evolution	Allows humans to imagine different times and realities	Universal cognitive ability
Theory of Mind	Garcia-Pelegrin et al., 2021: Theory of Mind (ToM) essential for storytelling; Grady, 2020: Narratives encourage perspective-taking and ToM	Enables understanding and dissociation of others' experiences	Developed across cultures
Memory systems	Scalise Sugiyama, 2011: Storytelling expands episodic memory	Aids in storing and recalling information relevant to survival	Universally present but culturally influenced

Analysis of Cognitive Foundations

- Themes : The papers we reviewed discussed three main themes related to the cognitive foundations of storytelling:
 1. Mental Time Travel (MTT)
 2. Theory of Mind (ToM)
 3. Memory systems
- Supporting Evidence :
 - Garcia-Pelegrin et al. (2021) discussed two themes (Mental Time Travel and Theory of Mind) in relation to storytelling evolution
 - Grady (2020) discussed Theory of Mind

- Scalise Sugiyama (2011) discussed Memory systems
- Theoretical Mechanisms :
 - Mental Time Travel: Allows humans to imagine different times and realities
 - Theory of Mind: Enables understanding and dissociation of others' experiences
 - Memory systems: Aid in storing and recalling information relevant to survival
- Cultural Context :
 - The papers we reviewed suggested that these three themes may have some degree of universality across cultures, with Memory systems noted as potentially having specific cultural influences

Adaptive Functions

Theme	Supporting Evidence	Theoretical Mechanism	Cultural Context
Social learning	Boyd, 2009: Storytelling sharpens social cognition; Grady, 2020: Narratives provide insight into social situations	Facilitates understanding of social norms and behaviors	Universal but with cultural variations
Information transmission	Scalise Sugiyama and Sugiyama, 2009: Oral traditions buffer foraging risk; Scalise Sugiyama, 2011: Storytelling aids knowledge transmission	Enables sharing of survival-relevant information	Particularly important in hunter-gatherer societies
Risk management	Scalise Sugiyama and Sugiyama, 2011: Monster stories serve adaptive function in child safety	Activates threat-detection modules	Universal but with culturally specific manifestations

Analysis of Adaptive Functions

- Themes : The papers we reviewed discussed three main themes related to the adaptive functions of storytelling:
 1. Social learning
 2. Information transmission
 3. Risk management
- Supporting Evidence :
 - Social learning: 2 studies (Boyd, 2009; Grady, 2020)
 - Information transmission: 2 studies (Scalise Sugiyama and Sugiyama, 2009; Scalise Sugiyama, 2011)

- Risk management: 1 study (Scalise Sugiyama and Sugiyama, 2011)
- Theoretical Mechanisms :
 - Social learning: Facilitates understanding of social norms and behaviors
 - Information transmission: Enables sharing of survival-relevant information
 - Risk management: Activates threat-detection modules
- Cultural Context :
 - The papers we reviewed suggested that social learning and risk management may be universal but with cultural variations
 - Information transmission was noted as particularly important in hunter-gatherer societies

Universal Patterns

Theme	Supporting Evidence	Theoretical Mechanism	Cultural Context
Cross-cultural similarities	Eibl, 2009: Universal narrative patterns reflect evolutionary adaptations	Common cognitive and social challenges across cultures	Universality with cultural variations
Temporal consistency	Boyd, 2017: Storytelling evolved alongside language and play; Lauer, 2022: Language, childhood, and fire key in storytelling evolution	Consistent selective pressures over evolutionary time	From Pleistocene to modern era
Developmental aspects	Scalise Sugiyama, 2011: Storytelling aids in knowledge transmission to juveniles	Supports prolonged learning period in humans	Universal but with cultural differences in content and methods

Analysis of Universal Patterns

- Themes : The papers we reviewed discussed three main themes related to universal patterns in storytelling:
 1. Cross-cultural similarities
 2. Temporal consistency
 3. Developmental aspects
- Theoretical Mechanisms :
 - Cross-cultural similarities: Common cognitive and social challenges across cultures
 - Temporal consistency: Consistent selective pressures over evolutionary time
 - Developmental aspects: Supports prolonged learning period in humans
- Cultural Context :
 - Cross-cultural similarities and developmental aspects were described as universal but with cultural variations or differences

- Temporal consistency was discussed in the context of a span from the Pleistocene to the modern era

Synthesis of Evolutionary Psychology (EP) Explanations

Theoretical Integration

EP Theory	Explanatory Power	Supporting Evidence	Limitations
Adaptive Function Analysis	High	Consistent identification of adaptive functions across studies	Lack of direct empirical testing
Cognitive Evolution	Moderate to High	Links between cognitive abilities and storytelling evolution	Limited neuroscientific evidence
Evolutionary Psychology	Moderate	Consistent with EP principles of evolved psychological mechanisms	Mostly theoretical, limited cross-cultural studies

Analysis of EP Theories

- Explanatory Power :
 - High: Adaptive Function Analysis
 - Moderate to High: Cognitive Evolution
 - Moderate: Evolutionary Psychology
- Supporting Evidence :
 - Adaptive Function Analysis: Consistent identification of adaptive functions across studies
 - Cognitive Evolution: Links between cognitive abilities and storytelling evolution
 - Evolutionary Psychology: Consistency with EP principles of evolved psychological mechanisms
- Limitations :
 - Adaptive Function Analysis: Lack of direct empirical testing
 - Cognitive Evolution: Limited neuroscientific evidence
 - Evolutionary Psychology: Mostly theoretical basis and limited cross-cultural studies
- Overall Assessment : The papers we reviewed suggested that each theory had unique supporting evidence, but all faced limitations in empirical validation or cross-cultural applicability.

References

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