

The Circulatory Structure of Mind Model: A Theoretical Integration of Dual Structure, Cognitive Dissonance, Narrative Formation, and the Need for Social Approval

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ABSTRACT

This study proposes a theoretical framework—the Circulatory Structure of Mind Model—that explains how the human mind maintains itself while continuously regenerating internal contradictions. The model assumes that dual structures (e.g., private vs. public self; biological vs. narrative self) inherently produce contradictions, which are experienced as cognitive dissonance. Because dissonance is intolerable for the brain, cognitive biases are automatically activated to reduce it. These biases, being local distortions, are subsequently integrated into coherent narratives that provide meaning. The narratives are then presented to others and generate social approval, which stabilizes the external self, widens the gap from the private self, and ultimately reproduces the dual structure. Through these processes, the mind forms a circulatory system that sustains itself while continually regenerating contradictions. Integrating findings from psychology, cognitive science, and social psychology, this study offers a new framework for understanding the persistence and recurrence of psychological burdens in psychosomatic medicine.

KEYWORDS

Cognitive dissonance, Cognitive bias, Self-discrepancy, Narrative identity, Dual-process self, Psychosomatic medicine.

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Introduction

In clinical psychosomatic medicine, it is frequently observed that patients “repeat the same suffering”, “become dependent on approval”, or “develop rigid personal narratives”. These patterns contribute to the chronicity, recurrence, and interpersonal fixation characteristic of psychosomatic disorders. Traditional psychological models, however, tend to rely on linear causal chains

(A→B→C) and therefore struggle to explain the repetitive and self-sustaining nature of these phenomena—why suffering recurs, why approval becomes addictive, and why narratives become rigid.

This study introduces the *Circulatory Structure of Mind Model*, which conceptualizes these phenomena as a cyclical process. The model is based on the following hypotheses:

- The mind is grounded in a dual structure (private vs. public self; biological vs. narrative self).
- Dual structures inevitably generate contradictions.
- Contradictions are experienced as cognitive dissonance.
- Dissonance activates cognitive biases.
- Biases are integrated into narratives.
- Narratives generate social approval.
- Approval reinforces the dual structure, completing the cycle.

This cycle functions as a psychological system with both homeostasis and autopoiesis, maintaining and reproducing itself. The aim of this study is to organize this circulatory structure theoretically and provide a new framework for explaining chronicity and recurrence in psychosomatic processes.

Theory

Theoretical Background

The dual structure is shaped by the relationship-dependent roles characteristic of Japan's vertical society and by the culturally embedded regulation of dependence and expectation expressed in *amae*. While this dual structure functions as an essential skill for social adaptation, the divergence between one's *honne* (true feelings) and *tatemae* (social facade) generates psychological strain and becomes a source of interpersonal and intrapsychic dissonance [1,2].

According to Festinger's theory of cognitive dissonance, contradictory cognitions generate psychological tension, and the divergence between *honne* (true feelings) and *tatemae* (social facade) represents a typical form of such dissonance. Although dissonance can be reduced through attitude change, behavioral change, or rationalization, Japanese culture tends to favor rationalization because of its strong emphasis on maintaining interpersonal harmony [3,4].

At this stage, various cognitive biases come into play. Confirmation bias, rationalization bias, projection bias, and self-serving bias temporarily alleviate psychological dissonance, yet they simultaneously distort one's perception of reality and shape the direction of subsequent narrative construction.

As Bruner argues, narrative construction provides a fundamental framework for making sense of the world, and as McAdams proposes, it forms the core of narrative identity through which individuals understand themselves. People do not store experiences exactly as they occurred; rather, they assign meaning by selectively emphasizing, omitting, and imposing causal structure on events [5,6].

Neuroscientific research also demonstrates that the default mode network (DMN) underlies self-referential thinking, recollection, and imagination, thereby providing a neural foundation for narrative construction. The narratives constructed through these processes subsequently become intertwined with the individual's need for social recognition [7].

Through these processes, the cycle closes and the next iteration begins. The distinctive feature of this model is that individual psychological mechanisms do not operate in isolation; rather, they function in a sequential and mutually reinforcing manner, creating a self-amplifying dynamic.

Structure of the Circulatory Model

The Circulatory Structure of Mind Model consists of six stages: dual structure (*honne-tatemae*) → cognitive dissonance → cognitive bias → narrative construction → need for approval → reproduction of the dual structure-which operate not linearly but in a mutually reinforcing, cyclical manner.

The dual structure emerges from relationship-dependent social roles characteristic of Japan's vertical society and from the dynamics of dependence and expectation expressed in *amae*. While this dual structure functions as an essential skill for social adaptation, the gap between *honne* and *tatemae* generates psychological strain and becomes the starting point of dissonance [8,9].

According to Festinger's theory of cognitive dissonance, contradictory cognitions produce tension, and the discrepancy between *honne* and *tatemae* represents a typical form of such dissonance. Dissonance can be reduced through attitude change, behavioral change, or rationalization. However, because Japanese culture places high value on interpersonal harmony, rationalization tends to be preferred [10,11].

At this stage, cognitive biases come into play: confirmation bias, rationalization bias, projection bias, and self-serving bias temporarily ease the dissonance while simultaneously distorting reality and shaping the direction of subsequent narrative construction.

Narrative construction, as Bruner argues, provides a framework for understanding the world, and as McAdams notes, forms the core of narrative identity. People do not store experiences as raw data; instead, they assign meaning through emphasis, omission, and causal interpretation [11,12].

Neuroscientific research shows that the default mode network (DMN) underlies self-referential thought, recollection, and imagination, serving as the neural basis for narrative construction [13].

The narratives thus formed become closely tied to the need for approval. As Baumeister and Leary demonstrate, the need for approval is a fundamental motivation for maintaining group belonging [14,15].

In the age of social media, this motivation is intensified by the visibility of social evaluation, leading to the rigidification of personal narratives and the optimization of self-presentation.

Consequently, *tatemae* becomes further reinforced in pursuit of

approval, widening the gap with *honne* and reproducing the dual structure. In this way, the cycle closes and the next iteration begins. The distinctive feature of this model is that each psychological process does not operate in isolation; rather, they are interconnected and function in a self-reinforcing chain.

Psychological Dynamics of Improvement and Deterioration Loops

Whether the cycle moves toward improvement or deterioration depends on the flexibility of the narrative. Even with the same sequence—dual structure → dissonance → bias → narrative → approval—the outcome diverges depending on whether the narrative can be updated.

Narrative flexibility refers to the capacity to revise one's personal narrative, incorporate new perspectives, verbalize emotions, and reinterpret past experiences. When flexibility is high, the cycle enters an improvement loop; when low, it enters a deterioration loop characterized by victim narratives, self-justification,

externalization of blame, and emotional suppression.

Improvement Loop

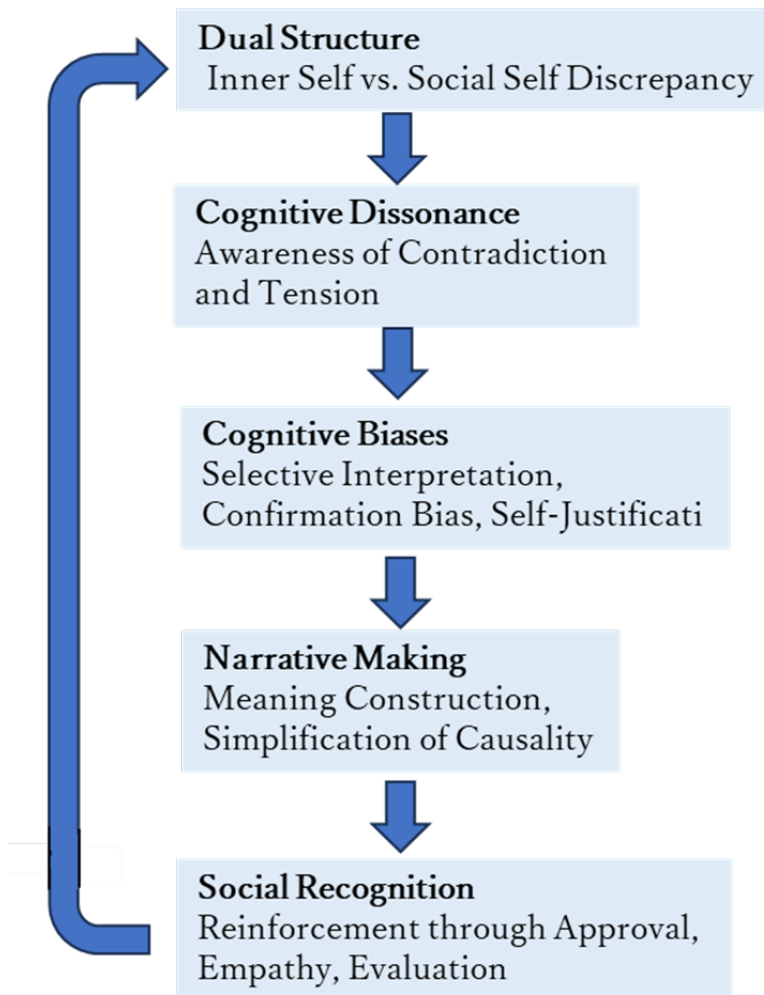
Flexible narratives reduce dissonance, weaken biases, stabilize approval needs, and narrow the *honne*–*tatemae* gap. This resembles Dweck's growth mindset. Approval becomes mutual rather than competitive, reducing dependence on SNS metrics [15].

Deterioration Loop

Rigid narratives intensify approval needs, widen the *honne*–*tatemae* gap, and strengthen cognitive biases. Social media accelerates this loop by transforming approval into visible competition, amplifying confirmation bias through algorithmic filtering [6] and reinforcing self-presentation pressures that deepen the dual structure.

Thus, narrative flexibility functions as the critical branching point that determines whether the psychological cycle moves toward improvement or deterioration.

Figure 1. Cyclical Structure of the Mind



Applied Domains

The *Circulatory Structure of Mind Model* is applicable across multiple fields, including clinical psychology, social psychology, cultural psychology, education, organizational psychology, and AI design.

In clinical psychology, identifying the stage at which a client's narrative becomes stalled within the six-step cycle clarifies intervention points. Narrative rigidity corresponds directly to the concerns addressed in narrative therapy. Cognitive dissonance often manifests as conflict or guilt and can serve as a trigger for behavioral change; clinicians can guide clients toward the improvement loop by reframing the meaning of dissonance rather than negating it [17].

In social and cultural psychology, the model explains how Japan's dual-structure society generates psychological circulation and how an excessive culture of *tatemae* increases psychological load. SNS platforms accelerate narrative rigidity and the worsening loop through approval visibility, algorithmic reinforcement of confirmation bias, and pressure for self-presentation, producing what boyd calls the "competitive escalation of self-narratives [18]."

In AI design, the model provides a crucial foundation. Current AI systems do not understand cognitive biases or narrative rigidity and therefore risk reinforcing users' worsening loops. Dual-Persona AI—integrating empathic and analytical personas—can guide users toward the improvement loop by detecting narrative rigidity, estimating biases, suppressing inflated approval-seeking, and reducing the *honne-tatemae* gap.

General Discussion and Conclusion

This study proposes a new theoretical model that conceptualizes human mental processes as a "circulation," demonstrating that elements traditionally treated in separate domains—dual structure, cognitive dissonance, cognitive bias, narrative generation, and approval-seeking—interact sequentially to form psychological dynamics.

SNS accelerates approval exchange and makes social comparison highly visible, causing narratives and approval to become tightly coupled and making the circulation prone to runaway escalation. Conversely, when metacognition, fact-based thinking, or slower forms of approval operate, the circulation decelerates and the mind moves toward recovery.

A central conclusion is that "humans live through narratives, and narratives determine the direction of the circulation." Narratives shape meaning-making, self-definition, future prediction, and approval-seeking, and are themselves shaped by culture.

Dual structure contributes to social harmony and role clarity, yet it also fosters suppression of *honne* and chronic dissonance. In the SNS era, *tatemae* becomes excessively reinforced as self-presentation, widening the gap between inner and outer selves. The

present model provides an integrated framework for explaining these cultural characteristics and their psychological burdens.

In the age of AI, psychological circulation remains crucial. Conversational AI systems may unintentionally reinforce narrative rigidity, amplify biases, or stimulate approval-seeking. However, Dual-Persona AI has the potential to detect narrative rigidity and biases, suppress inflated approval-seeking, and guide users toward the improvement loop.

Future challenges include empirical validation, cross-cultural comparisons, and implementation in AI systems. The mind is not a static structure but a continuously circulating dynamic system, and this study provides a new map for understanding its dynamics.

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