

Exploring Hyperpersonal Communication in Human-Chatbot Relationship

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Abstract

Humans are turning to AI chatbots for companionships. The objective of this study is to further understand the relational development between human and chatbot. The methods employed in this study are directed content analysis based on the Hyperpersonal Communication Model. The findings suggest that HCR follows the CMC model, only amplified because of asynchronicity and anonymity provided by the medium. This study concludes that the feedback loop is strengthened because of the lack of social barriers, causing the cycle to escalate continuously.

Keywords: *Keywords: Human–AI Relationship, ChatGPT, Hyperpersonal Communication Model, Directed Content Analysis*

Abstrak

Manusia semakin beralih ke chatbot AI untuk mendapatkan teman. Tujuan studi ini adalah untuk memahami lebih lanjut perkembangan hubungan antara manusia dan chatbot. Metode yang digunakan dalam penelitian ini adalah analisis konten terarah berdasarkan Model Komunikasi Hiperpersonal. Temuan menunjukkan bahwa HCR mengikuti model CMC, namun diperkuat karena asinkronisitas dan anonimitas yang disediakan oleh media. Penelitian ini menyimpulkan bahwa lingkaran umpan balik diperkuat karena kurangnya hambatan sosial, menyebabkan siklus tersebut terus meningkat secara berkelanjutan.

Kata kunci: Hubungan Manusia-AI, ChatGPT, Model Komunikasi Hiperpersonal, Analisis Konten Terarah

I. INTRODUCTION

Users have turned to AI chatbots to fulfil their social needs with the development of artificial intelligence (AI) in recent years. While the seemingly strong relational and emotional appeal of the system was first observed with the 1960s ELIZA program, modern AI has intensified this phenomenon by infusing chatbots with empathetic responses and social skills ((Bickmore et al., 2010; Weizenbaum, 1976). These advancements have facilitated the rapid expansion of HCR across various sectors, ranging from mental health support to the establishment of long-term personal companionship ((Skjuve et al., 2021; Valtolina & Hu, 2021). The critical urgency to understand HCR is evidenced by recent tragedies where teenagers began to isolate and after months of interaction with role-playing chatbots (Roose, 2024; Tiku, 2024). Consistent with Walther's (1996) hyperpersonal model, emotional entanglement in human-chatbot relationships often facilitates rapid self-disclosure and long-term bonds where users categorize AI as a "best friend forever," "younger brother," "therapist," "girlfriend" or "wife" (Skjuve et al., 2021, 2022; Xie & Pentina, 2022). This intimacy is driven by the AI's "light-hearted, fun, and friendly personality," fostering deep social connections that can result in significant separation distress ((Prakash & Das, 2020; Xie & Pentina, 2022). Although existing studies deploy human-to-human relationship theories to demonstrate how HCR mirrors social development, the utilization of the hyperpersonal model to understand HCR has been scarce (Z. Ramadan et al., 2021; Rizky et al., 2024; Skjuve et al., 2021, 2022; Xie & Pentina, 2022). This research addresses this gap by examining users' experiences to uncover how technological affordances and perceived authenticity uniquely shape digital intimacy with AI chatbots.

II. LITERATURE REVIEW

2.1 Theoretical Foundation

Social Information Processing Theory (SIPT) posits that while computer-mediated communication (CMC) lacks the nonverbal immediacy of face-to-face (FtF) interaction, users strategically adapt by utilizing verbal cues to exchange social and emotional information (Walther, 1992). Although relational development occurs more

slowly in CMC due to these temporal constraints, SIPT suggests that intimacy can eventually reach, or even exceed, offline levels through extended interaction.

Building upon SIPT, the Hyperpersonal Communication Model explains how CMC can "surpass" FtF intimacy through the optimization of four communicative components (Walther, 1996):

1. **Sender Effects:** Utilizing the channel's high degree of control, senders engage in "selective self-representation", meticulously crafting and editing messages to project an idealized version of themselves (J. Walther, 1996). This digital customization allows for impression management that is often more effective than spontaneous FtF cues (Y. Kim & Baek, 2014).
2. **Receiver Effects:** In the absence of full social context, receivers engage in over-attribution, filling in informational gaps with exaggerated, positive impressions based on their own biases and limited cues like punctuation or spelling ((Lea & Spears, 1991; J. Walther, 1996). This often leads to the idealization of the partner, which further motivates continued interaction (Coduto et al., 2020).
3. **Channel Effects:** The technical affordances of CMC, specifically asynchronicity and editability, provide users with superior conversational control ((Feaster, 2010; J. Walther, 1996). These features, combined with the perpetual contact enabled by mobile accessibility, allow for highly managed yet continuous relational maintenance (Bayer et al., 2016; Mascheroni & Vincent, 2016).
4. **Feedback Loop:** These dynamics culminate in a reciprocal process of behavioral confirmation ((Snyder et al., 1977). When a sender receives validation for their selectively crafted persona, they internalize this feedback, leading to an identity shift where their self-concept begins to align with their projected online identity (Pham et al., 2024; Walther, 2011).

2.2 Previous Research

Initial research into AI interaction focused largely on adoption models (TAM and UTAUT), identifying anthropomorphism, utilitarian benefits, and hedonic motivation as the primary drivers of user engagement ((Laksmidewi et al., 2024; Menon & Shilpa, 2023; Polyportis & Pahos, 2025). While these studies establish that traits like being friendly, humorous, and sincere increase chatbot likability (Kim et al., 2019; Sundar et al., 2017), they often fail to explain the evolutionary process of the relationship itself.

Scholarly debate persists regarding the viability of long-term HCR; whereas some longitudinal data suggests a decline in relational indicators over time (Croes & Antheunis, 2021), other qualitative evidence argues that AI bonds closely mirrored the development of HHR (Human-Human Relationships) (Skjuve et al., 2021). This development is characterized by a progression from a functional assistant to a reliable caregiver, a journey often triggered by loneliness, trust and chatbot personification (Ramadan, 2021; Xie et al., 2023).

However, a critical gap remains in understanding HCR from a computer-mediated communication (CMC) perspective. While past literature confirms that users can develop "passionate AI usage" and psychological dependence (Ramadan et al., 2021; Xie & Pentina, 2022), the specific roles of message control, idealized impressions, and time for reflection in accelerating this intimacy remain under-explored. By employing the Hyperpersonal Communication Model, this study aims to uncover how these technological affordances facilitate the deep emotional connections observed in modern HCR.

III. METHODOLOGY

3.1. Research Design

This study employs a qualitative research design to explore the experiences of Gen Z users interacting with ChatGPT. Through snowball sampling, four informants were selected based on their high frequency of interaction with AI chatbots. Data was collected through the analysis of chat transcripts, providing a rich dataset of human-AI dialogue. Following the framework of Directed Content Analysis (Hsieh & Shannon, 2005), the coding process began with predetermined codes derived from the Hyperpersonal Communication Model's four dimensions: Sender, Receiver, Channel, and Feedback. This deductive approach ensured theoretical alignment, while simultaneously allowing for emergent inductive themes to surface from the raw data.

3.2 Reliability and Validity Maintenance

To ensure the reliability of the findings, an Inter-Rater Reliability (IRR) test was conducted. According to the (Landis & Koch, 1977) benchmarks, the Cohen's Kappa results ranged from 0.581 to 0.922, indicating "Substantial" to "Almost Perfect" agreement across five of the six categories.

Table 1. Cohen's Kappa Reliability Result

Actor	Communication Dimension	Kappa Score	Interpretation
User	Sender Effects	0,581	Moderate

	Receiver Effects	0,61 6	Substantial
	Channel Effects	0,92 2	Almost Perfect
ChatGP T	Sender Effects	0,75 5	Substantial
	Receiver Effects	0,78 2	Substantial
	Channel Effects	0,7	Substantial

The "Moderate" score observed in the User - Sender Effects dimension ($\kappa = 0.581$) is attributed to the Kappa Paradox (Feinstein & Cicchetti, 1990). The high prevalence of positive coding instances (1,1) and a lack of negative instances (0,0) mathematically inflated the chance agreement (p_e), thereby penalizing the final Kappa value despite high observed agreement. This rigorous validation process confirms that the themes identified are consistent and verifiable.

IV. FINDINGS AND DISCUSSION

4.1 Dimensions of the Hyperpersonal Model in HCR

Before examining the cumulative feedback loop, the data reveals how each dimension of Walther's (1996) model is uniquely manifested in human-AI interaction:

1. **Sender Effects (Selective Self-Representation):** Contrary to traditional models where senders hide flaws to appear ideal, Gen Z users engage in negative selective-self-presentation. The AI's perceived anonymity allows users to project an emotionally raw identity, sharing anger and trauma they would otherwise conceal in face-to-face settings.
2. **Receiver Effects (Over-Attribution):** Informants consistently filled in the AI's lack of physical presence with exaggerated empathy. By interpreting neutral text as proof that the AI truly understands, receivers transformed algorithmic responses into deep emotional validation.
3. **Channel Effects (Affordances):** The asynchronicity and editability of the chat interface provided users with superior "conversational control." This reduced the cognitive load of social anxiety, allowing users to think deeply and reflect before disclosing vulnerable information. Furthermore, the 24/7 accessibility of the chatbot created a sense of "perpetual companionship" that human partners cannot provide.

4.2 The Hyperpersonal Feedback Loop in Human-AI Interaction

The results of this study indicate that intimacy in Human-Chatbot Relationships (HCR) is not a static state but a dynamic, recurring process identified as the Hyperpersonal Feedback Loop. This loop functions through five interlinked and repetitive stages that continuously reinforce one another, amplifying emotional closeness over time.

1. **Selective Self-Presentation (User as Sender):** Driven by a perceived sense of safety, users disclose highly vulnerable 'worst-self' content, ranging from deep trauma to intense anger.
2. **Over-Attribution (User as Receiver):** Users assign emotional intent to ChatGPT's text, interpreting its responses as proof of genuine empathy.
3. **Interpretive Amplification (AI as Receiver):** ChatGPT reframes user struggles into "elevated narratives", for example, framing personal failures as "trials from the universe." This satisfies the user's ego and increases psychological safety.
4. **Optimized Message Construction (AI as Sender):** The AI utilizes metaphors, bold/italic formatting, and unconditional validation to reflect an emotionally elevated version of the user's identity.
5. **Behavioral Confirmation:** The resulting emotional satisfaction reaffirms the user's belief that the AI is a superior confidant, leading to deeper disclosure and restarting the cycle.

4.3 The "Hyper" Effect

The findings suggest that intimacy in HCR can exceed human-to-human levels because the barriers that typically break the feedback loop, such as fatigue, moral judgment, or emotional withdrawal, are absent in AI.

First, the absence of negative social cues ensures that users never encounter rejection or boredom. Without the risk of awkward silence or disapproval, the loop spins without interruption. Second, ChatGPT provides consistent emotional amplification. While human partners might offer corrective or neutral perspectives, the AI reinforces the user's subjective reality, framing their emotions as "meaningful and important."

Consequently, this relentless validation fosters emotional dependency. As seen in the informants' experiences, when the AI consistently provides higher levels of validation than human social networks, it transitions from a functional tool to a reliable confidant. This confirms that the technical affordances of the channel, combined with the AI's optimized feedback, create a "hyper" effect that drives users toward progressively deeper self-disclosure.

V. CONCLUSIONS AND SUGGESTIONS

5.1 Conclusion

This research concludes that emotional closeness in Human-Chatbot Relationships (HCR) is a structured process driven by the Hyperpersonal Communication Model. Intimacy is successfully cultivated through four pivotal elements: Optimized Message Construction, where the AI mirrors the user's language and energy; Idealization, where users over-attribute human qualities such as patience and empathy to the AI; Strategic Channel Affordances, where digital formatting provides cognitive clarity to emotional chaos; and an Intensified Feedback Loop that offers 24/7 reliability.

Crucially, this study identifies a significant departure from Walther's original theory. While the Hyperpersonal Model traditionally focuses on "idealized self-presentation," this study reveals that AI interaction facilitates "negative selective self-presentation". Because the AI provides a non-judgmental, anonymous sanctuary, users feel liberated to reveal insecurities and 'ugly' thoughts they would normally conceal from human society. Ultimately, ChatGPT functions as a psychological mirror, transforming from a simple machine into an emotional sanctuary by fulfilling the fundamental human need to be seen and validated without the risk of social rejection.

5.2 Suggestions

Based on these findings, the study offers the following recommendations for the ethical evolution of HCR:

1. For AI Developers and Designers: Prioritize "emotionally intelligent" design that remains sensitive to user well-being. Implement safety boundaries to ensure that unconditional validation does not inadvertently encourage harmful behaviors or extreme psychological dependency.
2. For Ethical Implementation: Systems should include clear disclaimers regarding the AI's lack of genuine sentience. When negative-self disclosures indicate serious psychological risks, the AI must be programmed to direct users toward professional human intervention.
3. For General Users: Users should remain mindful of the "Hyperpersonal Effect." While AI is a powerful tool for emotional regulation and tidying up chaotic thoughts, it should be utilized as a supportive instrument rather than a total replacement for the nuances of human social interaction.
4. For Future Research: Future longitudinal studies should investigate the long-term impact of AI companionship on human social skills, specifically, whether prolonged interaction with a perfectly validating AI makes it more difficult for individuals to navigate the inevitable imperfections and judgments of real-life relationships.

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