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Maintenance as Vulnerability:Gamified Social Maintenance Mechanisms and Rupture-Induced Alienation — A Case Study of Douyin's Spark Maintenance Feature

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Abstract

In the digital age, social media has reshaped human communication and interaction. The theoretical abstraction of "communication as play" has become increasingly concrete, with daily chats transformed into gamified interaction rituals by digital platforms. The "Spark Maintenance" feature on Douyin is a prime example of this trend.This study focuses on the phenomenon of "Spark Maintenance" , exploring how gamification mechanisms drive user engagement. By analyzing the critical event of "spark interruption," it reversely reveals the logic of maintenance and the inherent fragility of digital intimate relationships. The research indicates that "Spark Maintenance" construct a "calculable emotional contract": gamification mechanisms transform emotional labor into quantifiable data accumulation. Meanwhile, spark interruption serves as a key node in digital intimate relationships, exposing a misalignment in maintenance motivation—when the pressure to maintain symbols surpasses the emotional connection itself, technology-mediated friendships become easy to sustain due to low barriers yet tend toward fragility due to reliance on symbols. This study provides a new perspective for understanding contemporary youth's digital interaction behaviors and offers reflective insights for social media functional design and users' rational participation.

Keywords

Spark Maintenance; Gamification; Loss Aversion; Emotional Labor; Digital Intimate Relationships

1. Introduction

In the context of the digital age, digital technology is deeply embedded in daily social interactions, reshaping the fundamental forms of interpersonal communication into a quantifiable and accumulative gamified symbolic system. From early QQ levels and

Weibo mutual follows to WeChat Sports likes and Ant Forest joint planting, social media platforms continuously iterate new interactive symbols and rituals for maintaining relationships. Each innovation blurs the boundary between entertainment and interaction, gradually evolving relationship maintenance into a rule-based digital game. Against this backdrop, Douyin's recently launched "Spark Maintenance" feature has rapidly permeated the daily interactions of young people, subtly reconstructing the social logic of this demographic.

Specifically, the "Spark Maintenance" feature is embedded within Douyin's chat interface:When users exchange messages with each other for three consecutive days, an orange spark icon lights up next to the chat box, displaying the number of consecutive days of interaction. Thereafter, as long as both parties send at least one message to each other daily, the spark continues to burn, and the day count accumulates. If there is no interaction on a given day, the spark immediately turns gray, indicating it is being rekindled; if there is no interaction for several consecutive days, the spark extinguishes and the spark is broken. As the consecutive days increase, the spark undergoes visual upgrades: gradually changing from the initial orange spark to pink, purple, blue, etc. Users can also purchase "skins" and "outfits" for the spark, or even jointly raise a small "spark spirit" avatar with friends.

The uniqueness of this gamification mechanism lies in its design, which transforms otherwise ambiguous interpersonal relationships into a visualized "progression of cultivation," endowing social interactions with both ritualistic significance and playfulness. Why are users so eager to maintain this virtual symbol? What impact does the interruption of the spark have on platform usage and interpersonal perception? This study, based on this practical concern, focuses on the micro-social phenomenon of "Spark Maintenance", exploring how its gamification mechanisms drive users participation. Through an analysis of the critical event of "spark interruption", it reveals the maintenance logic and inherent fragility of digital intimate relationships.

2. Literature Review

2.1. Gamification Mechanisms and the Construction of Intimate Relationships in the Digital Age

The social mechanisms of the digital age exhibit significant gamified characteristics. Technology-mediated platforms, by embedding game elements and rule designs, have reshaped the interaction logic and practical forms of interpersonal communication. In early theoretical research on "gamification," Deterding et al. proposed a widely accepted definition: gamification is the use of game elements in non-game contexts[1]. Scholars have explored the application of gamification theory in the social domain from diverse perspectives. Ye Weiming et al.(2021)noted that intimate relationships mediated by information and communication technologies exhibit a gamification trend[2]. Moreover, Li Bin et al.(2025)contended that digital

platforms have reframed traditional gift exchange into an exchange mode dominated by ludic experiences. This gamified mode emerged as a new form of interpersonal interaction in the digital age[3].

As for the construction logic of digital intimacy itself, existing literature also presents multidimensional perspectives. From the affordance perspective, Jiang Qiaolei et al.(2023) argued that media logic in the digital-intelligent era transcends the public-private boundary, giving rise to mediatized forms of intimacy[4]. Meanwhile, Zhang Jie et al.(2026) observed that platforms grant individuals absolute control over intimate relationships through the "selection-matching model" and algorithmic screening mechanisms[5]. Wang Jue(2025) further pointed out that digital technology is reshaping human intimate relationships at an unprecedented depth. Algorithms, interfaces and industrial structures have profoundly reconfigured the logic of emotional bonding[6].

2.2. Research on Continuous Participation Intention

Continuous participation intention, specifically refers to users' stable behavioral intention to continue participating in relevant activities in the future, based on cognitive, emotional, and experiential judgments after their initial engagement with a platform or community activity[7]. Regarding this concept, academia has formed diverse theoretical explanations. For example, in the domain of virtual brand communities, Liao Junyun et al. (2021) proposed that community value can be differentiated into informational value and social value, which influence continuous participation intention through the two paths of community satisfaction and community identification respectively [8]. Furthermore, Zhang Wensong et al. (2025) argued that perceived co-creation authenticity is a key antecedent driving users' sustained engagement[9].

Furthermore, researchers have linked gamification elements to continuous participation intention, forming multiple theoretical perspectives. Based on Goal Framing Theory, Zhu Yongming et al. (2021) verified that gamified co-creation activates users' goals through task mechanisms and aesthetic design[10]. Gao Haixia et al. (2026) decomposed gamified interaction into the dimensions of human-computer interaction and interpersonal interaction, finding that both promote continuous participation with hedonic and gain motives as partial mediators[11]. From an algorithmic perspective, Gao Haixia et al.(2026)revealed that the gamification of platform work exerts a double-edged sword effect on gig workers' continuous participation intention[12].

2.3. Research on the Quantification and Alienation of Emotional Labor in the Digital Age

Studies on the quantification of social interactions and the alienation of emotional labor in social media have established a relatively systematic analytical

framework. .Jing Yixin et al.(2025), through an examination of the "Spark Maintenance" practice on Douyin, found that platforms transform quantified interaction indicators into concrete representations of emotional bonds[13]. Zhang Caiwei(2025) analyzed quantified sociality reduces emotional bonds to data metrics, rendering intimate relationships characterized by fluidity and situationality[14].

Research on the alienation of emotional labor generally revolves around critical analyses of the tensions among capital, technology, and the subject. From the critical perspective of political economy, Meng Hui et al.(2024) contended that the coupling of "digital labor" and "emotional labor" has spawned "cold intimacy" under affective capitalism: affection is standardized and commercialized[15]. Based on Marx's theory of labor alienation, Liu Xiaojun et al.(2025) revealed the four-dimensional manifestations of alienation in non-waged digital labor[16].

3. Theoretical Foundation and Research Design

3.1. Theoretical Foundation

The social phenomenon of "Spark Maintenance" involves three interconnected dimensions: rule design, psychological drivers, and relational consequences. These three layers form a progressive analytical chain: gamified mechanisms establish the regulatory framework for behavior; loss aversion psychology injects deep-seated motivation for sustained participation; and the quantified alienation of emotional labor further reveals how symbolic maintenance reconstructs the essence of intimate relationships. Based on this logical progression, the following discussion will sequentially elaborate on these three theoretical perspectives.

3.1.1. Gamification Theory

Gamification refers to the application of game design elements in non-game contexts. By constructing systems of goals, rules, and feedback, it aims to stimulate users' engagement and guide behavior toward specific directions.The deeper efficacy of this mechanisms lies in their construction of a "goal-action-feedback" closed loop. Specifically regarding the "Spark Maintenance" feature, its design operates through this logical loop: it deconstructs the vague, long-term goal of "maintaining a relationship" into clear, actionable short-term goals such as "sending one message per day", thereby guiding users to engage in daily mutual interaction. This action yields immediate visual feedback, such as changes in the spark's color, the accumulation of day counts, and celebratory animations. These signals continuously convey the message that "the behavior is effective and the goal is being approached." Each piece of feedback serves both as confirmation of the previous action and as an invitation for the next one. Users feel joy upon seeing the day count increase and anticipate further visual rewards when the spark changes color, thus actively sustaining daily interactions to continue this positive cycle.

3.1.2. Loss Aversion Theory

Loss aversion is a core concept in behavioral economics, systematically articulated by Kahneman and Tversky (1979) within Prospect Theory. This theory posits that individuals are significantly more sensitive to losses than to gains of equivalent magnitude, yielding a loss aversion coefficient of approximately 2. This psychological mechanism is maximized in the design of "sparks": the rule that "continuous interruption results in resetting to zero" transforms spark days into an accumulated asset, where interruption signifies the "total loss" of that asset.

3.1.3. Emotional Labor Theory

The concept of emotional labor, introduced by Arlie Hochschild in her seminal 1983 work The Managed Heart, refers to the conscious regulation and performance of emotions by individuals to meet the expectations of others or organizations. In the digital age, emotional labor in digital platforms is increasingly characterized by quantifiable and rule-based emotional performances. For instance, the daily interactions required to "Spark Maintenance" are essentially a form of emotional labor defined by platform rules and quantified by consecutive days.The key insight of this theoretical perspective lies in revealing that when the maintenance of intimate relationships is embedded within gamified systems, emotional effort ceases to be spontaneous, fluid, and incomparable. Instead, it is transformed into data metrics that are trackable, accountable and comparable.The quantification of emotional labor ultimately alienates intimate relationships into a precise calculation of "input and return".

3.2. Research Methods and Research Design

This study employs in-depth interviews ,the interview content primarily revolved around four core aspects: the basic circumstances and motivations for "Spark Maintenance"; experiences and immediate reactions to spark interruptions; the multifaceted impacts following an interruption; and overall evaluations of the "Spark Maintenance" behavior. Primary data were collected through one-on-one interviews conducted both online (via WeChat voice calls and telephone) and offline. The study recruited 13 participants with experience in maintaining sparks (see Figure 1).

Figure 1. Information Table of Interviewees

Number	Gender	Age	Relationship with Spark Maintenance Partner	Spark Streak Duration	Current Spark Status	Interruption Type
F01	Female	29	Female Cousin	500+	Broken, Not Resumed	Mutual Abandonment
F02	Female	23	Friend	600+	Broken, Not Resumed	Voluntary Abandonment
F03	Female	24	Friend	300+	Broken, Not Resumed	Mutual Abandonment
F04	Female	22	Friend	30+	Broken, Not Resumed	Passive Interruption
F05	Female	23	Friend	100+	Broken, Not Resumed	Mutual Abandonment
F06	Female	23	Friend	300+	Ongoing, Unbroken	/
F07	Female	30	Friend	20+	Broken, Not Resumed	Voluntary Abandonment
F08	Female	23	Friend	300+	Ongoing, Unbroken	/
F09	Female	25	Friend	300+	Ongoing, Unbroken	/
F10	Female	23	Friend	500+	Ongoing, Unbroken	/
F11	Male	25	Friend	600+	Broken, Not Resumed	Passive Interruption
F12	Female	23	Friend	300+	Broken, Not Resumed	Accidental Interruption
F13	Female	23	Friend	800+	Ongoing, Unbroken	/

The respondents are predominantly young individuals aged 18 to 30. As "digital natives," this group comprises active social media users who generally possess extensive experience with "Spark Maintenance", thereby offering high typicality and representativeness. To enhance sample heterogeneity, the study intentionally included users with varying spark durations, ranging from a few weeks to over two years, each interview lasted between 20 and 40 minutes.

4. Analysis of Interview Findings

4.1. Gamified Construction: The Operational Mechanism and Participation Logic of "Spark Maintenance"

The "Spark Maintenance" feature transforms daily social interactions into a gamified system characterized by clear rules, immediate feedback, and defined objectives. Through a three-tiered progressive design comprising low entry barriers, visual rewards, and loss aversion psychology, this system anchors, drives, and disciplines user behavior, ultimately fostering a new form of digital intimacy within the platform.

First, The activation mechanism—"ignite a spark by exchanging messages for three consecutive days"—precisely targets the initial stage of habit formation. Its ingenuity lies in its exceptionally low barrier to entry: even a single emoji or brief symbol counts as an interaction, thereby minimizing psychological resistance to participation. The experience of respondent F01 is representative: "I noticed a spark icon while chatting, and later discovered I could name the spark and buy skins for it, which felt quite fun." This novelty of gamification serves as the primary impetus driving users from unintentional trial to intentional maintenance.

Second, Once the spark is successfully ignited, the functional visual feedback system

takes over users' motivation to participate. As consecutive days accumulate, the spark changes color progressively with each milestone, and celebratory animations pop up at key intervals, constructing a closed loop of "goal–feedback." Respondent F08 explicitly stated that "visual growth was her primary motivation for continued participation." It is evident from the respondents' descriptions that the initial social drive gradually gives way to the sense of achievement derived from symbolic growth itself.

Third, If visual feedback serves as the "pull" propelling users forward, then loss aversion acts as the "push" preventing them from retreating. The "Spark Maintenance" feature maximizes this psychological mechanism: once continuous interaction is interrupted for several days, the spark extinguishes immediately, resetting all accumulated days to zero. This "interruption equals reset" rule transforms daily interactions, originally undertaken to earn rewards, into defensive behaviors aimed at avoiding loss.

However, the driving force of loss aversion does not act uniformly across all relationships; it is significantly moderated by the variable of "relationship quality." Research indicates that users experience markedly different levels of pressure depending on the type of relationship involved.

In the context of maintaining sparks with close friends, the logic of loss aversion is often overridden by positive emotional bonds. For such relationships, sharing videos and engaging in casual daily chat are spontaneous actions, with the growth of the spark serving merely as a "byproduct" rather than the ultimate goal. Respondent F13 noted, "Maintaining sparks with good friends is joyful because we would chat every day anyway; the spark is just an incidental benefit."

When maintaining a "spark" with someone with whom one has only a casual relationship or whose connection relies solely on this feature, loss aversion truly becomes the core driving force. In such relationships, both parties lack the natural motivation for daily conversation, and their interactions depend heavily on the external task of "keeping the spark alive." Interviewee F12 described: "When keeping the spark going with someone you're not close to, the other person usually cares more about the increasing number than actually watching the shared videos seriously. " At this point, the spark is no longer a "byproduct" of emotion but a "substitute" for the relationship itself—the user maintains the ever-growing number rather than the emotional connection behind it, "it cannot be broken" takes over user behavior.

In summary, When a relationship lacks an internal emotional bond as its foundation, the platform-designed fear of loss becomes the sole driver.

4.2. Rupture Events: Multidimensional Impacts of Spark Interruption and the Manifestation of Alienation

The triple mechanisms of gamification have successfully constructed digital intimacy.

However, this maintenance system, which relies on symbols and rules, inherently contains the risk of rupture. The interruption of sparks is not merely a functional failure; rather, it serves as a critical lens for examining the essence of digital intimate relationships. When the pressure exerted by symbol-based maintenance surpasses a critical threshold, what fragility does technology-mediated friendship expose? This section conducts an analysis based on such interruption events.

4.2.1. Three types of interruption

The phenomenon of "spark interruption" is not a monolithic event. Based on the subject of attribution and the assignment of responsibility for the interruption, it can be systematically categorized into three typical scenarios: first, "accidental interruption," where both parties intend to maintain the connection, but the spark fades due to busy schedules or accidental forgetfulness; second, "unilateral abandonment," where one party actively ceases interaction and stops sending messages, leaving the other party to passively accept the discontinuation; and third, "mutual abandonment," where both parties tacitly agree to end this ritual, often accompanied by a sense of relief.Different types of interruptions trigger distinctly different emotional responses.

4.2.2. The Multifaceted Impact of Interruption: A Triple Shock to Platform, Interaction, and Emotion

The impact of a broken "spark" extends far beyond the mere extinguishing of an icon at the functional level. It cascades through three dimensions—platform usage behavior, interpersonal interaction, and deep emotional experience—creating a chain reaction.

At the level of platform usage, the frequency of opening the chat interface has declined. Respondent F04 stated, "After the spark breaks, we rarely chat, so I almost never open the chat interface, and have even disabled the "Spark Maintenance" feature." This indicates that the "Spark Maintenance" function is deeply embedded in users' platform habits. The spark is not only a symbol of interpersonal relationships but also a key temporal anchor driving daily active behavior. When this anchor disappears, the stickiness between the user and the platform loosens accordingly.

In terms of interpersonal interaction, the impact of interruption varies depending on the relationship. Breaking a spark with close friends does not truly affect their emotional bond, as the spark is far less significant than their genuine affection. However, for acquaintances or casual friends, a broken spark often leads to a precipitous drop in chat frequency. As respondent F11 remarked, "Some friendships are essentially sustained by sparks. Once the spark breaks, communication basically ceases." The intimacy woven by gamified mechanisms may merely be a bubble of interaction; beneath this bubble lies increasingly thin emotional exchange.

At the level of emotional experience, interruption is not just a cessation of behavior

but a ruthless "judgment" of relationship quality. Multiple respondents mentioned that the pressure of maintaining the spark outweighed the pleasure. The negative emotions triggered by a broken spark reconstruct the user's cognitive evaluation of the relationship. Respondent F07 explained, "I always initiate messages to keep the spark going, while she never takes the initiative. This makes me feel that she doesn't consider me a friend. Over time, I no longer wish to take the initiative to continue the spark." The emotional experience derived from the entire process of maintaining the spark becomes embedded in the user's cognitive structure regarding the relationship, influencing their trust and willingness to invest in similar gamified social features for a long time to come.

4.2.3. Alienation and Vulnerability: The Inherent Tensions of Digital Intimate Relationships

Under the continuous operation of gamified mechanisms, digital intimate relationships exhibit systemic fragility. This fragility manifests specifically as a triple alienation of behavioral habits, emotional experiences, and relational cognition. Together, these three dimensions create the digital social paradox where "maintenance entails vulnerability".

First, disciplinary alienation of temporal order. Through the persistent requirement of mandatory daily interaction, "Spark Maintenance" forcibly embeds users' autonomous time arrangements into the platform-prescribed interaction cycle. Users no longer decide when to communicate with friends based on their own emotional states or practical needs; instead, they are driven by the spark's countdown timer. Respondent F08 remarked, "Every night before going to bed, I check whether I have maintained the spark that day, just for fear of forgetting." When the spark is eventually interrupted due to an instance of forgetfulness or accident, users' immediate reaction is seldom "finally free", but rather regret and self-blame — this reaction precisely demonstrates that platform logic has successfully eroded users' sense of sovereignty over their own time.

Second,quantitative alienation of emotional labor.The maintenance of intimate relationships should inherently rely on genuine emotional investment, but the "Spark Maintenance" practice has reduced it to a highly simplified "check-in" behavior. As long as users send at least one message per day, they can complete the "task" of maintaining emotional bonds, in-depth communication is replaced by superficial, ritualized interactions. More insidiously, the number of consecutive spark days has gradually replaced the quality of real interactions as a surrogate indicator of whether a relationship is "good". When the spark count is sufficiently long, even if the two parties have long run out of things to talk about, they will develop a false sense of certainty that "this relationship must still be doing well". As F09 noted: "Most of my friendships are rather superficial. Keeping a spark at least serves as proof that we still have a connection." The quantified alienation of emotional labor leaves users with nothing but an empty number in return for their

time and effort, rather than genuine intimacy.

Third,the commodification and alienation of social relationships. Platform design simplifies emotional connections between individuals into quantifiable, displayable data metrics . These sparks become a form of comparable and show-off-worthy social capital. Users share screenshots of their hundreds of consecutive days with friends on social media to garner likes and envy, subtly turning the length of a spark into a public label for the depth of friendship. Respondent F04 stated, "I felt uncomfortable seeing my partner renew a spark with someone else but not with me; the fact that our spark broke and the day count decreased bothered me." This logic of comparison hands over the judgment of friendship’s value to platform-defined data rules, where the closeness of relationships is determined by the length of a spark. Emotional rupture is first manifested as the visual event of a "spark extinguishing." The sense of loss experienced by users is often mixed with regret over "data resetting to zero." Thus, maintaining sparks transforms emotional hurt into data loss, reducing social relationships to data assets that require regular maintenance to avoid "devaluation."

5. Research Conclusions

"Spark Maintenance" may appear to be a lightweight social feature on Douyin, yet behind its concise gamified design lies the logic and inherent tensions of maintaining interpersonal relationships in the digital age. This study systematically analyzes the "Spark Maintenance" phenomenon, revealing how this function transforms daily chat into a calculable, accumulative, and displayable "emotional cultivation game." In this process, users are active participants, yet they are also subtly disciplined by platform rules.However, the true insight of the spark lies not in how it drives participation, but in what changes when the Spark is interrupted. The interruption event illuminates the true nature of digital intimacy reshaped by gamified mechanisms, When the pressure to maintain symbols surpasses the emotional connection itself, technology-mediated friendship falls into a paradoxical fragility.

From a broader perspective, the "Spark Maintenance" phenomenon is far from an isolated case. It serves as a microcosm of the pervasive logic of social platforms in the algorithmic era: platforms integrate interpersonal interactions into predictable, intervenable behavioral trajectories through gamified design, while users, in exchange for a sense of ritual and belonging, relinquish part of their emotional autonomy. This study does not aim to completely negate the value of gamified socializing—it does sustain relationships to some extent, and provides individuals with a sense of companionship ritual and fun. However, we must remain vigilant against its reconstruction and erosion of authentic emotional perception. Today, as algorithms are increasingly deeply embedded in social life, how to preserve emotional authenticity while enjoying the convenience of technology remains a

timeless issue worthy of continuous exploration.

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