

Reconsidering Literature Curriculum Development from A Perspective of Narrative Neuroscience

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ABSTRACT: This study examines how insights from narrative neuroscience can effectively guide and advance the design and development of literary curricula. Human brain is inherently sensitive to narrative structures and naturally inclined toward active processing, which is highly relevant for addressing challenges in literary classrooms. This paper primarily employs a literature review methodology to synthesize existing research on narrative neuroscience and literary education. Building on this, the study seeks to integrate empirical findings from neuroscience with theoretical frameworks and pedagogical practices in literary education. The findings indicate that narrative-based pedagogical strategies are closely linked to the brain's narrative processing mechanisms, encompassing the development of empathy, memory consolidation, and identity formation. Such strategies not only promote deeper cognitive and emotional engagement among students but also support their holistic development. Incorporating a narrative neuroscience perspective into literary education provides a novel interdisciplinary framework for the development of literary curricula. This approach advocates a literary education philosophy grounded in narrative neuroscience principles, thereby achieving an integration of cognitive foundations, emotional significance, and learner-centered pedagogy.

KEY WORDS: Narrative, Narrative Neuroscience, Literature Curriculum, Pedagogy

I. INTRODUCTION

In recent years, the integration of neuroscience with the humanities has opened new avenues for rethinking educational theories and classroom practices. A particularly promising area is narrative neuroscience, which investigates how the brain interprets, engages with, and derives meaning from stories. Drawing on research from cognitive science, neuroimaging, and psychology, this field demonstrates that narrative of thought serves as a fundamental mechanism of human cognition. These insights have important implications for instructional practice, particularly in the design of literature curricula and pedagogical strategies.

Traditional literature curricula have long focused on classical works, formal literary analysis, and critical theory. Although these elements remain valuable, they often fail to fully consider how students engage with texts at cognitive and emotional levels. Recent studies indicate that narratives activate brain processes involved in empathy, experiential simulation, and identity formation. These factors are essential for profound literary comprehension. Neural systems such as the default mode network and mirror neurons play a key role in how readers interpret plots, connect with characters, and draw moral or emotional inferences from literary texts.

This study aims to explore the literature curriculum through the lens of narrative neuroscience. By incorporating findings from brain research on how narratives shape cognitive and emotional processes, it seeks to connect scientific insights into narrative comprehension with pedagogical strategies in literary education.

To achieve these objectives, this study employs a literature review approach, systematically analyzing and synthesizing prior research in narrative neuroscience, literary pedagogy, and curriculum theory. This approach allows for the integration of empirical insights from neuroscience with established practices in literary education, while also critically engaging with theoretical debates

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and practical applications. Within this framework, the study is structured around three main research questions: First, how can insights from narrative neuroscience inform the design and implementation of literature curricula? Second, in what ways can pedagogical strategies grounded in narrative neuroscience foster students' cognitive, emotional, and identity development? Third, what are the potential implications of incorporating narrative neuroscience approaches into existing literary education practices?

The following sections will review relevant theories from narrative neuroscience, explore their connections to literature teaching and learning, and propose pedagogical strategies grounded in an understanding of how the brain engages with stories. In doing so, this paper aims to contribute a novel interdisciplinary framework for developing a more empathetic, cognitively aligned, and meaningful literature curriculum.

II. THEORETICAL BACKGROUND

1. The Collision of Narrative and Neuroscience

Bruner (1991, 1996) highlighted that narrative functions as a central form of human thought, complementary to but different from paradigmatic or scientific-logical reasoning. According to Bruner, individuals interpret their experiences by arranging them into time-organized narratives, which create coherence and meaning from otherwise unrelated events. He further suggested that this narrative capacity is deeply rooted in cultural practices and operates as a key mechanism for both personal understanding and social communication. In educational contexts, this implies that learning extends beyond the mere acquisition of facts; it involves constructing meaningful stories that link new knowledge to prior experience and personal understanding.

Narrative represents a fundamental aspect of both human cognition and culture, serving as a key channel through which individuals articulate ideas, interpret experiences, and construct meaning. In educational settings, it has long been recognized as an effective means of enhancing comprehension and promoting the internalization of knowledge. Kang (2022) underscores the potential of narrative to transform knowledge-based education, emphasizing its central role in converting information into personally and socially meaningful understanding. Similarly, Lauritzen and Jaeger (1997) propose that narrative provides a structure for forming relationships and outline a narrative-based curriculum model applicable across diverse educational contexts. Armstrong (2020) further asserts that narrative underpins cognitive and social processes, enabling individuals to reorganize experiences through story construction and temporal sequencing. Consequently, research on narrative examines its role both as a medium of cultural expression and as a pedagogical approach, investigating its social functions and its influence on learners' empathy, attitudes, and emotional engagement.

Temporality is a crucial concept that reveals the continuity connecting past, present, and future within human experience, and it plays a fundamental role in explaining how narrative structures human life (Bruner, 1996; Kang, 2023). Narrative does not merely consist of a logical sequence of events; it also encompasses the temporality of consciousness. From a phenomenological standpoint, the present moment is never isolated but always embedded in a temporal horizon that connects what has been, what is, and what is anticipated. For instance, an individual's current struggles or joys are always interpreted in light of past memories and future hopes or fears, which together weave a coherent story of the self. This narrative coherence is vital for maintaining identity and making sense of life events.

According to Heidegger (1962), human existence is intrinsically bound to "being-in-time." In his view, temporality constitutes the fundamental ontological basis of existence. Narrative functions as an expression of temporal being, organizing lived experience into coherent structures that disclose how individuals orient themselves toward future possibilities while remaining grounded in their past.

Rather than simply describing occurrences, narrative embodies the temporal flow of consciousness by integrating the three dimensions of time (past, present, and possibility: 3P) into an ongoing whole. This integration allows human beings to interpret their lives, sustain a continuous sense of self, and engage with reality in temporally meaningful ways.

The study conducted by Hasson et al. (2008) revealed that humans are neurologically predisposed to grasp temporal sequences and narrative coherence, establishing an empirical foundation for the neuroscience of narrative. This finding underscores that narrative is no longer confined solely to linguistics or literary studies but is increasingly recognized as a fundamental unit of human mental activity and neural information processing (Bruner, 1991; Armstrong, 2020). Narratives have come to be recognized as vital cognitive structures that mediate how individuals interpret their surroundings, establish personal experience

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and identity, and engage in the transmission of meaning.

Narrative functions as a mechanism that integrates scattered events into a unified storyline, which in turn supports more effective memory encoding, storage, and retrieval. Narratives typically involve characters, conflicts, and emotional cues, which activate brain regions such as the amygdala and prefrontal cortex that are associated with emotion and empathy (Immordino-Yang & Damasio, 2007). When individuals listen to or read stories, the relevant neural circuits are activated as if they were experiencing the events themselves, allowing them to “live through” the actions and emotions of the characters (Mar & Oatley, 2008). Elements such as suspense, plot twists, and closure in narratives have been shown to stimulate the brain’s reward circuitry, thereby fostering greater attention and motivational engagement.

Neuroscience, therefore, explains why stories are more easily understood and remembered than isolated pieces of information (Hasson et al., 2008). Narrative-based pedagogy aligns with the brain’s cognitive architecture, thereby improving learners’ comprehension and retention. In this way, neuroscience provides theoretical support for narrative, offering biological foundations for the development of education, psychotherapy, and literary studies.

In conclusion, narrative can be regarded as an inherent cognitive strategy for processing information. Human brain handles information most naturally through narrative, and neuroscience clarifying the neural mechanisms that make it possible. The two are mutually reinforcing, narrative provides neuroscience with rich material for research, while neuroscience offers narrative a biological explanation and practical value across diverse domains (Bruner, 1990; Kandel, 2006).

Narrative cannot exist without the neural substrates that enable its construction, processing, and communication, just as neural processes cannot be fully understood without considering their narrative manifestations (Bruner, 1990; Armstrong, 2020). Because human cognition is oriented toward time and meaning, narrative provides the structure that transforms neural processes into integrated experiences. In turn, brain networks such as the default mode network, the mirror neuron system, and reward circuits support and influence how narratives are constructed, recalled, and transmitted. This interplay demonstrates a reciprocal link. Narrative gives form and significance to brain activity, whereas neuroscience reveals theoretical explanations that account for its essential role in human thought, identity formation, and cultural life.

On the basis of this reciprocal dynamic, narrative neuroscience has been established as an interdisciplinary domain linking narrative studies with cognitive and affective neuroscience. Through the integration of narrative theory and neuroscientific mechanisms, it provides novel perspectives for educational research and curriculum development. This convergence offers new possibilities for designing educational frameworks that utilize the cognitive and affective potentials of narrative to enhance teaching and learning.

2. An Overview of Narrative Neuroscience

As an emerging interdisciplinary field, narrative neuroscience explores the ways in which the human brain engages with and is shaped by stories. Integrating insights from cognitive neuroscience, psychology, and narrative theory, it investigates the neural processes that support understanding, memory, empathy, and identity formation. At its foundation, narrative neuroscience maintains that storytelling is both a cultural phenomenon and a biological function rooted in brain structure.

Research in this domain has highlighted the importance of the default mode network (DMN), which is engaged during periods of rest, spontaneous thought, and introspective activity. Studies have shown that the DMN is heavily engaged when individuals read or listen to narratives, especially when imagining characters’ perspectives, recalling past experiences, or projecting possible future scenarios (Raichle, 2015). It appears that narrative understanding and reflective cognition are connected at the neurological level, offering a mental framework that supports literary involvement.

The mirror neuron system is another important concept, allowing people to internally replicate the actions, intentions, and feelings of others. During deep engagement with a narrative, readers’ brains often recreate the characters’ experiences as though they were personally occurring. This neurological simulation fosters empathy, identification, and moral reasoning, which are central to both literary experience and personal development (Gallese & Goldman, 1998; Mar & Oatley, 2008).

Furthermore, narrative is believed to play a crucial role in the formation of the “narrative self”—the sense of identity built through the organization of life events into coherent stories (Bruner, 1991). Building on this, Freud’s structural model of the psyche provides a complementary psychoanalytic perspective. Freud (1961) conceptualized the human mind as composed of three interacting agencies: the id (primitive drives and desires), the ego (the rational mediator between inner impulses and external

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reality), and the superego (the internalized moral authority). Literature often dramatizes these psychic tensions, presenting conflicts between desire, reason, and morality in narrative form. From the perspective of narrative neuroscience, these Freudian dynamics can be mapped onto distinct neural processes: emotional impulses correspond to amygdala-driven affective responses, regulatory functions are mediated by the prefrontal cortex, and moral reflection is supported by cortical networks implicated in social cognition. Thus, when students engage with literary texts, they are not only constructing a narrative self cognitively but also rehearsing the integration of unconscious drives, rational control, and moral evaluation. By linking Bruner's notion of the narrative self with Freud's structural model, literature education can be understood as both a cognitive and psychoanalytic practice—one that cultivates identity formation through the interplay of narrative meaning-making, emotional regulation, and ethical reflection.

In brief, narrative neuroscience provides a scientific rationale for the importance of stories, emphasizing that they are cognitive experiences shaping how we think, feel, and learn, beyond their status as texts to be studied. Recognizing these dynamics supports a rethinking of literature curricula in ways that align with the brain's instinctive engagement with narrative.

3. Challenges and Future Directions of Literature Curriculum

The literature curriculum has long occupied a central place in education, serving as a vehicle for cultivating language skills, cultural understanding, critical thinking, and personal growth (Applebee, 1996; Rosenblatt, 1978). When literature is taught effectively, students are invited to explore diverse aspects of human life, confront complex emotional and moral issues, and foster empathy by actively imagining the experiences of others. Traditionally, the goals of the literature curriculum have included the appreciation of literary texts, the development of interpretive and analytical skills, and the promotion of reflective and ethical engagement with narratives (Beach, Appleman, Hynds, & Wilhelm, 2011).

However, contemporary education systems often face tensions between these humanistic goals and the pressures of standardized assessment, utilitarian outcomes, and curriculum constraints (Biesta, 2009). In many classrooms, literature is reduced to a set of formal techniques or testable content, rather than a space for emotional resonance and cognitive exploration. Students may be taught to identify literary devices or themes without being encouraged to reflect on their personal responses or consider how stories connect to their own lives and identities (Rosenblatt, 1995; Wilhelm, 2007).

Another challenge lies in student disengagement. Traditional literary texts, especially canonical works can seem distant, difficult, or irrelevant to students in an age dominated by digital media and fragmented attention (Newkirk, 2002). Without effective pedagogical strategies that foster emotional connection and cognitive immersion, literature education risks becoming a mechanical exercise rather than a transformative experience.

Moreover, many curricula lack an explicit understanding of how cognitive and emotional processes operate during reading. While literature is inherently psychological, few educational frameworks incorporate findings from neuroscience or cognitive science to inform instruction (Immordino-Yang & Damasio, 2007; Egan, 1997). As a result, there is a missed opportunity to align how literature is taught with how stories are actually processed in the brain.

In response to these issues, there is an increasing demand for educational models that integrate literature pedagogy with knowledge from cognitive and neural sciences. Applying insights from narrative neuroscience can support the creation of literature curricula that foster academic achievement while also encouraging deeper engagement, empathy, and cognitive growth.

4. The Connection between Narrative Neuroscience and Literature Pedagogy

The merger of insights from narrative neuroscience and literary studies presents an opportunity to reconcile scientific knowledge with humanistic interpretation. On one hand, neuroscience provides empirical evidence of how stories engage neural circuits related to memory, empathy, and identity (Bruner, 1991; Mar & Oatley, 2008; Raichle, 2015); on the other, literature offers a rich, symbolic space in which these cognitive and emotional processes are expressed, explored, and challenged (Rosenblatt, 1978; Nussbaum, 1997). This convergence suggests that literary pedagogy can be both scientifically grounded and artistically liberating: grounded, because it is informed by measurable neural responses to narrative structures and emotional arcs (Zacks et al., 2009; Immordino-Yang, 2011); liberating, because it maintains the interpretive openness, aesthetic diversity, and ethical reflection that characterize the humanities (Greene, 1995). Integrating these two perspectives allows educators to create curricula that correspond to the brain's natural processing of narratives while remaining sensitive to the cultural and emotional

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realities of students. This strategy has the potential to rejuvenate literature education, transforming it into an arena of neural engagement, intellectual depth, and personal growth.

The integration of narrative neuroscience with literature education can be approached through two complementary dimensions: the visible brain and the invisible brain (Yeon, 2023). While each perspective is unique, together they create an integrated framework that helps illuminate how storytelling affects students' cognitive processes, emotional development, and sense of self in the classroom.

The term “visible brain” encompasses those neural phenomena that can be empirically measured and directly observed. Neuroimaging advancements, such as functional magnetic resonance imaging and electroencephalography, facilitate the identification of brain circuits activated during narrative comprehension. For example, the default mode network (DMN) is consistently active when individuals imagine characters' perspectives or project future scenarios (Raichle, 2015), while the mirror neuron system facilitates the simulation of characters' actions and emotions (Gallese & Goldman, 1998). Emotional salience is mediated by structures such as the amygdala and anterior cingulate cortex, with neurochemical systems (including dopamine) playing a critical role in anticipation, reward, and motivation during reading (Lisman et al., 2011; Immordino-Yang, 2011).

The notion of the “visible brain” offers a scientific basis for curriculum design in literature instruction. Aligning selections of texts, reading practices, and assessment methods with observed neural activation patterns allows educators to foster empathy, strengthen memory, and maintain engagement among students.

The “invisible brain” captures the experiential and meaning-making aspects of engaging with literature. These aspects (mentality, memory, consciousness, faith, imagination) that are not fully accessible through direct neuroscientific observation. It includes the construction of the narrative self, the internalized sense of identity shaped by organizing life experiences into coherent stories (Bruner, 1991; McAdams, 2001). As well as empathy, moral reasoning, and aesthetic appreciation (Greene, 1995; Nussbaum, 1997). While these processes may have neural correlates, their richness depends on personal history, cultural context, and emotional resonance, which require interpretive and reflective methods to understand.

Within the domain of literature education, attention to the “invisible brain” encourages students to weave personal experiences into their reading, practice reflective writing, and examine multiple perspectives. Such an emphasis safeguards the ethical richness, openness, and transformative potential of literature, which lie beyond the scope of quantifiable brain activity.

The integration of these two perspectives offers a more holistic approach to literature education. While the “visible brain” provides empirical support for pedagogical strategies, the “invisible brain” preserves the interpretive freedom and humanistic principles central to literary study. They facilitate the development of curricula that are both informed by neuroscience and sensitive to students' cultural contexts, personal experiences, and ethical imaginations. Within this dual approach, literature classrooms become environments where scientific understanding and artistic engagement converge to promote cognitive growth, emotional awareness, and personal transformation.

III. A NEW MILESTONE FOR LITERATURE CURRICULUM: INSIGHTS FROM NARRATIVE NEUROSCIENCE

The inclusion of narrative neuroscience in literature curriculum design enables educators to develop pedagogical practices that correspond to the ways in which the brain engages with stories. As discussed earlier, narrative is not only a vehicle for communication but also a biological mechanism through which individuals make sense of the world, construct identity, and experience empathy (Bruner, 1991; Mar & Oatley, 2008). Understanding the cognitive and emotional dimensions of how narratives are processed provides a foundation for developing literature curricula that integrate neuroscientific insights with effective pedagogical practices.

1. Empathy and Emotional Engagement in the Classroom

Narrative neuroscience reveals that engaging with fictional narratives activates brain regions associated with emotional regulation, theory of mind, and empathy—particularly the medial prefrontal cortex, temporoparietal junction, and mirror neuron systems (Decety & Jackson, 2004; Immordino-Yang, 2011). Reading literature involves more than text comprehension; students mentally enact experiences, often sharing in the emotions of characters and envisioning the consequences of their actions. In this way, literature provides a space for developing emotional awareness and moral reasoning.

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This insight highlights the educational value of literature, emphasizing its potential to cultivate emotional literacy rather than being treated only as a text for analysis. Through the careful selection of emotionally and psychologically rich texts and the design of activities emphasizing character perspectives, internal conflicts, and moral ambiguity, teachers can nurture profound empathy and foster critical reflection (Nussbaum, 1997). Such forms of engagement are particularly vital for adolescent students, who are in the process of establishing their social and emotional identities.

Recent affective neuroscience research highlights that empathy is supported by both the mirror neuron system and higher-order cortical networks, which are activated when individuals witness or imagine others' emotions (Decety & Jackson, 2004; Immordino-Yang & Damasio, 2007). These mechanisms in literature classrooms allow students to vicariously experience characters' joys and struggles, making the act of reading resemble social engagement at a neural level. Literature, therefore, serves both cognitive and emotional purposes, strengthening learners' abilities to recognize and respond to the emotions of others. Translating this into practice, educators can design learning activities that foster deliberate emotional engagement and perspective-taking.

Furthermore, empathy cultivated through literature has broader implications for 21st-century education. It supports social and emotional learning (SEL), fosters intercultural competence, and prepares students to engage with diverse perspectives in an increasingly interconnected world (Nussbaum, 1997). Thus, emotional engagement in the literature classroom is not ancillary but central to both personal growth and democratic citizenship.

2. Identity, Memory, and the Narrative Self

Narrative neuroscience also supports the idea that literature contributes to the development of the “narrative self”—the understanding of one's identity as constructed through stories (Singer, 2004). Reading literature allows students to compare their own lives with those of fictional characters, process personal experiences through symbolic means, and reflect on the past, present, and imagined future.

When engaging with literature, students activate episodic memory for personal experiences and semantic memory for cultural and moral knowledge. Reflecting on characters' experiences in relation to their own allows them to recall and reframe past events while creating new long-term interpretations. Stories' symbolic aspects also help consolidate emotional memories, blending feelings with cognitive understanding.

The Korean postwar short story *비 오는 날* (Rainy Day) by 손창섭 (Son Chang-seop) provides a vivid example of how literature can explore and reconstruct the “narrative self” in the wake of historical trauma. Written in the early years after the Korean War, the story captures a society marked by material deprivation, fractured relationships, and lingering psychological wounds (Jung, 2019). Set against the monotonous and oppressive backdrop of an unending rainy day, the narrative follows characters whose everyday interactions are tinged with alienation, resentment, and unspoken grief. The rain functions as both an atmospheric detail and a central metaphor—signifying the dampened spirit of a war-torn nation and the characters' inability to escape the weight of the past.

In literature instruction, *Rainy Day* provides significant pedagogical opportunities. Learners might be guided to chart the story's emotional progression, recognize sensory elements that trigger memory, and reinterpret passages from the perspectives of different characters. These exercises stimulate the “visible brain” by engaging neural networks associated with narrative simulation and emotional processing, while also activating “invisible brain” functions such as self-reflection, moral reasoning, and the formation of cultural identity. In this way, the story exemplifies how postwar literature can act both as a historical event and a means for personal meaning-making.

Viewed in this way, literature teaching gains from strategies that deliberately link reading activities to memory processes. These insights suggest that educators should integrate reflective and autobiographical exercises, including journaling, writing personal narratives, or relating texts to students' own life experiences. These strategies not only enhance comprehension but also help students internalize and personalize the meaning of texts (McAdams, 2001; Greene, 1995).

When unresolved childhood wounds (manifesting as recurrent feelings of depression, resentment, sorrow, and anger) are reframed through the maturation of the prefrontal cortex and the sustained flow of rational thought, they can give rise to powerful literary works (Immordino-Yang, 2011; McAdams, 2001). Under such circumstances, writing serves as a means of sublimation, allowing intense emotional pain to be converted into creative or artistic expression. Neuroscientifically, this process is accompanied by the

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release of various neurotransmitters, including dopamine, serotonin, endorphins, gamma-aminobutyric acid (GABA), and norepinephrine, which collectively contribute to the experience of psychological relief and emotional healing (Stahl, 2013). These neurochemical changes occur at the synaptic level, where information is exchanged between neurons. This discovery that has significantly advanced the treatment of psychiatric and neurological disorders, as evidenced by the development of antidepressants, anxiolytics, and antipsychotics (Kandel, 2006; Stahl, 2013).

From a literary perspective, it is well-recognized that happiness alone rarely serves as the driving force of enduring literary creation; rather, it is often pain and adversity that give birth to works of lasting cultural and aesthetic value. Suffering, when mediated through narrative form, becomes not merely a personal catharsis for the author but also a shared emotional experience for readers, fostering empathy and collective meaning-making (Mar & Oatley, 2008; Rosenblatt, 1978). In this way, the convergence of emotional trauma and narrative artistry demonstrates both the therapeutic potential of literary creation and the deep neurobiological foundations upon which such creative processes rest (Armstrong, 2013; Immordino-Yang & Damasio, 2007).

3. Reconceptualizing Instructional Strategies in the Context of Literature Education

Narrative has shown considerable value in pedagogical contexts. Research from cognitive psychology, neuroscience, and educational studies indicates that narrative is central to the encoding, consolidation, retrieval, and transfer of information in memory. Narrative also increases the durability of memory traces. Whereas isolated facts or figures are susceptible to rapid forgetting, information embedded within a story benefits from contextual and emotional cues, enhancing the likelihood of long-term retention (Rubin, 1996).

Furthermore, research in education shows that story-based instruction improves comprehension and retention of complex concepts by enabling learners to engage in “mental simulation” of events (Mar & Oatley, 2008). The simulation prompts cognitive and emotional responses similar to those occurring in real-world situations, which helps strengthen both memory encoding and retrieval. In sum, narrative functions as a cognitive bridge that transforms abstract or fragmented information into structured, emotionally resonant experiences, making it easier for the brain to store, preserve, and recall knowledge (Bruner, 1990).

If we understand that narrative processing involves mental simulation, perspective-taking, and affective resonance, then instructional strategies should mirror these cognitive dynamics. Strategies such as dramatic reenactments, role-playing, reading aloud with expressive intonation, guided imagery, and dialogic discussion help activate the same neural pathways that are involved in immersive story engagement (Zacks et al., 2009; Skolnick & Bloom, 2006).

Additionally, the temporal structure of narrative (its sequence, causal logic, and emotional arcs) aligns well with the way the brain organizes memory and constructs meaning. Teachers can use this insight to scaffold literary analysis not just by focusing on content, but by helping students trace how stories unfold emotionally and cognitively step by step.

In this context, the processes of literary reading and writing can be conceptualized as complementary cognitive functions. Literary reading functions as input, whereby students internalize narratives, simulate characters' experiences, and encode meanings into memory through neural mechanisms. In contrast, literary creation constitutes output, allowing students to externalize and reorganize their internalized experiences through narrative form. From a neuroscientific perspective, this input–output cycle mirrors the brain's dynamic processes of encoding, consolidation, and retrieval: reading provides the raw material for narrative simulation and identity construction, while writing enables reinterpretation, reconsolidation, and creative transformation. Thus, literature education should not only emphasize comprehension of texts but also encourage productive activities such as creative writing, reflective journaling, and narrative reconstruction, which complete the cycle of narrative learning.

According to Ebbinghaus's (1964) forgetting curve, information is more effectively retained when it is revisited and emotionally reinforced over time (Murre & Dros, 2015). The unfolding of a story inherently provides such spaced reinforcement: key plot points, recurring motifs, and gradual emotional developments act as natural “reviews” that strengthen memory traces. Teachers can leverage this by designing literary analysis activities that prompt students to recall and connect earlier narrative events at multiple points in the reading process, thereby counteracting the steep initial drop in retention predicted by the forgetting curve. In this way, analysis focuses not only on content but also on guiding students through the emotional and cognitive sequence of a story in sync with the rhythms of memory consolidation and recall.

IV. REFRAMING LITERATURE CURRICULUM DEVELOPMENT THROUGH NARRATIVE NEUROSCIENCE

The integration of narrative neuroscience within literature education should not be regarded as a purely theoretical pursuit. Rather, it influences concrete practices such as curriculum design, the choice of texts, instructional strategies, and assessment methods. When teachers understand how the human brain processes stories, literary pedagogy can be aligned with learners' cognitive and emotional development, enhancing accessibility and personal resonance.

1. Text Selection: Stories That Resonate

One of the clearest implications of narrative neuroscience is the importance of emotional resonance and perspective-taking in student engagement. Neuroscientific research shows that stories with emotionally compelling characters and moral complexity activate brain regions involved in empathy, affect regulation, and self-referential thinking (Mar et al., 2006; Immordino-Yang, 2011).

Literature is defined as an art form that expresses human emotions and thoughts through the power of imagination, using written language (Yeon, 2023). It encompasses works such as poetry, novels, essays, plays, and critiques. As a linguistic art that conveys truths gained through the author's experiences, literature is a creative world that explores and expresses human life. At the heart of literature lies a multidimensional and introspective portrayal of individuals (often the protagonists) within the intertwined contexts of history, geography, morality, and the struggle between good and evil.

As is required in literary creation, only what flows from the heart can truly reach another heart. Thus, literature transcends mere description or storytelling; it becomes a medium of empathy and resonance. When a writer captures the essence of human experience with sincerity and emotional depth, the work does more than inform—it moves, challenges, and transforms. Through this heartfelt communication, literature forges connections between individuals across time, culture, and perspective, reminding us of our shared humanity and the intricate inner worlds we each carry.

Currently, literary education advocates a shift from focusing solely on the subject matter to focusing on the learners themselves. In the process of teaching literature, teachers are encouraged to pay closer attention to each student's emotional changes and affective experiences. Moreover, we know that sympathy, empathy, and compassion are all distinct forms of literary experience. These emotional responses are not merely byproducts of reading, but essential dimensions of how students engage with texts. When students encounter characters' joys and sorrows, victories and defeats, they are invited into a deeper understanding of both others and themselves. By cultivating these emotional resonances, literary education nurtures emotional intelligence, critical thinking, and moral imagination. Thus, literature becomes not just a subject to study, but a space for personal growth, ethical reflection, and the development of a more compassionate worldview.

Neuroscientific research shows that the brain has a preference for clear and well-structured narratives. Narratives not only make information easier for us to attend to and remember, but also activate specific brain regions and trigger the release of neurochemicals, enabling us to resonate emotionally with the characters and events within a story. As a result, educators should prioritize texts that feature diverse, psychologically rich characters; present emotionally and ethically complex situations; connect to students' lived experiences or cultural contexts. This approach supports the development of narrative empathy and encourages students to see literature not as a distant academic task, but as a mirror and window into the human condition (Rosenblatt, 1978; Nussbaum, 1997).

2. Pedagogical Strategies: Engaging Narrative Neuroscience for Literature Curriculum Development

Drawing on findings from narrative neuroscience, educators can design pedagogical strategies that correspond to the brain's predisposition for understanding and interpreting stories. In the realm of literature, the "Platonic brain" emphasizes inspiration and the spiritual essence underlying the text (Yeon, 2023). When literature is taught through this lens, the purpose is not merely to convey plot but to cultivate the soul's responsiveness to transcendent ideals. Characters are understood less as individuals and more as symbolic figures embodying philosophical or abstract notions. This orientation resonates with the tradition of idealist and symbolic literature, in which meaning is situated at a level deeper than the immediate storyline.

In contrast, the "Aristotelian brain" highlights the importance of textual structure, plot development, character motivation, and logical causality (Yeon, 2023). Adopting this viewpoint, learners are guided to perform detailed textual examination, considering both the inner psychology of characters and the cultural or historical settings that shape them. Instruction within this framework

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emphasizes critical textual study in relation to lived realities, aiming to cultivate a comprehensive and well-structured grasp of literature.

The “Kantian brain,” meanwhile, emphasizes the significance of cognitive frameworks and perspectival structures (Yeon, 2023). Literature instruction influenced by this view promotes constructivist and critical awareness, encouraging students to read critically and reflect on how texts shape their values, assumptions, and worldviews. Here, the reader is seen as an active producer of meaning, and multiple interpretations are not only accepted but actively encouraged.

In the field of literary education, different philosophical orientations give rise to varied pedagogical models, each privileging a distinctive mode of textual engagement. The Platonic perspective highlights inspiration and the search for spiritual essences that lie beyond the literal level of the text. Instruction rooted in this orientation aspires to awaken the inner life of students and to direct them toward universal truths, often interpreting fictional figures as symbolic manifestations of abstract ideals. Such an approach corresponds to the traditions of idealist and symbolic literature, where meaning is not confined to narrative form but is understood as part of a metaphysical domain. By contrast, the Aristotelian orientation emphasizes narrative structure, causal logic, character motivation, and the dynamics of plot. Pedagogy informed by this framework promotes close textual study, rational analysis, and the integration of literary representation with life experience. Students are thus encouraged to engage in detailed interpretation and reasoned evaluation, reflecting the principles of realist traditions. The Kantian orientation introduces a more constructivist dimension, accentuating the role of the cognitive subject in generating meaning. Within this model, literary education fosters critical self-awareness and perspectival thinking, prompting students to recognize how texts shape their perception of reality. The reader is thereby positioned as a co-creator of meaning, with multiple interpretations encouraged in a pluralistic and reflective classroom environment.

Although these philosophical orientations are distinct, they can be enriched through the perspective offered by narrative neuroscience, which underscores the brain’s intrinsic sensitivity to narrative form. As Zacks et al. (2009) observe, narrative comprehension draws upon neural mechanisms that register causal links, temporal sequencing, and the intentions of characters, while also recruiting areas of the brain involved in memory, affect, and embodied simulation. Classroom practices such as perspective-taking assignments (writing from a character’s vantage point), oral narration, or mapping narrative trajectories, reflect these cognitive tendencies and stimulate related neural networks. Such methods foster not only textual understanding but also embodied and affective modes of learning, transforming abstract literary notions into more tangible and memorable experiences. When integrated into Platonic, Aristotelian, or Kantian pedagogical models, these strategies deepen students’ emotional engagement, sharpen analytical processing, and cultivate ethical reflection, thereby aligning literary education more closely with the brain’s natural orientation toward narrative.

3. Student Reflection and Identity Formation

The distinction between “come to mind” and “think” reveals key aspects of the literary consciousness and the emergence of thought. Descartes (1996) famously asserted, “I think, therefore I am.” However, Hume (1978) objected, emphasizing the role of memory in personal identity, suggesting instead, “I remember, therefore I am.” As we all know, the hippocampus plays a crucial role in linking events together to form memories (Baldock, 2006). The first stage (when the hippocampus decides to retain a sensory experience) is called encoding. Once used, the memory moves to the storage stage. Later, stored memory is retrieved, and the prefrontal cortex engages in comparison and evaluation. With continued repetition and use, the memory is re-stored and strengthened through a process known as consolidation.

In the literary field, the process can be understood as one of acquisition, composition, modification, and creation. Within the practice of gradual refinement, genuine literary works emerge not from isolated inspiration but from sustained engagement with one’s writing through cycles of reconsideration and rewriting. Drafting and refining a poem or novel mirrors the brain’s own method of consolidating and reshaping neural connections. Every revision can strengthen thematic unity, refine stylistic precision, and heighten affective depth. Just as neural pathways are reinforced by deliberate rehearsal, literary craft advances through persistent revision. This is a form of intellectual and artistic reflection that transforms initial expression into a work of lasting significance.

Stories often remain deeply imprinted in memory because of the powerful emotions they elicit. Experiences with strong affective intensity tend to draw heightened attention, facilitate durable memory encoding, and shape later patterns of thought and

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behavior. This effect arises from the engagement of the brain's emotional salience system, which involves structures such as the amygdala and anterior cingulate cortex, as well as neurotransmitter pathways like dopamine. The amygdala, functioning as a key node for detecting and prioritizing emotional stimuli, reacts swiftly to events marked by fear, anger, or other significant feelings, signaling their relevance. At the same time, neurochemical activity, particularly dopamine release, reinforces the consolidation of these moments into memory. Consequently, when a narrative stirs profound emotions, the brain will highlight those episodes, weaving them into lasting and vividly recalled elements of one's personal story.

Our memory and narrative are not fixed, like a replayable videotape; instead, they function more like a film that is edited anew with each recall. Research shows that every time we remember something, the brain reconstructs and then re-stores that memory—a process known as memory reconsolidation. If new interpretations or information are introduced during the act of remembering, the memory itself can be updated. Thus, when we retell the past from a different perspective, we are also (on a neural level) altering the way that memory is expressed. Through repeated practice, our internal narrative scripts can gradually evolve and reshape.

Memory is not merely a repository of past experiences; it is dynamically reconstructed each time we recall, reinterpret, or narrate it. Neuroscientific research reveals that memory is malleable, undergoing reconsolidation whenever it is retrieved and integrated with new insights. This process allows narratives to evolve alongside the self, as each act of remembering becomes an opportunity for reinterpretation and reorganization. In this way, narrative serves not only as a cognitive structure, but as a medium for self-formation.

Because narrative is pivotal to the formation of personal identity, the design of literature curricula ought to deliberately integrate opportunities for reflection and individual meaning construction. Activities such as reading journals, where students reflect on how texts relate to their own lives, and personal narrative writing, which helps students construct and explore their own "narrative self" (McAdams, 2001), are especially powerful. These practices are supported by neuroscience findings indicating that integrating personal experience into narrative structures enhances memory consolidation and emotional salience (Singer, 2004; Green, 2004). When literature education is structured around reflective practices, it cultivates students' interpretive abilities and contributes to broader development outcomes, including the construction of personal identity.

4. Assessment and the Reconsideration of Literary Outcomes

In conventional approaches to assessing literature, students are frequently evaluated through analytical essays or tasks that emphasize the reproduction of factual knowledge. Although such exercises develop valuable academic competencies, they often overlook the creative, emotional, and introspective dimensions that are central to authentic literary engagement. However, these qualities increasingly recognized by narrative neuroscience. Literary imagination, for instance, activates the brain's default mode network (DMN), associated with introspection, mental time travel, and the simulation of hypothetical experiences (Raichle et al., 2001).

Moreover, emotionally powerful narratives can trigger the release of dopamine, a neurotransmitter associated with reward, attention, and motivation (Lisman et al., 2011). When individuals engage in activities that are satisfying, meaningful, or exciting, such as reading a captivating literary work, the brain will release dopamine. While reading a novel, readers often anticipate the progression of the narrative, and this sense of "expectation" activates the brain's reward system. The fulfillment of this expectation promotes dopamine release, leading to a pleasurable experience. This neurobiological mechanism explains why young children never seem to tire of hearing the same bedtime story repeatedly. Each time they successfully predict the next part of the story, their brains release dopamine as a reward, producing a sense of satisfaction. From the perspective of dopamine activity, literary reading functions as a mental reward driven by the brain's motivational system, rather than merely a way to acquire knowledge. Literature engages the brain's reward system through its linguistic artistry, narrative suspense, and emotional depth, enabling readers to derive personal pleasure and a sense of inner fulfillment. This neuroscience cognitive mechanism helps explain the enduring appeal of literary works across generations, as they provide both intellectual nourishment and emotional gratification.

When students gain understanding or resonate emotionally with a text, this phenomenon sometimes described as literary inspiration, their brains may release endorphins, promoting feelings of pleasure, active involvement, and total absorption in the reading. Inspiration, therefore, is not a passive or mystical moment of genius, but rather a neurocognitive convergence of emotion,

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memory, and associative thinking (Yeon, 2023). This phenomenon frequently arises when storytelling elements, such as conflicts, resolutions, or vivid poetic images, evoke connections with the reader's previous personal experiences. Emotional patterns also play a significant role in this resonance.

These experiences are associated with elevated neural responses in the anterior superior temporal gyrus and prefrontal cortex, regions implicated in insight and creative thinking. Literature, by activating reward circuits and fostering deep engagement, has the potential to support both lasting retention and meaningful learning experiences.

From this perspective, inspiration can be seen as an evolving mechanism arising from the interaction between narrative structures and neural processes. Compelling narratives engage both affective and cognitive circuits, and the brain encodes these moments as lasting and often transformative experiences. Rather than being an accidental outcome of reading, inspiration reflects the result of intricate interactions between neural activity and storytelling, underscoring literature's lasting educational and cultural impact.

A narrative neuroscience-informed curriculum therefore advocates for process-oriented assessments that recognize inspiration and imagination as integral to literary understanding. For example, student portfolios might include not only analytical essays, but also creative exercises such as metaphor creation, imagined dialogues between characters, or visual representations of narrative mood. Self-assessments and reader-response journals can document how stories resonated with students emotionally and imaginatively, how a particular passage made them feel "seen" or sparked a burst of creative energy.

Such approaches reflect how the brain handles stories, treating them not merely as language constructs but as enacted experiences, emotionally potent narratives, and neural-chemical responses that produce lasting cognitive and emotional effects. When assessment focuses on literature as a dynamic process rather than a static product, education in literature embraces a more holistic perspective, acknowledging the central role of human emotion, imagination, and neurobiological reward in literary experience.

Stufflebeam's (2003) CIPP model, which includes Context, Input, Process, and Product, may be applied to literary education from a narrative neuroscience perspective to strengthen assessment practices. By combining insights from narrative neuroscience, literary studies and educational theory, this approach enables a more comprehensive evaluation and improvement of teaching effectiveness.

The Context evaluation of the CIPP model assesses how well the literature curriculum satisfies students' intellectual and emotional requirements, particularly their ability to empathize and actively engage with narratives. The Input evaluation examines whether selected texts and teaching methods are appropriate and aligned with neuroscientific evidence on how stories influence memory and emotional processing. Research on the role of empathy and emotion in storytelling has deepened our understanding of why narrative is increasingly incorporated into educational practices across various levels. The Process evaluation focuses on the effectiveness of classroom implementation, considering whether activities such as perspective-taking exercises, reflective writing, or dialogic discussions successfully engage brain networks involved in narrative comprehension. Empirical studies suggest that reading fiction can enhance empathy, highlighting the tangible benefits of literary engagement. Finally, the Product evaluation measures students' outcomes not only in terms of critical thinking abilities but also in their development of empathy, personal identity, and meaningful or transformative literary experiences.

Applying the CIPP model with insights from narrative neuroscience allows assessment to become more holistic and adaptive, extending beyond conventional evaluations focused solely on recall or formal analysis. This approach enables educators to examine literature curricula in an integrated manner, ensuring that teaching strategies are informed by narrative neuroscience, grounded in pedagogical principles, and aligned with students' development needs. As a result, educators can construct a robust evaluation framework that enhances the overall effectiveness of literature instruction.

V. CONCLUSION

This study has examined the convergence of narrative neuroscience and literature curricula, suggesting that neuroscientific findings can deepen our understanding of how students respond to literary works. Narrative is not merely a cultural object or educational instrument, it represents a core cognitive function embedded within the architecture of the human brain. Research indicates that reading stories engages multiple neural circuits related to emotion, empathy, memory, and identity formation. These

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results resonate with the traditional humanistic objectives of literature education while providing new avenues to validate and enhance them.

Current literature education approaches often encounter challenges in engaging students in meaningful literary experiences, partly as a result of standardized requirements, cognitive strain, or a lack of individual relevance. Drawing on principles from narrative neuroscience, including emotional resonance, perspective-taking, and embodied cognition, teachers can create learning experiences that are both intellectually engaging and emotionally supportive. Such integration enhances students' understanding of literature while simultaneously promoting emotional development and personal identity formation.

At the same time, practical difficulties remain in applying narrative neuroscience to literature education. Teacher professional development, curriculum reform, and further empirical research are required to bridge this gap. Nevertheless, the potential benefits are considerable. Narrative neuroscience provides a comprehensive framework for enhancing literature instruction, supporting the development of reflective, empathetic, and thoughtful learners.

In brief, conducting literature education through the lens of narrative neuroscience can promote a cognitively challenging, emotionally responsive, neuroscience-oriented, and deeply humanistic curriculum. Through insights into how stories are processed, stored, and emotionally experienced by the brain, narrative neuroscience provides a framework for enriching literary education and making it more consistent with human cognitive and emotional functions.

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