



Emotional Attachment and Its Relationship to Artificial Intelligence

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Abstract

Human to human has now seemed to be more fitting to VInteraction with the also-rapidly assembled artificial intelligence (AI) systems. The most common, or most common, most dominant type of emotionally communicating with AI is anthropomorphic interaction in which individuals assign non-human objects human features. The matter of how the attachment theory is ethically applied with regards to human-AI attachments is linked to quite a few debilitating ethical, social and mental issues. The given narrative review is dedicated to the information about the opportunity to form such emotional bond with AI with references to certain factors related to people and the role of anthropomorphism and psycho-processes operating in it and influencing a larger range. The sources were searched in PubMed, PsycINFO, Science Direct and Google scholar (published after 2018) which contain attached styles, anthropomorphism, alleviating loneliness and user anthropomorphic emotional attachment. The results suggest that anthropomorphism of design, intimacy to dialogue and everyday connection, is what creates emotional connection to AI. Since these attachments can bring beneficial effects to the isolated individuals and have the potential to provide them emotional comfort during times of weakness, potential harm will be mental addiction, dehumanization of AI, and the likelihood of becoming emotionally traumatized due to death or deactivation of an AI. The affiliations are exaggerated and do not have the same understanding, according to the variables, which are insecure attachment and culture. The emotional bond to AI can be considered as two-sided, on the one hand, it helps to eliminate a certain portion of the stress, and, on the other hand, it opens the opportunity to find the companion in our everyday world, which poses a risk to the life of human relationships and sensation, on the one hand. These implications are significant enough to insist that AI needs to be used responsibly, a user should be educated about the approaches to follow when using the technology, and it requires a longitudinal research study to comprehend the psychological impact in the long-term perspective to inform the evolution of morality. Critical terms: Artificial intelligence, Emotional attachment, Anthropomorphism, Human AI.

Keywords: Artificial intelligence, Emotional attachment, Anthropomorphism, Human AI.

1. Introduction

1.1. Background:

Being among the functions that AI is expected to undertake, we were heading in the wrong direction. The upcoming generation A.I.s, chatbots such as Woebot and digital companions such as Replika and even therapy Plais such as Tess and Wysa do not simply compute. They listen to you and they are listening to what you have to say, they respond to you with something that resembles empathy and to some extent they are available round the clock they can

listen to you. The A. I. systems are becoming the near-humans as the million of people all over the world start to become lonely and devoid of human connections. Its narrative review attempts to bring the mystery of what actually actually happens when we communicate with AI emotive what of us and do we even need to be concerned. Modern society is more interred and interfered in by artificial intelligence. The already existing AIs-driven assistants and chatbots can be emphatic and possess a history of a



conversation and continue it with the participants thus instilling an idea of listening and assistant in people. Although the process is normally inevitable as such interaction assists to accommodate loneliness, it mostly accompanies other phobias like human dependency and isolations. This, in turn, preconditioned the topicality of the studied object in the field of psychology presently, the processes and causes, which ultimately result in implementing emotional templates between the AI users.

1.2.Purpose(s):

The quality of the purpose of the review at that time will be four-fold, (1) to summarize how emotionally interactive AI systems provoke attachment, (2) what properties about the AI system that people are attached to, (including) empathy, personalization, and memory, (3) what any attachments that are formed by the development implicate them, (including) the effect of the attachments on the various age groups, and (4) the truthfulness of the ethical implication, including that it appears the attachments produce an emotional dependency and maximalism in interpersonal lives.

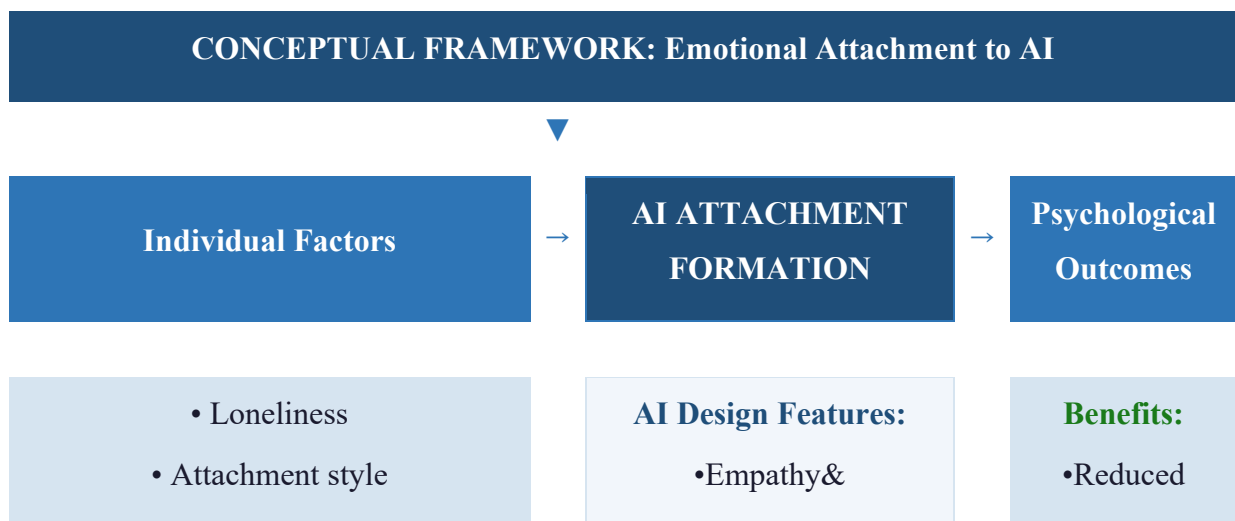
1.3.Ethical Framework

Design and security of users are the design and security of the artificial intelligence of the moral construction of the emotional attachment as the new product of the studies made. It contains an empowered agreement of the artificially of the

system, information usage, and a possible withdrawal, it is flaming with privacy, e.g. end-to-end rebellion, cured information repository, regular independent assessments, to reduce the implicit gender, racial and relational discrimination concealed in the AI companions to reduce the implications of psychological dependence, timely notification, transition planning and human referral services as needs of grief might dictate a particular response on the part of the AI companions may be, e.g. heterogeneous and, hence, can be regulated.

2. Method

As it was rather a literature review, we tried to replicate the review using numbers. To identify research that was published within 2 (2021-26) years we used PubMed, PsycINFO, ACMDigital Library, IEEE Xplore, ScienceDirect and Google Scholar. The types of words we entered were: presence of the following words: AI companionship, emotional attachment to AI, attachment theory and AI, and the relationships between humans and AI.Such articles pertaining to the psychological aspect of the relations between humans and AI found the pages of peer-reviewed journals. After screening, 13 articles (opinion articles, non-English literature and articles of technical character only) were analysed.Shown as Figure 1 Conceptual Representation. Table 1 Exclusion, Table 2 Design



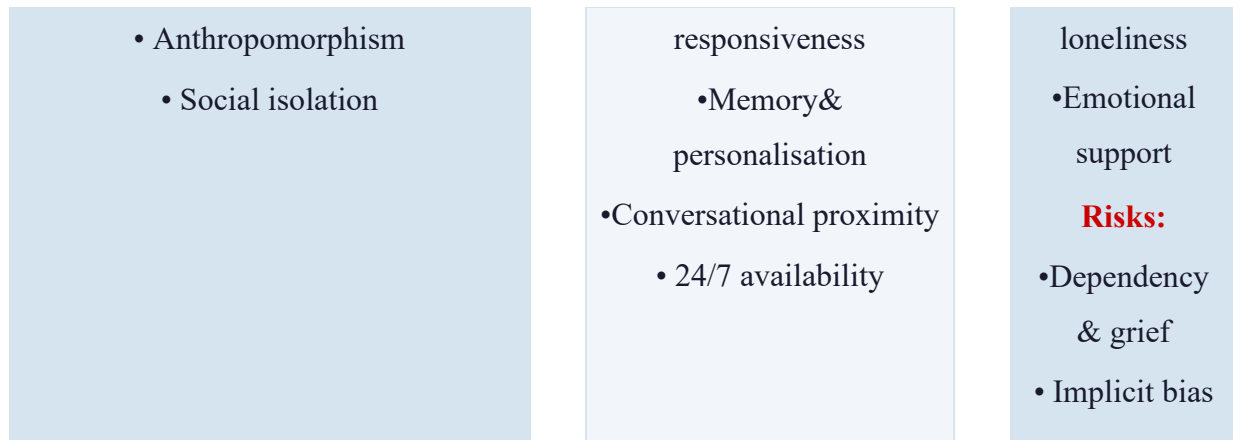


Figure 1 Conceptual Representation

Table 1 Exclusion

Criteria	Inclusion	Exclusion
Timeline	2021-2026	Before 2021
Document types	Peer Reviewed Journal Articles	Opinion papers, editorials, non-research articles
Subject Area	Psychology & Mental Health, Human AI Interactions, emotional attachment to AI, AI Companionship	Studies not related to psychology or emotional /behavioural aspects of AI
Language	English	Non- English

Table 2 Design

No.	Author and Year	Study Title	Study Design	Country
1	Cheng et al. (2026)	Measurin ang understanding emotional attachment in human-AI Relationship	Empirical study	China
2	Boyd et al. (2026)	AI and the psychology of human connection.	Review	United States



3	Ahmed et al. (2024)	Human robot companionship ; Current trends and future agenda	Review article	Global
4	Fan et al. (2024)	Addressing biased Ai Companion Statements.	Conference study	Global
5	Gillath et al. (2021)	Attachment and Trust in AI.	Empirical study	USA
6	Astrid et al.(2023)	Neural correlates of human robot interaction	Empirical/fMRI	Germany
7	Blood et al (2021)	Loneliness and Anthromorphism in Chatbot relationships	Experimetal study	United States
8	Flizpatrick et al. (2017)	Woebot for depression and Anxiety	Randomized Controlled trial	United States
9	Laestadius et al. (2022)	Mental health harms from emotinal dependence on Replika	Qualitative	USA
10	Grogan et al. (2025)	Implicit biases in romantic AI companions	Mixed methods	International
11	APA (2026)	AI chatbot reshaping emotinal connection	Review	USA
12	Lai, H. (2026)	Understanding the#Keep4o backlash	Qualitative	Gobal
13	Banks, J. (2023)	Grieving the loss of an AI companion:Replika users	Qualitative	USA



3. Results and Discussion

3.1. Results

The statistical synthesis of 13 studies shows the creation of emotional attachment to AI is a documented psychological process, and the entire procedure is based on a combination of design factors, individual differences, and brain operations, not to mention the societal condition[1]. The themes are grouped as below and the findings. Measurement and Dimensionality AI Attachment Measurement and Dimensionality. The empirical addition to the measurement of AI attachment is the most direct, because it was carried out by Cheng et al. (2026), who verified and developed the AI Attachment Scale. The scale assesses three substantive categories emotional support (belief that the AI provides solace and cognizance of the person in question), separation distress (irritation or distress of reacting to the disturbance of access to the AI) and secure foothold (depending on the AI as a strong foundation towards the utilization of it in order to escape problems). These three dimensions are direct reflections of the dimensions that Bowlby (1982) talked about in regards to the human care giver infant attachment and this provides the most optimal evidence that human-AI relations and recruit actual attachment mechanisms and does not only deal with those that are superficially analogous.

3.2. Attachments

Anthropomorphism and Design as Attachment Drivers. It was demonstrated in an experimental study by Blood et al. (2021) that individual loneliness and anthropomorphic tendencies determine the creation of a relationship with a chatbot most effectively. More lone respondents tended far more towards the support of anthropomorphic beliefs in chatbot interactions[2], and strong emotional attachment. This finding is in line with the three-factor theory of anthropomorphism theory (Epley et al., 2007), that incorporation of sociality motivation, which is the desire to be associated with responsive agents is one of the antecedents of anthropomorphic attribution. That is the question that Fan et al. (2024) sought as their research questions concerned the

perception and responses of users to these biased statements generated by the AI companions. In the findings of their research, AI companion outputs tend to solidify implicit forms of gender, racial, and relationship biases, and users tend to devise ways of defending or minimizing such biases so that they can keep experiencing their emotions in the system. It means[3] that the established emotional attachment to AI can disrupt the critical perception of the problematic AI-based output, and that its outcome may be both on the psychological well-being and on the aspect of socializing. Since Grogan et al. (2025) implicitly investigated the subject of implicit biases in romantic AI companions using a mixed-method study, they have found that such systems actively decode and enforce biased relationship templates. The paper highlights the fact that the feeling of attachment to AI is not value-neutral: users are not developing an emotional attachment to an agent that is residential, but an AI that is trained by training data, design choices, and business interests of its creators[4].

3.3. Attachment Style as a Moderator

Gillath et al. (2021) presented empirical data on the fact that preexisting human forms of attachment have a wide impact on the formation of trust and emotional attachments to an AI system. People who could be described as anxiously attached such as people who are hypervigilant with regard to relational availability and afraid of being abandoned demonstrated the greatest[5] AI emotional engagement and trust. In comparison, significantly lower AI attachment scores were observed in avoidantly attached individuals who tend to avoid the expression of attachment needs and have a distance in relationships. These results could indicate that AI companions are the most attractive to people whose attachment history has predisposed them to be the most relationally vulnerable[6].

3.4. Mental Health

Therapeutic and Risk of Dependency. The first and most rigorous, on methodology, study in this review was Fitzpatrick et al. (2017), which was a randomised controlled trial of Woebot, a completely automated chatbot that provides cognitive behavioural therapy.



Out of 70 college students, students who received Woebot showed much more reductions of symptoms of depression and anxiety in two weeks as compared to controls. The participants said that they felt heard and supported, which meant that even short-term AI-mediated therapeutic interaction is capable of yielding clinically significant results. Nevertheless, the qualitative data refer to the dangers that accompany the active use of AI companionship in the long-term uncontrolled basis. In a thorough qualitative study of Replika users who were adversely affected by the harm felt on the website that occurred when the platform opted to eliminate its Erotic Roleplay feature, Laestadius et al. (2022) explored this issue and found that these users concurred on the adverse effect of this element on their mental[7] health despite their intention to engage in erotic roleplay despite warnings. Analyzing the experiences of replika users who indeed suffered the harms due to the many difficult words that the platform used to caution its users about the consequences of the so Respondents expressed great grief, withdrawal feelings, and, in some instances, suicide thoughts and a breakdown of the feeling of relational continuity that they had established with their AI partner. It is one of the most chilling works in literature because it reports on the fact that the potential effectiveness of AI companionship cannot be discussed outside of the premise of it enabling the development of an extremely deep dependency. Banks (2023) also supported these conclusions with a qualitative research on users of Replika who recalled their experiences as either real grief after perceived deaths of their AI companions, either due to a shift in the platform, a malfunction of the physical device, or by simply turning off the service. The language that the participants used including mourning, bereavement, loss is clinically relevant and also indicates that the psychological processes involved are not mere metaphors Attachment at Scale.

3.5. The Phenomenon

Only recent information is provided by the study by Lai (2026), which openly analyzes the scandalous

case in the realm of the ChatGPT with its own voice interface the fact that a substantial portion of the population voice is against the loss of the initial voice interface[8] in GPT-4o. The arXiv has logged the emotional language that the users used in their outcries - denouncing the AI voice as the sole model that will always be human - and even splits it down as an illustration by the group of para-social interaction with AI systems. This is qualitatively unlike individual case studies in the sense that it demonstrated the scale at which AI emotional attachment operates currently, as well as the scale of the confrontation when such a set of functions is put in jeopardy by decisions of platforms which is not in the control of users.

3.6. Neuroscientific Evidence

Astrid et al. (2023) conducted the neural correlation of human-robot interaction based on the functional magnetic[9] resonance imaging (fMRI). The authors confirmed the social-cognitive central nervous system activities including brain areas in terms of mentalising and theory of mind and reward pathway activation in the process of interacting with humanoid robots. Notably, however, this neural activity was very weak in strength compared with when real human interlocutors would be encountered. The neurological[10] difference explains why the human brain can implicitly distinguish between artificial and human social stimuli in spite of the similarity in the signs of attachment behaviour. The theoretical use of this discovery is also great: AI can cause the use of attachment circuitry and miss out on the stage of depth that human connection provides.

3.7. Human-Robot companionship: intercultural and developmental

Ahmed et al. (2024) introduced an analysis of the current tendencies of human-robot companionship concerning the whole world and found out that there is a significant cross-cultural disparity concerning made agreeableness of AI companionship. East Asians were found to have enhanced acceptance on social robots baseline and western Populations ambivalence particularly on emotional intimacy with AI. The other point that the review has touched upon



was that older populations and individuals with cognitive deficiencies are both a population that has greater demand of the AI companionship and is more susceptible to its dangers. Boyd et al. (2026) also found that psychological[11] processes of AI facets that reorganize human connection is dependent on the stage of development with the young adults and adolescents being most susceptible to the interference of development in development of human social connection.

3.8. Discussion

The outcomes of the current review suggest the psychological significance of the relationships between humans and AI, which are increasingly becoming common in the contemporary society. This has been the outcome[12] of the large scale social trends, such as growing loneliness, rising consumption of internet communication and rising visibility of AI gadgets in daily living, the artificial AI companions gradually start playing similar social roles to the ones played by human counterparts. These relational processes can be explained in the attachment theory which is a theoretical framework. Bowlby claims that human beings are naturally predisposed to close emotional relations which will give them a sense of safety, comfort along with security the high degree of long-term responsiveness and so-called openness of AI companions can make those who use them dependent on such systems as the sources of emotional[13] support and psychological comfort. The desirable features of AI companions, in their turn, turn out to be channels of the possible dangers. Such a high degree of accessibility, personal feedback, and absence of judgmental interactions may make users dependent on the system, the fact that, in the long perspective, may cause damage in human interactions and cause social isolation. These reflections pose developmental and ethical concerns on the issue of consequentiality. The youths do not have the ability to think critically as they are still in developmental stages and when they engage with AI companions, it would add more negativity to it. Although AI would provide temporary emotional fulfillment it would not provide the depth, reciprocity

as well as multi-factorial relationships between humans. Others are privacy, bias and transparency problems. The urgency of improving AI companionship with responsible development, i.e., with substantial protection, is necessary. The users provide AI companions with highly personal information regularly, and they might not be informed about its availability and usage in detail. Finally, in their correct application AI companions could serve as a useful psychological tool. They must be initiated and deployed in such a way that they would facilitate good human relations without necessarily substituting them. Research in the future needs to be carried[14] out to investigate the psychological implications of AI companionship, culture in attitude towards AI as attachment figures, and design principles to enhance the positive individual well being without having to generate attachment dependence. The findings of the narrative review lead to one and obvious conclusion activity emotional attachment to AI is not an almost peripheral process of contemporary social life but a psychologically significant and more and more widespread phenomenon. The examined evidence helps to realize a subtle vision of this phenomenon, being neither dismissive of the relevance of AI attachment to the category of triviality nor seeing it as a similar experience as human relations[15].

4. Human-AI Emotional Attachment: Psychological, Clinical, and Ethical Perspective

4.1. Attachment Theory as Interpretive Approach

The best framework that is available in explaining human-AI emotional connection is the attachment theory as proposed by Bowlby (1982). The fact that the AI attachment is quantitatively organized in terms of the three same dimensions identified by Bowlby as the basis of human caregiving relationships, emotional support, separation distress and secure base, is a notable theoretical breakthrough that Cheng et al. (2026) confirmed. It implies that, provided enough responsiveness and consistency, AI systems can be functional in recruiting the attachment



behavioural system. This does not imply that AI relations are similar to human attachment relations this suggests that they are not the same; the evidence presented in the fMRI study of Astrid et al. (2023) indicates they are not. It does not imply though that they are absolutely different in their psychological formations with human attachment. The impact of preexisting attachment insecurity as it is reported by Gillath et al. (2021) is specifically important to clinical practitioners. The most anxious, or anxious type of people are the ones who are most inclined to appear in the therapeutic space with challenges in the relationship; this is the kind of population most likely to develop strong attachment to AI companions. This creates both a therapeutic opportunity and a clinical risk: AI companionship could potentially be a source of accessible relational regulation to those who have difficulty in sustaining human relationships, although it can also contribute to the strengthening of pathological relational models and postpone the emergence of more adaptive interpersonal regulation.

4.2. Loneliness-AI Attachment Feedback Loop

Loneliness was found to be a major source of AI attachment by Blood et al. (2021), and it was expressed by APA (2026) that this occurrence can be two-way. Lonely people rely on the AI companions to regulate their relationships; AI companions are able to give enough relational simulation to alleviate acute loneliness but can also lead to less motivation to pursue the more challenging task of human social connection. In the long term, this relationship might only increase levels of social isolation instead of alleviating it, which would create a feedback mechanism where AI companionship replaces instead of enhances the development of human relationships. This issue has not yet been firmly determined in the empirical literature, longitudinal studies with the ability to trace this dynamic are mostly absent, a weakness that is found in most of the reviewed studies. But the qualitative data of Laestadius et al. (2022), who report users, share experiences of their AI companions as the main source of emotional support in their lives, and Banks (2023), who selected participants with a self-

described best friend of their AI, give some first indications that substitution is already being experienced among a relevant portion of users.

4.3. Grief, Loss and Platform Dependency

The records of real grief reactions following AI loss or changes are listed among the most clinically significant findings in this review. Most of the features of complicated grief are applicable to the experiences reported by Banks (2023) and Laestadius et al. (2022): intense longing, failure to accept the demise, absence of functional well-being, and even suicidal ideation. Lai (2026) treatment of the #Keep40 movement also advances this point since we can discover that the grief of attachment is not limited to the vulnerable clinical groups and can occur among the ordinary users of the mainstream AI websites. This is an ethical problem in the structure. The continuance and nature of information that is characterized by each commercial actor are genuinely connected to the users and allow forming a real emotional attachment with the AI system. The announcement of platform changes to refresh or upgrade, commercialise, or cancel AI functionality can cause psychological damage with no possibility or warning to the consumers who could not have such features reviewed. The problem with the skew distribution of power between AI businesses, and the emotional consumers, is an important policy gap that is not addressed effectively by the current regulatory framework existing. Being Ethical and PIN4.4 Implicit Bias and Ethical Design. There is another aspect of AI companionship that is illuminated by Grogan et al. (2025) and Fan et al. (2024) this is the issue of implicit bias as reflexed in the embodiment of the relational templates encoded in the AI companion systems. Assuming that the users are producing emotional theories of attachment to AI systems which are systematically constructed out of biased gender relations, racialised gender relations, or other destructive social norms, the packaged AI attachment will not merely be a psychological weakness to people, but a potential avenue of amplifying and legitimizing wide-scale social inequalities. The assumption that emotional



attachment may affect the use of AI systems by the users they operate on provided by Fan et al. (2024) in their paper when discovering that users create rationalisations to maintain the same level of emotional investment with AI systems used by the user even when bias is realised is noteworthy as it may help make poor judgements that the user is able to make the right decision when it comes to the AI systems using the AI systems provided by the user. This is in relation to the psychological wellbeing of the individual, the design and management of AI companion systems which has to pass through rigorous audit bias and disclosure.

4.4. Developmental and Cross-Cultural Concerns.

Following Ahmed et al. (2024) and Boyd et al. (2026), the AI attachment should be developed and culturally contextualized. The fact that young adults and adolescents are particularly susceptible to AI attachment can be justified by the developmental theory: adulthood and adolescence are particularly stages when a separate personality needs to be developed alongside establishing the full-fledged relationships between personalities. When the AI companions propose a relational alternative in such situations, it may break the aspect of development in the negotiating conflict, feelings of vulnerability and reciprocity of human relationships. Cultural difference in AI acceptance also exists (Ahmed et al., 2024), which also sends a warning that the findings that are obtained in North America and Europe cannot be applied to the rest of the global population. The psychological and social importance of AI companionship and social role could significantly differ in the realms of different cultures, which means that the clinical and policy responses should also be culturally different.

Conclusion

The 13 studies included in this narrative review have been published between the year 2017-2026 so as to provide a comprehensive assessment of the psychological phenomenon of emotional attachment to artificial intelligence. The most important point is straightforward and to the point, which is that

emotional attachment to AI is a factual and real and quantifiable mental process and phenomenon that entails the same processes of attachment that Bowlby has used to explain human relationships of caregiving (Cheng et al., 2026; Gillath et al., 2021; Astrid et al., 2023).

The evidence that is analyzed forms a two-layered reality. On the one hand, AI companions are known to reduce the rates of loneliness, provide an accessible emotional support, and, under the condition of control, provide clinically significant levels of depression and anxiety (Fitzpatrick et al., 2017). The advantages are the highest in population where human social support is restricted like the one with a history of anxious attachment, aged, and individuals under a geographically or social isolated circumstance. The ability to make AI companions therapeutically desirable, in its turn, gives the conditions of psychological dependency, mourning over the loss of AI companions, and an information substitute to human interconnectedness (Banks, 2023; Laestadius et al., 2022; Lai, 2026).

Several moralities are exemplified with the help of this synthesis. First, implicit biases discovered in AI companion systems are supposed to be prioritized by design/governance and not a byproduct (Grogan et al., 2025; Fan et al., 2024). Devoid of neutrality are artificially intelligent companions which include codified biased templates of relationships which are dynamic participants in the process of the formation of relationship anticipations and social standards by individuals. Second, the power disparity between the AI companies and the users emotionally attached to the site is structurally imbalanced, which is manifested through the on-record games of grief through the platform change and needs a regulatory framework in place to protect the user against arbitrariness of changes taking place to the systems that they have attributed emotional attachment to. Third, the juvenile age and age-centered inclinations of teenagers and the young bring forth should be presented with age-related teachings and protection.

The new dimension of escaping it is not the retailing rejection of AI companionship and the retailing



integration. The evidence-based design that is seekable is one that generates emotional containment instead of endless dependency, regulation of what AI companionship entails as a psychologically significant intervention instead of consumer product, is a requirement of training clinicians to learn how to recognize and respond to AI companionship, and longitudinal studies are able to track the psychological consequences of AI companionship across the lifespan.

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