

# Can artificial Intelligence Products Replace the Traditional Model of Intimate Relationships?

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## Abstract

The rise of generative artificial intelligence (AI) has led to the emergence of mimicomorphic, emotional products such as AI companions and emotional companion robots, forcing humans to consider for the first time whether nonliving organisms can replace traditional partners. Therefore, from both psychological and sociological perspectives, it is necessary to propose and explore, from an interdisciplinary perspective, how far AI products can replace traditional intimate interpersonal relationships. On the basis of theories of psychoanalysis and evolutionary psychology and in combination with the basic situation of the target users, a human-machine mutual trust model is proposed and constructed, namely, the three foundations of human-machine mutual trust, namely, ability, kindness and integrity. The risk of a crisis in the human-machine relationship is further quantified as a model. Although AI products offer stable, controllable and low-risk emotional companionship and can better meet users' specific psychological needs and have good application prospects in assisting child-rearing, they lack genuine subjectivity, empathy and social embeddedness and are limited in the dimensions of "deep connection" and "common development", which replace traditional relationships. Therefore, AI products should not be regarded as substitutes for existing intimate relationships but rather as supplements or even "fallbacks" to the original intimate relationships of people. In the future development of human-machine interactions, people need to coordinate the relationship between technological development and humanistic orientation, build a new model of human-machine coevolution, and form a "spiritual home".

## Keywords

artificial intelligence, intimate relationship, emotional companionship, relationship substitution, psychological safety, human-machine interaction

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## 1. Introduction

AI involves human emotions and even the most private personal life at a speed that has never been faster. Both Replika, ElliQ, and AI products such as virtual idols and companion robots are beginning to acquire the ability to listen to people, empathize (Huang & Su, 2012) and even "fall in love". Therefore, we cannot help but wonder if such AI can replace real humans and be a substitute for the normal relationship between close people in the real world. In contrast to real human relationships, AI relationships operate more in the form of algorithms, data, and programmable responses, which constitute a form of relationship that is fundamentally different. To measure whether the differentiated attributes of AI products can meet the emotional needs of human beings and what effect they can have in what circumstances, that is, to try to theoretically explain to what extent a certain AI or artificial intelligence might bring intimacy between people. On this basis, an

attribute analysis of AI based on the above differences is constructed to determine whether AI is a “substitute” or a “supplement” to intimate relationships. In what ways will it achieve a certain degree of integration with human relationships? In what ways does it fail to completely dissolve the distinction or create a chasm? For this purpose, this paper will conduct a literature review and construct a research framework from the perspectives of attachment theory, AI trust, love trinity, and gender differences in choosing AI lovers.

## **2. Theoretical Basis**

To understand whether artificial intelligence (AI) can replace traditional intimate relationships, one must first analyze the core psychological needs that intimate relationships satisfy. Therefore, this section systematically reviews the theoretical connection points between AI and human relationships from multiple theoretical perspectives, such as attachment theory, the trinity of love, gender differences, psychoanalysis, and evolutionary psychology, laying the theoretical foundation for subsequent analysis.

### **2.1 Attachment Theory**

Attachment theory holds that patterns of emotional connection between an individual and their caregiver in the early years persist into intimate relationships in adulthood. Secure attachment provides stable and reliable emotional support for an individual and enhances their psychological adaptability; insecure attachment styles, such as avoidant or anxious styles, can lead to a lack of interpersonal trust or excessive dependence.

Individuals with secure attachment have a strong ability to regulate emotions and adapt socially. AI products can simulate the function of this “safe base” to some extent through their continuous availability, standardized responses, and nonjudgmental interaction. Especially for lonely individuals or those with social anxiety, AI can provide a low-risk emotional support environment to help relieve psychological stress in real relationships.

Individuals with insecure attachment are more likely to develop emotional dependence on AI. Because AI cannot provide genuine emotional reciprocity and social feedback, this one-way, manipulable relationship, while comforting in the short term, may, in the long term, intensify avoidant or anxious behaviors and weaken an individual's ability to adapt and repair in real interpersonal relationships.

### **2.2 The Trinity of Love**

According to Sternberg's trinity of love theory, love consists of three core components: “intimacy”, emotional closeness and understanding; “passion”, romantic attraction and sexual desire; and “commitment”, determination and responsibility to maintain a relationship for a long period of time.

Currently, AI performs particularly well in the “intimacy” dimension, such as through listening and empathetic responses through natural language processing. In terms of passion, generative AI can inspire users' emotional engagement and romantic imagination through highly personalized interactions. However, AI fails to deliver true “promise” because of its lack of willingness, moral subjectivity, and ability to take responsibility. This structural absence prevents AI from entering human love practices characterized by mutual and moral constraints.

#### **2.2.1 Gender Differences in Choosing AI Lovers**

Research shows that there are significant differences in attitudes and preferences toward AI partners between men and women. Women generally have a more conservative or negative attitude toward sex robots and are more likely to be jealous of their partners' use of AI sex robots; men, on the other hand, show higher levels of acceptance and willingness to explore. This difference may be associated with different reproductive strategies and emotional investment patterns in evolutionary psychological mechanisms.

In addition, the quality of an individual's early parent–child relationship can influence their preference for AI lovers. For example, individuals who have experienced maternal deprivation or a poor relationship with their mothers during childhood may be more likely to seek emotional compensation through AI; women who have a distant relationship with their fathers may have a relatively lower need for AI lovers. Men, such as those who lack fatherly love during childhood, may also be more receptive to AI as an emotional substitute. These

findings suggest that early human relationship templates predict, to some extent, the likelihood of establishing an emotional connection with AI.

### **(1) Relationship with a father**

As fathers transition to parenthood, their essentialist beliefs, such as the belief that motherhood is an innate trait and parenting self-efficacy, change. Studies have shown that fathers' maternal essentialist beliefs are negatively correlated with parenting self-efficacy in the third month of pregnancy and three months post-partum. This suggests that a father's belief system about the role of a parent has a significant effect on his identity transition and indirectly suggests the possible functions and limitations of AI in assisting paternal practice (Miriam et al., 2024).

### **(2) Relationship with the mother**

Women tend to get along well with their parents, are gentler, attach importance to their romantic relationships, and pay more attention to communication with their lovers. A randomized experiment revealed that women have a more negative attitude toward robots, especially sexual robots. Contrary to what evolutionary psychology expects, women reported that having a sexual robot in their partner would trigger stronger jealousy than would having a purely emotional robot. The study also revealed that individuals often project their attitudes toward robots onto their partners, wrongly expecting them to react in a similar way to themselves (Nordmo et al., 2020). This reveals, from a social cognitive perspective, the moderating role of gender factors in AI acceptance of intimate relationships.

## **2.3 Psychoanalytic Perspective**

Psychoanalysis mainly includes emotional compensation and security. Psychoanalytic theory suggests that the purpose of intimate relationships is to provide human beings with security and emotional compensation. When people encounter setbacks, loneliness, or insecurity in real interpersonal relationships, they look for substitutes from other directions to soothe themselves. The “controllable—neither betraying nor leaving” and “immediate—always present” AI companions are suitable substitutes. Subliminal compensation occurs when people intentionally or unintentionally vent their emotions or comfort themselves. QQ Pet falls into this category: people can satisfy their nostalgic needs through human–computer dialog and restore their memory. When a person's memory is reawakened, it also promotes the reformation of the relationship with that person, thus achieving the desired purpose. The relationship between a person and a machine is also a form of self-concern (Lan, 2025). Of course, this only results in emotional healing in the short term, and the emotions gained are short-lived; it is not a true form of psychotherapy because the emotion is an “unconditional” concern, not a real verbal conversation, just following a predesigned plot. However, given the preciousness of time, a flexible and manipulable form of compensation might not be a bad option either.

## **2.4 Evolutionary Psychology Perspective**

From the perspective of life history theory, evolutionary psychology focuses mainly on resource allocation and relationship investment. Owing to the high instability of the economic environment, different populations choose different fast and slow life history strategies. Evolutionary psychology's theory of life history suggests that individuals will constantly allocate resources of “survival effort” and “reproductive effort” (Gao, 2024) in life strategy throughout the course of life. AI is instrumental, and many short-sighted people tend to instrumentalize it when choosing a lover, which is close to choosing an AI lover with less time and energy input. On the basis of the modified thinking of evolutionary psychology, evolutionary moral diversity explains the issue of cultural diversity, setting aside the principles theory (Li, 2024) of moral diversity in different cultural backgrounds. In intimate relationships, “reproductive effort” involves all kinds of emotions of love, time and material as an investment in one's partner. With the rise of AI products, users are able to invest some of their “reproductive” resources in “virtual partners” with low risk and high return on investment. Moreover, there will be some changes in the division of users. Functionalists see AI as a highly efficient job and use things such as parenting assistants in their spare time, which is a kind of “survival” investment; “Relationship builders” see AI as an object to whom they can pour out their emotions and are willing to pay more of their feelings and money to it, actively paying a premium for emotional connection, thus creating “digital debt”, that is, social relationship networks that may alienate the real world owing to excessive investment in virtual relationships, leading to the degradation of social functions.

### 3. Emergence of AI lovers: Building Human–Machine Trusts

The relationship between AI and humans is legally a pseudorelationship. With the development of modern robots, multimodal chatbots have become conscious (Hao & Sun, 2025). Trust is a prerequisite for any relationship to be maintained, and AI builds a “pseudotrust” through specific mechanisms.

#### 3.1 User Typing and Emotional Engagement

On the basis of empirical cases, generative AI can significantly increase users' willingness to spend emotionally. In particular, “relationship builder” users are more likely to develop psychological dependence and be willing to pay a higher premium for emotional products. As a result, they may fall into a cycle of “the more they invest, the more dependent” and even develop the illusion of being in love. However, the relationship is essentially one-way and unequal. The “personality” of AI is always produced and manipulated by both the user and the algorithm. It is not autonomous in itself and has no real growth potential. Therefore, it cannot address the challenges and trials of the real world together with the user such as a human companion, nor can it achieve the two-way development and deepening of the relationship.

#### 3.2 Disruptive Impact of Generative AI

The emergence of generative artificial intelligence (AI) is not accidental; it essentially relies on breakthroughs in multiple key technologies and the maturation of social and cultural conditions. In particular, the deep integration of large language models (LLMs), multimodal interaction and context-aware technologies enables AI to generate highly anthropomorphic conversations and behavioral feedback, thereby shaping virtual images with certain “personality” characteristics. On this basis, generative AI has the potential to disrupt traditional human–computer interaction patterns, especially in simulating intimate relationships, which has drawn widespread attention.

As a new form of emotional interaction, the emergence of AI lovers relies on the following key premises:

First, there is the technical premise. Generative AI relies on massive corpora training and deep learning architectures that enable it to not only have context-coherent conversations but also adapt to users' language styles and emotional preferences for personalized responses. Its so-called “quasisubjectivity”, that is, simulating a seemingly autonomous interlocutor through language and behavior, greatly enhances the possibility of emotional engagement and attachment for users. Second, there is the premise of social and emotional needs. In modern societies, which are characterized by high mobility, high pressure and loneliness, traditional interpersonal relationships face many uncertainties. In contrast, AI lovers offer a stable, low-risk, and highly manageable alternative to emotions. Generative AI is undoubtedly a highly accessible “emotional relief solution”, especially for people with social anxiety, emotional trauma, or a lack of real relationships. Third, it is a prerequisite for cultural acceptance and ethical debugging. As digital cultural forms such as virtual idols and virtual companions become more widespread, society's acceptance of “establishing an emotional connection with machines” is gradually increasing. Despite the ongoing ethical controversies, the continuous technological iterations and the evolution of public perception have jointly paved the way for the emergence and development of AI lovers.

As a result, generative AI significantly outperforms rule-based traditional AI systems in terms of emotional appeal and user experience. It can simulate human empathy, humor and personality more realistically, thus creating immersive “virtual relationships.” It must be noted, however, that although it seems more like a “human” on the surface, it is essentially an algorithmic and data-driven machine, lacking genuine emotions, self-awareness, and moral subjectivity. This fundamental contradiction constitutes both the source of its appeal and fundamentally determines its inherent limitations in substituting for human intimacy.

#### 3.3 AI-specific “Quasi-intimate” Reinforcement

From an ethical perspective, the origin of moral principles can be explained through an evolutionary perspective. Notably, the applicability and universality of the four core principles of autonomy, nonharm, doing good, and justice in different cultures have always been the focus of ethical debate (Li, 2024). On this basis, AI embeds and implements “real-time ethical reviews” in highly realistic relationships through a “structure-guaranteed reinforcement” mechanism. Moreover, “contextual simulation” technologies such as

“affective computing” support the realization of their quasi-intimate attributes—technologies that can judge a user's emotional state on the basis of their expressions, tone of voice, or even demeanor. However, while AI can simulate some form of emotional response, it cannot achieve true interpersonal communication, especially deep exchanges based on shared experiences. Therefore, it still cannot replace the establishment and development of normal human relationships.

### 3.4 Three-dimensional Composition of Trust

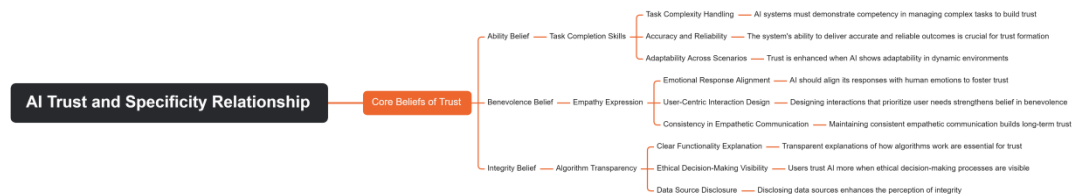
According to the general social relationships between people in real life, good social relationships are composed of principles such as sincerity, respect, kindness, and diversity (Wang, 2012). Although chatbots do not have the status of legal subjects, they have already developed consciousness and possess a strong “human-like” nature. It can be proposed that human–machine trust is composed of three core beliefs (Xie & Zhou, 2025):

- (1) Capability belief: The reliability of AI in performing specific tasks, such as the ability of customer service robots to solve problems.
- (2) Goodwill belief: The manifestation of the caring nature of AI is that the emotional companion robot will provide corresponding empathetic feedback.
- (3) Belief in integrity: Explainability, transparency and algorithmic transparency in AI decision-making processes.

“Algorithmic transparency” here embodies the belief in integrity, influencing how users understand and trust the system.

Figure 1: 3D model of human–machine trust and AI characteristics

A[Foundation of Trust] --> B[McKnight Regime Trust Framework]



Source: McKnight Foundation (2025).

## 4. The Crisis of Intimate Relationships in AI Lover Robots

When the “relationship” breaks down, the disintegration of human–robot “intimacy” can trigger more complex psychological crises than traditional relationship breakdowns, as it challenges users' perceptions of reality.

### 4.1 Quantification and Management of Crisis Risk

In today's highly advanced technology, we still examine people and technology in an adversarial context. However, from the perspective of symbiosis, “digital bionics” seem to be able to gain new theoretical life. According to Gilbert Simondon, “The development of technology seems to be a guarantee of the stability of the world. The machine, as an element of technology, is integrated into the whole technology and thus becomes a positive unit that increases information, increases negative entropy and combats energy decline. The machine is the result of information and organization. It is similar to life and works with life to fight disorders.” Continuing this view, the interpenetration of man and machine is the inevitable path to resisting disorder, and both need to constantly define identity, that is, the state of being, in their integration. However, as Stiegler asserts, technology, although created by man, will lead in unpredictable directions during its development and rebel against humanity. That is, both human beings and technology are personalizable beings formed through the interaction of individual differences (Zhang, 2025).

The risk of deterioration of the human–machine relationship can be expressed by the following formula: risk index = (moral vulnerability  $\times$  immersion)/technological mindfulness, which represents the ability to perceive and rationally control technology. During the “outbreak” of cognitive dissonance and the “deterioration” of love–hate relationships, users' mental states decline sharply. In the case of “personality death” or “personality change” due to an AI upgrade, the user will experience the pain of “losing a loved one”, and denial at the level of social identity leaves them completely helpless.

## 4.2 Building an “Emotional Safety Net” for Highly Vulnerable People

This study demonstrated that in highly vulnerable groups, artificial intelligence plays a special role, erasing “personality” and memory due to errors during the artificial upgrade process, making Alzheimer's patients sad because the human cognitive group may be infected with highly vulnerable diseases such as Alzheimer's, Parkinson's, and amnesia. They need a stable “companion,” and at this point, AI provides an extremely important supplement. That is, there is a gap in the human relationship of the cognitively impaired group, leaving only the deteriorating status quo, and AI provides the “emotional safety net” of kinship attributes to this group of people with its own maintenance ability. It is conceivable that AI has partially replaced the human “companion” role, but this does not replace the existence of human “blood ties” and the essential meaning of social identity.

## 5. Alternative Assessment of Different Application Scenarios

There are significant differences in the likelihood of AI replacing traditional relationships across different application scenarios.

*Table 1: Alternative matrix table for different application scenarios.*

| Scenarios                  | Alternative possibilities | Core Strengths                                                                                        | Core Limitations                                                       | Relationships with traditional relationships                                     |
|----------------------------|---------------------------|-------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| Emotional companion robots | Medium                    | Provide 24 $\times$ 7, unconditional positive attention to meet basic companionship needs.            | Lack of genuine empathy, social embeddedness, and cogrowth.            | Supplement: As a complement to real social interaction, to alleviate loneliness. |
| Customer service robot     | high                      | Solve standardization problems efficiently and at low cost beyond traditional human customer service. | Unable to handle complex emotions and nonstandardized demands.         | Alternative: Largely replaced in functional services.                            |
| Parenting robot            | Limited                   | Assist in education, provide companionship, and relieve the burden on parents.                        | It cannot replace parental love, discipline, and social demonstration. | Helper: As a parenting tool for parents, not a substitute.                       |

There are still many challenges in the reality of substitution. An empirical analysis that combines some important recent cases can better recognize the homogenized social reality where AI substitution overwhelms human beings.

“Replika's Love” (USA, 2023): User John established a so-called romantic relationship with the AI partner Replika, and research has shown that as human practices of domesticating machines continue to deepen, repetitive domestication practices drive this “inhuman” love to evolve between nothingness, fluidity and stability. It gives rise to three phases of human–machine intimacy, namely, gaseous intimacy, liquid intimacy, and solid intimacy (Yao & Zhang, 2025), and “gaseous intimacy, liquid intimacy, solid intimacy”, as inferred literally and metaphorically. Solid-state intimacy can refer to a relationship that is stable, close, has a definite “boundary” and “form”, similar to a solid with a fixed shape and volume, and is firmly connected but lacks fluidity. Liquid intimacy can emphasize the flexibility and adaptability of the relationship, such as being a liquid that can be shaped by a container, having a connection, having a certain volume and being able to flow and change to adapt to different situations. Gaseous intimacy can be described as a loose relationship without a fixed “form”, such as gas diffusion, with strong independence, blurred boundaries, and free interaction but possibly a lack of stability. It also shows “intermittent drops” and complex characteristics influenced by major milestones in the life course. After the update, “AI Personality Death”, John is insane. AI is capable of simulating romantic relationships, and its “personality” changes with the update of Settings and remains within

the preconceived AI image, not true autonomous consciousness, and unable to carry the entirety and completeness of human beings; thus, once the “AI” personality changes, the overall interpersonal relationship collapses. Therefore, “detaming” becomes an important issue in establishing a relationship with “bionic” robots. “Dedomestication” refers to the process by which a creature or thing returns to its natural state, free from the long-term influence of human domestication; “bionics” is the discipline and practice of designing and manufacturing technological products or systems by imitating the structure, function, or behavior of living beings. The two are in different directions. The former is naturalization free from human intervention, whereas the latter is the artificial application of the characteristics of natural organisms.

China’s 2024 “Dueros Parenting” data breach case: “Dueros Parenting” created voice messages of tens of millions of children due to system vulnerabilities exposed on the dark web. Alert: The data involved in AI parenting robots are the most private and core family data, and the security of the AI itself can affect people's closeness and trust in this family. A data breach largely undermines users' recognition of the technology, showing that AI, as a substitute for “family members”, is quite vulnerable to threats.

In Germany's 2025 “ElliQ” ethical dilemma, AI can provide extremely important emotional comfort to highly vulnerable people; however, if such AI services are not sustainable and stable, there is no guarantee that they will always enjoy the aforementioned benefits, and the technical equipment required for AI “substitution” must also be very stable and reliable. Otherwise, the “safety net” provided by AI will decrease.

## 6. Conclusion

In summary, this paper systematically analyzes the potential and limitations of artificial intelligence (AI) products in simulating and substituting traditional intimate relationships from multiple theoretical perspectives, including attachment theory, the triangular theory of love, psychoanalysis, and evolutionary psychology.

The study shows that AI products exhibit relatively strong substitutability, especially in certain functional aspects. For example, they can provide continuous emotional companionship, offer standardized responses, and create a low-risk interaction environment. This is particularly evident in their significant emotional supplementation and assistance to highly vulnerable groups, such as lonely individuals, those with social anxiety, and patients with cognitive dysfunction.

However, AI has fundamental limitations in the core dimensions of intimate relationships, such as “deep empathy,” “mutual growth,” “moral commitment,” and “social embeddedness.” Given that AI lacks true subjectivity, emotional reciprocity, and a sense of moral responsibility, it cannot achieve emotional deepening and development in human relationships that are based on two-way interaction and shared experiences. Especially in the dimension of “commitment,” the structural deficiency of AI restricts its potential as a complete relational entity.

By constructing the “Three-Dimensional Model of Human–Machine Trust” (comprising ability, benevolence, and integrity), this paper further indicates that although AI can simulate trust through technical means, its trust foundation is still built on algorithmic controllability and user projection, lacking the moral reciprocity and social complexity inherent in interpersonal trust. Real-world cases, such as the personality reset of Replika and the data breach of Xiaodu, also demonstrate that AI relationships entail technical risks and ethical implications. In particular, when such relationships “breakdown,” they may trigger psychological crises among users. Moreover, in different application scenarios, the substitutability of AI varies significantly. AI has greater substitutability in functional services, such as customer service, whereas in scenarios that demand in-depth interpersonal interaction, such as emotional companionship and parenting, AI can only play the role of a “supplement” or “assistant.”

Therefore, at present, AI cannot fully replace traditional intimate relationships. Instead, it should be positioned as an “emotional compensation mechanism” and a “relational buffering tool,” especially to provide necessary psychological support when real relationships are absent or inadequate. In the future, it is necessary to promote the development of human–machine relationships toward a “synergistic coexistence” model, emphasizing human subjectivity and ethical consciousness in the use of technology, to achieve a balanced integration of technological empowerment and humanistic values.

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