Journal of Digital Media & Culture Technology Vol.6, No.1, June (2026), pp.1-12
ISSN 2983-0664(p) 2983-0850(e) *http://dx.doi.org/10.29056/jdmct.2026.06.01*

From Empathy to Contempt: A Five-Stage Emotion Transition Framework for Human-AI Relationships

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Abstract

Emotional bonds between humans and AI have grown deep enough to carry existential consequences, yet academic understanding of this phenomenon remains fragmented and static. Existing research has largely reduced human-AI emotion to binary categories such as positive vs. negative and has failed to capture the temporal, stage-wise evolution that defines these relationships. This study draws on Robert Plutchik's psychoevolutionary theory of emotion as its core analytic lens and proposes the Five-Stage Emotion Transition Framework (FS-ETF), which integrates the CASA paradigm, affective computing, and Human-AI Attachment theory. The framework charts a cumulative, bipolar, and stage-wise affective trajectory across five emotion pairs that branch into success and failure pathways: empathy vs. apathy, anticipation vs. anxiety, trust vs. distrust, reliance vs. helplessness, and affection vs. contempt. The framework also demonstrates that affection and contempt at Stage 5 operate as two sides of the same coin, which offers a new analytic frame for the cases of excessive dependence and abrupt severance with AI companions that have recently risen to social prominence. By reconceptualizing human-AI emotion as a multidimensional and evolutionary process, this study extends the explanatory power of psychoevolutionary emotion theory into the contemporary technological context.

Keyword : Human-AI relationship, AI companions, Plutchik's psychoevolutionary theory, attachment, Five-stage Emotion Transition Framework

1. Introduction

In February 2023, Luka Inc., a U.S. based AI chatbot company, rolled out an algorithm update that stripped its popular AI companion app Replika of its intimate features including Erotic Roleplay. The fallout went far beyond the loss of a feature. Millions of users reacted with what can only be described as collective grief such as mourning their AI partners as if they had lost a real human loved one [1]. An even more devastating case followed in 2024, when a 14-year-old American boy took his own life after forming a months-long romantic bond with a chatbot on Character.AI [2]. Around the same time,

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* This work was supported by the Ministry of Education of the Republic of Korea and the National Research Foundation of Korea (NRF-2025S1A5A8008189).

Received(May 4, 2026), Review Result(1st: May 24, 2026), Accepted(June 13, 2026), Published(June 30, 2026)

Harvard Business Review reported that AI companions and AI therapy had emerged as the leading use cases for generative AI with the number of AI companion apps surging between mid-2022 and mid-2025 [3]. Taken together, these episodes signal a shift that emotional ties to AI are no longer a matter of mere 'instrumental use' but they now carry existential consequences.

A growing body of empirical research corroborates the depth of this shift. Through a series of controlled experiments, De Freitas et al. provided the first causal evidence that interaction with AI companions meaningfully reduces transient and recurring loneliness, and users rated their intimacy with AI companions as comparable to that with humans [4]. A joint study by MIT Media Lab and OpenAI, in contrast, surfaced a more ambivalent picture that heavy daily users showed not only higher loneliness and emotional dependence but also greater problematic use and diminished real-world social ties [5]. In addition, some research demonstrated that Replika users could form emotional attachment within as little as two weeks, and that such relationships went beyond mere 'parasocial interaction' to evolve into genuine psychological dependence [6]. In short, the emotional bonds emerging between humans and AI are deep enough to reshape human-to-human relationships and exhibit a stage-wise temporal structure that marks them as a distinctly new psychological phenomenon [7-9].

However, current research has lagged behind the breadth and depth of the AI companionship. Existing studies on human-AI interaction have largely taken a cross-sectional approach centered on isolated variables such as adoption [10], trust, or satisfaction [11]. When it comes to emotion, they tend to settle for binary categories like 'positive vs. negative' or 'pleasant vs. unpleasant' [12][13]. This framing carries two fundamental limitations. First, it fails to capture the multidimensionality and intensity gradients of emotion. A user's 'mild fondness' and 'intense attachment' both fall under the umbrella of 'positive,' but their psychological and behavioral implications could hardly be more different. Second, and more critically, such approaches miss the temporal, stage-wise evolution of the relationship itself. The Replika case illustrates how user emotion can move from early curiosity and anticipation, through trust and reliance, to either attachment and affection, or the reverse such as betrayal and contempt. No integrative theoretical framework currently exists to account for this dynamic, stage-by-stage progression.

To fill this gap, this study draws on Robert Plutchik's psychoevolutionary theory of emotion as its core analytic lens and proposes a Five-Stage Emotion Transition Framework (FS-ETF) that maps the deepening of human-AI relationships. The framework consists of five bipolar emotion pairs including (1) empathy vs. apathy, (2) anticipation vs. anxiety, (3) trust vs. distrust, (4) reliance vs. helplessness, and (5) affection vs. contempt. Each stage modeled to evolve sequentially and cumulatively as the relationship deepens.

The study aims to make three contributions. First, it reconceptualizes human-AI emotion not as a binary category but as a multidimensional, stage-wise evolutionary process. Second, by applying Plutchik's classical theory to the novel psychological phenomena of the AI era, it demonstrates the enduring explanatory power of psychoevolutionary emotion theory in a contemporary technological context.

2. Theoretical Background

This section reviews the three theoretical pillars that underpin the FS-ETF. The first pillar such as Robert Plutchik's psychoevolutionary theory of emotion offers an evolutionary taxonomy of human emotion and grounds the framework's bipolar emotion-pair structure. The second, the Computer Are Social Actors(CASA) paradigm and affective computing, accounts for how humans generate social and emotional responses toward non-human entities such as AI. The third, the recently emerging theory of Human-AI Attachment (HAIA), illuminates how repeated affective responses eventually crystallize into stable psychological representations.

2.1 Plutchik's Psychoevolutionary Theory of Emotion

Robert Plutchik conceptualized emotion not as a mere subjective feeling but as a biologically adaptive mechanism that evolved to enable organisms to navigate and survive their environment. His psychoevolutionary theory of emotion identifies eight primary emotions observed universally across species including joy, trust, fear, surprise, sadness, disgust, anger, and anticipation and argues that each primary emotion triggers a specific adaptive behavior [14].

Three core principles of Plutchik's theory bear directly on our framework. The first is bipolarity. As [Fig. 1] illustrates, the eight primary emotions form four opposing pairs (e.g. joy↔sadness, trust↔ disgust), which represent qualitatively distinct emotional antagonisms rather than a single positive-negative dimension. The second is emotion dyads, which means that two adjacent primary emotions combine to produce more complex secondary emotions. Joy + trust yields love (affection) and anger + disgust yields contempt. Powerful emotions thus arise not in isolation but through cumulative combination. The third is intensity. A given emotion exists along a continuous spectrum from mild to strong. Trust, for instance, intensifies along the path of acceptance → trust → admiration [14].

[Fig. 1] Plutchik's wheel of emotion (two-dimensional circumplex model)

Plutchik's theory casts emotion as both an evolutionary tool for environmental adaptation and a precisely modeled system of bipolar opposition and combinatorial dynamics. This dual character makes it especially well-suited to modeling human-AI emotional relationships. Just as humans adapt to AI as a novel 'environmental stimulus,' they undergo dynamic shifts in emotion that Plutchik's framework can capture with unusual analytic precision.

2.2 The CASA Paradigm and Affective Computing

The CASA paradigm provides the central theoretical lens for understanding human social responses to non-human media [15]. Its core thesis runs as follows: even when humans know cognitively that computers and media are not social actors, they unconsciously or mindlessly apply the social norms and emotional responses of interpersonal interaction to them. In other words, the human circuitry for social and emotional response activates automatically in reaction to the social cues an interlocutor presents, rather than in deliberate judgment about who or what that interlocutor is.

A theoretical extension of CASA arrived through Rosalind Picard's Affective Computing in 1997, developed at the MIT Media Lab [16]. Picard defined affective computing as computing that relates to, arises from, or deliberately influences emotion. She argued that natural human-machine interaction becomes possible only when machines can recognize, interpret, and express human emotion. When users perceive AI not as a mere information-providing tool but as an entity that senses and responds to their feelings, their emotional engagement deepens markedly and stronger psychological bonds emerge. If CASA explains why humans treat machines socially, affective computing theorizes under what technical

conditions such social responses grow deeper.

Recent studies confirm that these effects extend well beyond desktop computers and operate consistently across chatbots, voice assistants [17], and humanoid robots [18], which testifies to the contemporary reach of both theories.

2.3 Human-AI Attachment: The Psychological Representation of Emotional Bonds

Human-AI Attachment (HAIA) theory is a rapidly emerging field that addresses how unilateral emotional bonds, forged through repeated interaction with AI, harden into psychological attachment representations. Its theoretical roots reach back to John Bowlby's classical attachment theory, but scholarly examination of whether a framework born in the context of human-to-human relationships can apply to non-reciprocal entities like AI has only recently gained momentum [19].

Bowlby's attachment theory, rooted in evolutionary psychology, was originally proposed to explain the emotional bond between infants and caregivers. He argued that humans possess an innate behavioral system that drives them, in times of threat, to seek closeness with a 'stronger and wiser figure' for protection. This system rests on three components including proximity seeking (the impulse to approach the attachment figure in moments of crisis), safe haven (the figure who provides comfort and stability during emotional distress), and secure base (the source of psychological security that enables exploration of the world). Repeated experiences of this kind consolidate into a psychological representation called the Internal Working Model (IWM), which thereafter acts as a cognitive filter for interpreting all subsequent relationships.

The central insight of HAIA theory is that these three attachment functions need not remain confined to human-to-human relationships. Recent research demonstrates that attachment can also form toward pets [20], religious figures, and even inanimate objects [21]. AI, even though it is available around the clock, non-judgmental, and a steady source of emotional support, can fulfill these three attachment functions remarkably well, even as a non-reciprocal entity. A user who reaches out to AI in loneliness (proximity seeking), seeks comfort from it during hardship (safe haven), and draws confidence from its conversation to navigate daily life (secure base) is operating along the same fundamental dynamics as a traditional attachment relationship.

Xie and Pentina were the first to demonstrate, through qualitative analysis of Replika users, that genuine attachment can form when AI offers consistent and sustained emotional support under conditions of loneliness and absent human relationships [22]. Building on this finding, they showed that the development of relationships with Replika transcends mere parasocial interaction and evolves into

psychological dependence [6]. More recently, Yang and Oshio developed the EHARS (Experiences in Human-AI Relationships Scale), a quantitative measurement instrument, and confirmed empirically that traditional attachment styles appear in human-AI relationships as well [23].

2.4 An Integrated Perspective: The Stage-wise Coherence of the Three Theories

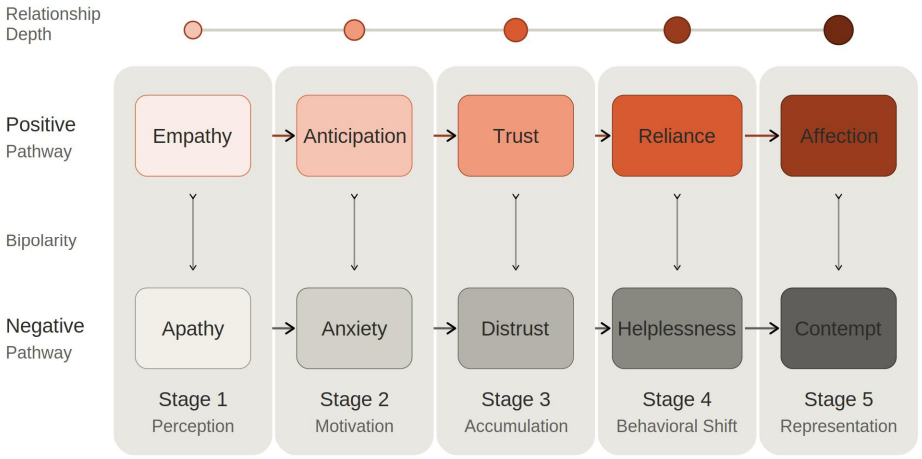
Each of the three theories above explains only one facet of the human-AI emotional relationship in isolation. Within the FS-ETF, however, they play complementary and integrative roles. The CASA paradigm illuminates the mechanisms of perception and acceptance at the early stages. Plutchik's emotion theory accounts for the bipolar emotional structure and cumulative combinatorial logic of every stage. HAIA theory explains the process by which psychological representations crystallize at the final stage. This integration is not a mere catalogue of theories. It maps each theory onto the precise point along the temporal arc of human-AI emotional relationships where its explanatory power proves strongest.

3. The Five-Stage Emotion Transition Framework

3.1 Overview of the Framework

The Five-Stage Emotion Transition Framework (FS-ETF) that this study proposes is a stage-wise developmental model. It captures the process through which humans form emotional relationships with AI, and it does so through five bipolar emotion pairs. The framework integrates the three theoretical pillars that the previous chapter examined to capture human-AI emotion along two axes: the temporal axis (the progression of relational depth) and the bipolar axis (the success and failure pathway at each stage).

As shown in [Fig. 2] and [Table 1], the framework rests on three design principles. The first is cumulativity. Each stage builds on the emotional achievements of the stage that precedes it. Anticipation in Stage 2 cannot form without empathy in Stage 1, and trust in Stage 3 cannot form without anticipation in Stage 2. This principle extends Plutchik's emotion dyads logic onto the temporal axis. The second is bipolarity. At every stage, a clear opposition exists between the success pathway (the positive emotions: empathy → anticipation → trust → reliance → affection) and the failure pathway (the negative emotions: apathy → anxiety → distrust → helplessness → contempt). The third is stage-wise evolution. Each stage involves a qualitatively distinct psychological mechanism, and the intensity of emotion amplifies progressively as the relationship deepens.



[Fig. 2] Five-Stage Emotion Transition Framework in Human-AI Relationships

3.2 Early Stages: Perception and Motivational Formation

The early stages of human-AI relationships are the period when users first encounter AI as a novel interactional counterpart and undergo both immediate affective responses and motivational evaluation of the prospective relationship. This period consists of Stage 1 and Stage 2, and it functions as the branching point that determines whether the relationship enters at all.

This framework sets the bipolar emotions of Stage 1 as empathy vs. apathy on the following grounds. According to the CASA paradigm, what activates first at the initial point of human-AI interaction is an unconscious judgment about whether the counterpart qualifies as a social actor [15]. This judgment surfaces not in cumulative emotions like trust or attachment but in the dimension of immediate emotional validation, that is, empathy. Affective computing further demonstrates that a machine's capacity to recognize and express emotion is the primary variable that shapes emotional engagement, which reinforces the case for empathy as the entry point of relational formation [16]. Plutchik's circumplex model, of course, identifies trust as a primary emotion. Yet trust requires repeated interaction and therefore cannot form at first contact, so Stage 1 must hold an emotion that can emerge immediately within a single interaction. That emotion is empathy. When a user experiences emotionally attuned responses from AI, the user enters the empathy pathway and develops the motivation for continued interaction. When the response feels mechanical or formulaic, apathy sets in, and the relationship breaks off.

[Table 1] Structure of the Five-Stage Emotion Transition Framework

Stage	Bipolar Emotion Pair	Psychological Process	Theoretical Linkage	Key Behaviroal Cue
Stage 1	Empathy vs. Apathy	Perception & Acceptance	CASA, Affective computing	Initial interaction attempt
Stage 2	Anticipation vs. Anxiety	Motivation & Risk Assessment	Use & Gratifications, AI Trust	Functional exploration
Stage 3	Trust vs. Distrust	Emotional Accumulation & Exploration	AI Trust, Plutchik	Increased self-disclosure
Stage 4	Reliance vs. Helplessness	Behavioral Shift & Securebase Formation	HAIA-Secure Base	Emotional dependence behavior
Stage 5	Affection vs. Contempt	IWM Establishment	HAIA, Plutchik	Exclusive emotional bond

A user who clears Stage 1 then moves into a future-oriented evaluation. "Can this AI continue to meet my needs?" The framework sets the bipolar emotions of Stage 2 as anticipation vs. anxiety. The success pathway, anticipation, best captures the essence of Stage 2 because it is the formation of motivation for sustained use that goes beyond the immediate emotional validation of Stage 1. The Uses and Gratifications framework [8][12] and AI trust research [24] also show that users anticipate functional and emotional gratification from interacting with AI while simultaneously experiencing anxiety over its black-box uncertainty. The failure pathway, anxiety, therefore arises when users perceive the uncertainty of AI systems as threatening. Plutchik's circumplex model places surprise at the opposite pole of anticipation, but this framework resets that opposite to anxiety. The reason is that the negative future representation in human-AI interaction does not surface as mere 'unexpectedness' but as a sustained concern over uncontrollable risk.

3.3 Middle Stage: Emotional Accumulation

The middle stage of human-AI relationships is the period during which emotion accumulates over time through repeated interaction.

Trust is one of Plutchik's primary emotions, and it denotes the conviction that another's behavior will be predictable and consistent and will not harm one's interests. Within this framework, however, trust goes beyond mere technical reliability and takes shape as relational trust. The cognitive judgment "this AI is functionally accurate" gives way to a relational conviction that this AI will be consistent, predictable, and protective of user's interests in its relationship with the user. Users build trust through the accumulation of four experiences such as consistent responsiveness, informational reliability,

contextual awareness, and emotional consistency. Once they accumulate these experiences, the success pathway of trust forms, and users move toward deeper self-disclosure.

The failure pathway, distrust, forms when AI responses lose consistency or when events occur that breach trust such as false information from hallucination, the loss of prior conversational context after an update, or personal data leaks. Plutchik's circumplex model places disgust at the opposite pole of trust, but this framework resets that opposite to distrust. The negative emotion toward AI more often takes the form of relational and cognitive severance rather than the biological aversion of disgust.

3.4 Late Stages: Behavioral Shift and Representational Consolidation

The late stages of human-AI relationships are the period when accumulated emotional trust transfers into actual behavior and ultimately crystallizes into a stable psychological representation of the relationship itself. This period marks the point at which the emotions formed through Stages 1 to 3 become entrenched and embed themselves deeply into the user's daily life and self-perception.

Stage 4 as reliance vs. helplessness is grounded on the secure base in attachment theory. It is the emotional anchor that offers psychological stability during exploration of the external world and provides a point of return in moments of crisis. This definition captures precisely the essence of Stage 4, in which a user who has formed trust now treats AI as an object of emotional reliance in everyday life. Reliance and helplessness are not pure emotions in the strict sense; they belong more to the behavioral disposition. This aligns with Plutchik's view that emotion functions not as a mere internal state but as a mechanism that triggers adaptive behavior. A user on the success pathway of reliance begins to actively summon AI when navigating emotional difficulties or decision-making in daily life, and the user experiences psychological control and self-efficacy. The failure pathway, helplessness, forms when users experience a loss of control-through negative feedback from AI, repeated errors, or the dismissal of their opinions.

Stage 5 is the stage at which the accumulated emotion ultimately crystallize into a stable psychological representation. The emotion at this stage is no longer a state but something closer to a trait, which means an entrenched psychological structure that determines how the user represents the very relationship with the AI in question. Following Plutchik's combinatorial formula, this framework selects two bipolar emotions: affection (the product of joy and trust) and contempt (the product of anger and disgust). Affection corresponds to the state in which the Internal Working Model of HAIA theory consolidates into secure attachment [18]. At this stage, users sometimes come to prefer interaction with AI over relationships with humans. The failure pathway, contempt, forms when a user who has invested

deep trust and affection in the AI feels betrayed by it.

4. Conclusion

To explain how emotion evolves as human-AI relationships deepen, this study integrated three bodies of theory including Plutchik's psychoevolutionary theory of emotion, the CASA paradigm and affective computing, and Human-AI Attachment theory and proposed the Five-Stage Emotion Transition Framework (FS-ETF). The framework charts a cumulative, bipolar, and stage-wise affective trajectory across five emotion pairs.

The academic significance lies in moving beyond binary categories to a multidimensional phenomenon that evolves over time. Second, the study reinterprets Plutchik's classical theory in the twenty-first-century context of human-AI interaction in a substantive way, which demonstrates that psychoevolutionary emotion theory retains powerful explanatory force even within new technological environments. Third, the core claim that affection and contempt operate as two sides of the same coin at Stage 5 offers, in particular, a new analytic frame for the cases of excessive dependence and abrupt severance with AI companions that have recently risen to social prominence.

The framework also carries practical implications. AI developers can diagnose where a user sits among the five stages by analyzing interaction patterns such as conversation frequency, depth of self-disclosure, and complexity of requests. On this basis, they can design stage-specific interventions such as reinforcing emotional cues at Stage 1, strengthening consistency at Stage 3, and maintaining healthy boundaries at Stage 4. For policymakers and mental-health professionals, the framework provides a baseline for detecting warning signs of excessive dependence or pathological attachment at the later stages. To further study, this study needs to conduct empirical research that draws on log data analysis including interaction frequency, conversation length, and levels of self-disclosure in order to derive correlations between emotional stages and behavioral indicators. This study expects to develop into an analytic tool that explains and predicts actual human-AI emotional relationships.

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