# **Literature Review Project Research on Research Papers**

### **Project:** The Neurobiology of Daily Life

**Theme:** Planning, Motivation, and Learning Through Functional Architecture

## **1. Introduction**

This literature review establishes the neurobiological and psychological foundations for the project. The selected research spans three critical domains of human function:

1. **The Architecture of Choice:** How the brain arbitrates between impulsive (System 1) and calculated (System 2) decisions.
2. **The Physiology of Emotion & Social Drive:** How internal states and social hierarchies dictate biological health and motivation.
3. **Plasticity & Maintenance:** The mechanisms of habit formation, learning, and sleep-dependent memory consolidation.

## **2. The Neuro-Architecture of Decision Making and Rationality**

*Foundational insight: The brain is not a purely rational engine but a bounded processor that conserves energy via heuristics.*

### **Kahneman, D. (2003). A Perspective on Judgment and Choice: Mapping Bounded Rationality.**

* **Core Contribution:** Kahneman formalizes the dual-process theory of cognition, distinguishing between **System 1** (fast, automatic, emotional, heuristic-based) and **System 2** (slow, effortful, logical).
* **Relevance to Project:** This paper provides the theoretical "operating system" for your project’s architectural model.
  + **System 1** maps to your **Limbic/Basal Ganglia** layers (automaticity and emotion).
  + **System 2** maps to your **Prefrontal Cortex (PFC)** (executive control).
* **Key Takeaway for Project:** Planning failures in daily life are often not failures of "character" but biological defaults to System 1 to save metabolic energy.

## **3. The Physiology of Threat and Constructed Emotion**

*Foundational insight: Emotions are not passive reactions but active constructions that can hijack cognitive resources.*

### **Barrett, L. F. (2017). The Theory of Constructed Emotion: An Active Inference Account of Interoception and Categorization.**

* **Core Contribution:** Barrett challenges the "classical view" that emotions are hardwired circuits. Instead, she argues emotions are "constructed" concepts the brain uses to predict and make sense of sensory inputs (interoception).
* **Relevance to Project:** This supports the "Top-Down" control aspect of your project. If emotions are constructed, they can be deconstructed and regulated by the PFC. It shifts the project’s focus from "controlling emotions" to "re-interpreting bodily signals."

### **Balban, M. E., et al. (2021). Human Responses to Visually Evoked Threat.**

* **Core Contribution:** This study identifies specific neural circuits (visual-to-limbic pathways) that trigger autonomic freeze/flight responses before conscious processing occurs.
* **Relevance to Project:** Provides the biological "hardware" explanation for why anxiety or visual triggers (e.g., a stressful email notification) can instantaneously disable complex planning. It validates the "Survival Hub" (Brainstem/Amygdala) component of your Triune model.

## **4. Social Neurobiology and Motivation**

*Foundational insight: The brain treats social threats and rewards with the same intensity as physical threats and rewards.*

### **Sapolsky, R. M. (2005). The Influence of Social Hierarchy on Primate Health.**

* **Core Contribution:** Sapolsky demonstrates that subjective socioeconomic status (SES) and rank in a hierarchy directly correlate with stress hormone levels (cortisol) and health outcomes. Subordinate primates experience chronic stress that degrades neural health.
* **Relevance to Project:** This explains the "Motivation" component of your thesis. High stress (from perceived low status or lack of control) physically degrades the hippocampus (memory) and suppresses the PFC, making "Daily Life Planning" biologically difficult for stressed individuals.

### **Rock, D. (2008). SCARF: A Brain-Based Model for Collaborating with and Influencing Others.**

* **Core Contribution:** Rock identifies five domains of social experience that the brain treats as survival threats or rewards: **S**tatus, **C**ertainty, **A**utonomy, **R**elatedness, and **F**airness (SCARF).
* **Relevance to Project:** This provides a practical framework for the "Daily Life" application. To optimize motivation, an individual must engineer their environment to maximize "Autonomy" and "Certainty," thereby keeping the brain in a "toward" (reward) state rather than an "away" (threat) state.

### **Csikszentmihalyi, M., & LeFevre, J. (1989). Optimal Experience in Work and Leisure.**

* **Core Contribution:** Investigates the state of "Flow"—a state of high focus where challenge meets skill. The study finds that Flow is more common in work (structured) than leisure (unstructured), yet people paradoxically prefer leisure.
* **Relevance to Project:** Highlights the "Paradox of Work." It suggests that the **PFC** craves structure (System 2 engagement) to feel satisfied, even if the **Limbic system** craves passive leisure (energy conservation). This is crucial for your section on "Motivation."

## **5. Plasticity, Habit Formation, and Maintenance**

*Foundational insight: Behavioral change is a physical process of synaptic remodeling that requires time and sleep.*

### **Lally, P., et al. (2010). How Are Habits Formed: Modelling Habit Formation in the Real World.**

* **Core Contribution:** Debunks the "21 days" myth, showing habit formation takes anywhere from 18 to 254 days (average 66). It establishes the asymptotic curve of automaticity.
* **Relevance to Project:** Validates the **Basal Ganglia** role in your project. It proves that the transition from PFC (effortful) to Basal Ganglia (automatic) is non-linear and context-dependent. It provides the timeline for your "Learning" framework.

### **Walker, M. P., & Stickgold, R. (2006). Sleep, Memory, and Plasticity.**

* **Core Contribution:** Establishes sleep as the non-negotiable window for neuroplasticity. Sleep is not just rest; it is when memory consolidation (moving data from Hippocampus to Neocortex) and synaptic remodeling occur.
* **Relevance to Project:** This is the "Maintenance" layer. Your project cannot claim to optimize "Daily Life" without addressing sleep. This paper argues that sleep debt prevents the very learning and planning your project seeks to facilitate.

## **6. Synthesis for the Project**

Combined, these papers form a complete logic chain for **"The Neurobiology of Daily Life"**:

1. **The Challenge:** The brain defaults to lazy, heuristic thinking (**Kahneman**) and is easily hijacked by visual threats (**Balban**) or social stress (**Sapolsky**).
2. **The Mechanism:** Emotions are constructed predictions (**Barrett**) that drive us toward social safety (**Rock**).
3. **The Solution (Planning & Learning):** We must engage conscious structure to achieve Flow (**Csikszentmihalyi**) and persist through the long curve of habit formation (**Lally**).
4. **The Foundation:** None of this works without the biological consolidation provided by sleep (**Walker**).