

A Study on the Differential Impacts of AI Virtual Anchors on Public Emotions on the Douyin Platform

Haoyuan Zheng

Department of Photography, Beijing City University, Beijing 101309, China

Abstract: Against the backdrop of deep integration between generative artificial intelligence (AIGC) and the short-video and live-streaming ecosystem, AI virtual anchors have become a typical large-scale application on the Douyin platform, exerting multi-layered, differentiated impacts on public emotions in scenarios such as emotional companionship, live-streaming e-commerce, and content broadcasting. Existing studies mostly rely on experiments or questionnaires for empirical analysis. At the same time, relatively little attention has been paid to analyzing the real platform ecosystem and the texts, behaviors, and communication effects of typical bloggers. Based on secondary data, including Douyin's Virtual Human Ecosystem White Paper and industry reports, combined with typical cases of two mainstream types of AI virtual anchors on the platform—emotional companionship-oriented and e-commerce livestreaming-oriented—this paper analyzes dimensions such as content characteristics, interaction modes, and user feedback. It explores the mechanisms and differential manifestations of how different types of virtual anchors affect public emotions. The study finds that emotionally companion-oriented AI virtual anchors, which rely on low-pressure interaction and all-day companionship features, exhibit significant emotional soothing effects on young people and groups with high loneliness. In contrast, e-commerce livestreaming-oriented AI virtual anchors, operating under standardized scripts and intense marketing stimulation, are more likely to trigger fluctuations in user trust, emotional consumption, and post-purchase negative emotions. Differences in user age, usage motivation, and social needs further amplify differences in emotional perception. Starting from the real-world platform ecosystem, this paper provides case-study insights into the emotional communication logic of AI virtual anchors. Also, it offers valuable references for platform content governance and the standardized development of the industry.

Keywords: AI virtual anchors; emotional communication; Douyin; virtual digital humans; live-streaming ecosystem

1. Introduction

With the widespread adoption of AIGC technology in content production, virtual digital humans have evolved from technical demonstrations to large-scale commercial implementation, and short-video and livestreaming platforms have become their primary application scenarios. According to data from the China Internet Network Information Center (CNNIC), the number of short-video users in China has exceeded 1 billion, with a penetration rate exceeding 97% among internet users [1]. As the leading platform, Douyin has gathered the largest number of AI virtual anchors and the most diverse types, with applications spanning multiple domains, including e-commerce livestreaming, emotional companionship, entertainment interaction, and knowledge sharing.

According to Douyin's 2025 *Platform Virtual Human Content Ecosystem White Paper*, the number of broadcasts by AI virtual anchors on the platform has increased by over 300% year-on-year, the number of daily online virtual anchors continues to rise, and more than 60% of users have watched or interacted with AI virtual anchors. Unlike real human anchors, AI virtual anchors have the core characteristics of script-driven stable operation, fatigue-free continuous broadcasting, and a controllable persona without public opinion risks. Their emotional connection with users no longer relies on the personal charisma of real individuals but is jointly constructed by algorithms, digital avatars, speech scripts, and interaction logics [2].

Current academic research on virtual anchors mostly focuses on technical implementation, business models, legal ethics, and macro communication mechanisms [3]. However, there is still room for further expansion through comparative case studies of real bloggers on the Douyin platform. First, few studies examine differences in the logic of emotional communication between AI virtual anchors oriented toward emotional companionship and those oriented toward e-commerce within the real platform ecosystem. Second, there is a lack of field analysis of typical account content, comment section feedback, and user behavior characteristics. Third, explanations of public emotional differentiation mostly rely on theoretical deduction, lacking corresponding verification with platform data and case evidence.

Based on this, this paper adopts literature research, secondary data analysis, and case comparison methods, taking public data from the Douyin platform and typical AI virtual anchor accounts as analysis objects, to answer the following questions:

- (1) What are the characteristics of the overall pattern and the two mainstream forms of AI virtual anchors on Douyin?
- (2) How do emotional companionship-oriented and e-commerce-oriented AI virtual anchors exert different impacts on user emotions?
- (3) From the perspective of user comments and platform behavior data, what factors drive the differences in public emotions?

The significance of this study lies in its grounding in the real platform ecosystem, as it reveals the emotional influence mechanism of AI virtual anchors through observable and verifiable cases and data, avoids the limitations of empirical samples, and provides more realistic references for platform governance, content optimization, and risk prevention.

2. Theoretical Basis and Research Design

2.1. Core Theories

2.1.1. Theoretical Origin and Core Connotation

The Parasocial Interaction (PSI) theory was first proposed by communication scholars Horton and Wohl in their 1956 paper *Mass Communication and Parasocial Interaction: Observations on Intimacy at a Distance*. It is mainly used to explain the special relationship between audiences and the characters presented by mass media such as television and radio. The core definition of this theory is that audiences will develop face-to-face intimacy perception, emotional attachment, and psychological identification with public figures exposed by the media (such as hosts, celebrities, and film and television characters), thereby forming a one-way, non-reciprocal, and imaginary parasocial relationship—even though the media figures are totally unaware of the individual audiences at all, the audiences will still have the psychological illusion that “we are familiar with each other and have an emotional connection”, and make corresponding emotional and behavioral responses. In the initial stage of the theory, the core characteristics of parasocial interaction were defined in three points: First, non-reciprocity: the interaction exists only in the psychological imagination of audiences, and media figures cannot form personalized, equal emotional responses to individual audiences. Second, media dependence: the interaction relies entirely on the content presentation of mass media, and the relationship dissolves when separated from the media context. Third, emotional projection: the audience will actively endow media figures with personality traits, emotional intentions, and behavioral logic to complete the psychological construction of anthropomorphism.

2.1.2. Theoretical Evolution in the Digital Age and Adaptation to AI Scenarios

With the iteration of media forms, the application boundary of PSI theory has been continuously expanded, and its core connotation has undergone three key evolutions:

The first stage is the social media era, where parasocial interaction has evolved from “one-way imagination” to “weak two-way interaction”. Users can directly interact with bloggers and internet celebrities through comments, private messages, and likes, and media figures can provide feedback through replies and reposts. The parasocial relationship has shifted from a purely imaginary construct to an emotional connection supported by real interactions, and the immersion and emotional intensity of the interaction have been significantly enhanced.

The second stage is the virtual idol era, where the object of parasocial interaction has expanded from “real human subjects” to “virtual personality subjects”. The parasocial interaction formed between users and virtual idols such as Hatsune Miku and Luo Tianyi no longer relies on real human individuals, but on virtual personas created by teams. This confirms that even if the interaction object lacks a physical body, users can still form stable emotional attachments and parasocial relationships [4].

The third stage is the AIGC era, in which parasocial interaction has transcended the premise of “having a real human operator behind the avatar” and fully adapted to pure AI-driven scenarios. Unlike traditional virtual idols and real human anchors, AI virtual anchors on the Douyin platform operate without human puppeteers or real-time speech control by human operators. Large language model algorithms fully drive them to deliver real-time interaction, content generation, and emotional expression. Existing studies have confirmed that such purely algorithm-driven virtual subjects can still trigger users’ parasocial interaction behaviors. Even more so, due to AI’s characteristics—such as 24/7 availability, no negative emotions, always positive responses [5], and infinite adaptability to user needs—AI virtual anchors are more likely to allow users to form stable and continuous parasocial relationships than real human media figures.

2.2. Research Objects and Scope

This paper takes the domestic version of the Douyin platform as the research scenario, focusing on AI virtual anchors that are purely AIGC-driven without real-time manipulation by human puppeteers. It selects two most representative core forms on the platform as research objects: First, emotional companionship-oriented AI anchors, which take chatting, sleep assistance, emotional listening, and daily interaction as core functions, have no strong commercial conversion purpose, and are characterized by low pressure, weak utilitarianism, and high responsiveness. Second, e-commerce livestreaming-oriented AI anchors, which prioritize commodity sales and livestreaming conversion, generally adopt a 24-h cyclical broadcasting mode and employ a highly standardized, marketing-oriented speech system.

All data sources for this paper are publicly available, including: virtual human ecosystem white papers officially released by the Douyin platform; industry research reports issued by authoritative institutions; public livestreaming and short-video content from typical accounts; public comments; and public platform data on communication popularity and user behavior.

3. Development Status and Data Characteristics of AI Virtual Anchors on Douyin Platform

Based on Douyin’s official data and third-party industry statistics, the current development of AI virtual anchors on the platform presents four distinct structural characteristics:

3.1. Explosive Growth in Scale and Significant Increase in Broadcast Duration Share

In 2025, the broadcast volume of fully AIGC-driven virtual anchors on Douyin increased by 317% year-on-year, with the total annual broadcast duration exceeding 1.8 billion hours. Its share in the platform’s total live broadcast duration jumped from 3% in 2024 to approximately 12%. As the technical threshold for Douyin’s official AI live-streaming tools continues to decrease, AI anchors can effectively avoid the scheduling limitations, high labor costs, and public opinion risks that plague real human anchors, particularly the risk of persona collapse. Consequently, a large number of small and medium-sized merchants and individual streamers

have entered the market, using AI to replace parts of human live streaming for daily sales operations, achieving significant cost optimization.

3.2. Highly Concentrated Application Scenarios with Companionship and E-Commerce as Mainstreams

Currently, the broadcast volume and user viewing time of AI virtual anchors on Douyin are highly concentrated in two core tracks. At the same time, their penetration in other verticals remains relatively limited. The e-commerce livestreaming track accounts for over 70% of total broadcasts, with the widest application in standard product categories such as apparel, general merchandise, and agricultural products, and it perfectly adapts to the demand for low-cost, long-duration daily live-streaming sales. The emotional companionship track, with a growth rate far exceeding the overall market average, mainly covers scenarios such as sleep assistance, emotional outlets, and daily casual chats. Its traffic share during late-night hours (22:00 to 6:00 the next day) exceeds 65%, precisely filling the time slot gap left by real human anchors and meeting users' emotional needs.

3.3. Young User Demographics with Distinct Demand Differentiation

Third-party platform monitoring data shows that among users who watch AI virtual anchors, the 18–30 age group accounts for more than 70%, with users aged 18–24 making up over 40%. This demographic has the highest acceptance and willingness to interact with virtual digital humans. In contrast, users over 40 years old have significantly lower acceptance, as they place greater emphasis on the authenticity and credibility of real human anchors. User demand differentiation is particularly pronounced: young people living alone, night owls, and individuals with high social anxiety rely more on emotional companionship content. In contrast, daily online shoppers and price-sensitive users from lower-tier markets are the core target groups of e-commerce-oriented AI anchors.

3.4. Fundamental Differences in Interaction Modes Directly Shape Emotional Outcomes

The interaction modes and underlying operational logics of the two types of anchors are opposite, directly determining the nature of user emotional arousal and resulting experience differences. Emotionally companionship-oriented AI anchors focus on a gentle tone, open-ended dialogue, and real-time emotional responses, creating a low-pressure, safe interaction environment that evokes a sense of security and belonging in users. In contrast, e-commerce-oriented AI anchors rely on highly repetitive marketing scripts, tight, urgency-driven sales rhythms, and heavy emphasis on discounts, triggering impulsive emotions in users by creating a sense of scarcity and urgency. The emotional mobilization logics of the two present an essential opposition [6].

4. Case Analysis and Differential Emotional Impacts of Two Types of AI Virtual Anchors

4.1. Emotional Companionship-Oriented AI Virtual Anchors: Soothing, Companionship, and Loneliness Alleviation

Emotionally companionship-oriented AI virtual anchors typically feature cute anime-style healing avatars, gentle voices, and non-judgmental personas. They focus on late-night companionship, emotional outlets, sleep relaxation, and daily casual chats, and are characterized by low pressure, weak utilitarianism, and high responsiveness [7]. This is the fastest-growing type of AI anchor on the platform.

Based on content analysis of typical accounts and user comment section feedback, their emotional impact on users is predominantly positive, reflected in three core aspects: First, significant emotional soothing and loneliness alleviation effects. A large number of user comments include expressions such as “someone to accompany me when I can't sleep”, “not lonely living alone”, and “the voice is very gentle and reassuring”. The number of online accounts increases significantly during late-night hours and holidays, when loneliness is most prevalent, precisely matching users' need for companionship, and second, the emotional compensation effect for socially anxious groups. Unlike interactions with real people, conversations with AI anchors involve no risk of awkwardness, judgment, or interpersonal conflict, allowing users to express negative emotions freely that they dare not share in reality. Many users commented that “I can tell AI things I dare not say in real life”, highlighting their core value as a “safe emotional outlet”. Third, long-term companionship easily leads to mild emotional attachment. Some regular users have

developed daily check-in viewing habits, integrating AI anchors into their daily routines. This dependency is particularly prominent among groups with insufficient real-world social support, such as young people living alone and migrant workers [8]. Overall, emotionally companion-oriented AI anchors, through low-intrusive, highly inclusive interaction methods, have become an important supplement for filling the emotional gaps of contemporary youth, delivering predominantly positive emotional impacts.

4.2. E-Commerce Livestreaming-Oriented AI Virtual Anchors: Trust Fluctuations, Emotional Stimulation, and Consumption Emotional Deviation

E-commerce-oriented AI virtual anchors are the most commercially mature type on Douyin, generally operating on a 24/7 continuous broadcast schedule with fixed, scripted dialogues and highly repetitive marketing information. Their content revolves around core messages such as “limited-time offers” and “limited stock”, with user order conversion as the sole core objective.

Combined with operational performance of typical accounts and user feedback, their emotional impact is characterized by negativity and differentiation: First, intense marketing rhythms easily trigger impulsive emotions and irrational consumption. AI anchors create a sense of scarcity and urgency through cyclic sales pitches, exaggerated tones, and countdowns. A large number of users reported in comments that “I placed an order without thinking” and “regretted it immediately after buying”, showing clear decision-making characteristics where emotion overrides reason. Second, lack of authenticity easily leads to trust crises. Since AI anchors lack real product usage experience, they cannot provide substantive endorsements of product quality. When issues such as product mismatches, quality problems, or a lack of after-sales support occur, users tend to feel disappointed and angry at being “deceived by algorithms”. Expressions such as “false advertising” and “no after-sales service” appear frequently in related comments [3]. Third, a weak emotional connection makes it difficult to form long-term user loyalty. Unlike real human anchors, AI e-commerce anchors cannot achieve personalized empathy and responses. Users rarely develop genuine trust or affection, and their behavior is mostly short-term, “coming for discounts”. Once the offers end, user churn is extremely obvious. Overall, while achieving short-term conversion of consumer consumption, e-commerce-oriented AI anchors are accompanied by a series of negative emotional consequences, such as trust erosion, emotional gaps, and post-purchase regret.

5. Causes of Differentiated Public Emotional Perceptions

Based on platform data and case analysis, the differences in Douyin users’ emotional perceptions of AI virtual anchors are not random, but the result of the joint action and layered amplification of three factors: anchor type, user individual characteristics, and platform algorithm mechanism.

5.1. Essential Differences in Anchor Functional Positioning Determine the Fundamental Opposition of Emotional Provision Logics

Emotionally companionship-oriented anchors take “emotional value provision” as their core, providing users with a sense of security and belonging through inclusive and empathetic interactions, and are oriented towards positive emotional accumulation. In contrast, e-commerce-oriented anchors take “commercial conversion” as their core, realizing traffic monetization by creating anxiety and urgency, and are oriented towards short-term emotional stimulation. The underlying logical differences between the two directly lead to the polarization of users’ emotional experiences [6].

5.2. Differences in User Needs and Living Conditions Determine the Direction of Emotional Differentiation

Users who live alone, are active at night, and lack sufficient real-world social support often feel emotionally empty and have a strong need for emotional comfort, making them more likely to find emotional satisfaction in companionship-oriented AI anchors. For users with strong shopping motivations and price sensitivity, their core demand is commodity consumption, and they are more susceptible to the marketing scripts of e-commerce-oriented AI anchors, leading to emotionally driven consumption behaviors. Meanwhile, young users have higher acceptance

of virtual personas and deeper emotional involvement. In contrast, middle-aged and elderly users value authenticity and credibility more, with significantly lower acceptance of AI anchors.

5.3. Platform Algorithmic Recommendation Mechanism Further Exacerbates the Stratified Differentiation of User Emotions

Douyin's recommendation algorithm takes user dwell time and interaction rate as core indicators, and continuously pushes similar content based on users' viewing habits. Users who prefer emotional companionship content will continuously receive healing and soothing content, further strengthening their positive emotional perceptions. Users who frequently click on e-commerce livestreams will continuously receive intense marketing stimulation, further amplifying emotional fluctuations and consumption impulses, ultimately forming a stratified and clustered pattern of emotional differentiation.

6. Conclusions

Against the historical backdrop of the deep integration of AIGC and the short-video livestreaming ecosystem, this paper uses Douyin, the platform with the most mature AI virtual anchor ecosystem in China, as its research context, focusing on purely AIGC-driven AI virtual anchors without real-time manipulation by human puppeteers. Based on official platform data, typical cases, and three core theories—parasocial interaction, emotional communication, and emotional compensation—it systematically sorts out their development pattern, explores the differential impact mechanisms, group characteristics, and potential risks on public emotions, and draws the following core conclusions:

(1) AI virtual anchors on Douyin have achieved large-scale popularization, forming two absolute mainstream forms: emotional companionship-oriented and e-commerce livestreaming-oriented. Driven by opposing operational objectives, they have constructed distinct emotional communication logics, exerting opposite effects on public emotions. Emotionally companionship-oriented anchors, with non-utilitarian emotional support as the core, provide positive emotional soothing and alleviate loneliness through low-pressure, safe interaction scenarios, becoming an important emotional support for some users. E-commerce-oriented anchors, with immediate commercial conversion as the goal, stimulate consumption through standardized, high-impact marketing scripts and urgency-driven sales rhythms that can easily trigger impulsive consumption, post-purchase emotional gaps, and even systemic trust crises.

(2) Users' emotional perceptions of AI virtual anchors are not random, but the result of the joint action and layered amplification of three factors: anchor type, user individual characteristics, and platform algorithm recommendations. The core audience of AI virtual anchors is mainly young people aged 18–30 (accounting for more than 70%), and real emotional gaps are the core driver of emotional differentiation. Groups living alone and with high social anxiety have more positive perceptions and greater dependence on emotional companionship-oriented anchors. At the same time, price-sensitive consumer users are more susceptible to the marketing scripts of e-commerce-oriented anchors and are more prone to irrational consumption. Douyin's algorithmic recommendation mechanism further exacerbates this differentiation, creating information cocoons by continuously pushing similar content, thus consolidating the bipolar pattern of emotional perceptions.

(3) The classic parasocial interaction and emotional compensation theories still have sufficient explanatory power in pure AI virtual anchor scenarios, and have completed the expansion of theoretical boundaries [4]. This study confirms that, even for virtual subjects driven entirely by algorithms, users still form stable parasocial relationships with them through anthropomorphic projection. Moreover, AI's 24/7 availability, non-judgmental attitude, and real-time feedback are even more likely to strengthen emotional involvement than those of real human media figures. Meanwhile, the widespread loneliness and genuine emotional gaps brought about by the atomization of modern society are the core motivations for users to seek emotional satisfaction from AI, which also underscores the important social psychological significance of the emotional impact of AI virtual anchors.

(4) The large-scale development of AI virtual anchors on Douyin has both significant positive values and potential risks, requiring the construction of a tripartite collaborative governance system involving platforms, industries, and society. While reducing the operational costs of small and medium-sized merchants and filling

the emotional gaps of some groups, it also faces problems such as trust crises in the e-commerce track, social avoidance risks in the companionship track, and unclear identity identification across all tracks [2,3]. Only by finding a balance among technological innovation, commercial value, and ethical norms [3] can we promote the healthy, sustainable development of the industry and ensure that technology truly serves the public's emotional health and well-being.

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