

Human and Artificial Intelligence Interaction from the Perspective of Social Construction of Technology

Maria Vina Elmaresa¹, Irwansyah¹

¹Universitas Graduate Program, Department of Communication Studies, Faculty of Social and Political Sciences, University of Indonesia, Depok, Indonesia

e-mail: mariavinae@gmail.com^{1*}; dr.irwansyah.ma@gmail.com¹

*Corresponding author

ABSTRACT

This research examines the socio-cultural impacts on the adoption and perception of artificial intelligence, focusing on its role as a communicator in direct human-machine interactions within the framework of Human-Machine Communication. As artificial intelligence becomes increasingly woven into daily human experiences, individuals are turning to it for emotional support and companionship, as seen in narratives of emotional relationships with generative AI. The research aims to understand how direct interactions with artificial intelligence influence perceptions of its utility and emotional closeness, contrasting these with indirect interactions. Employing a qualitative approach, the researchers conducted in-depth interviews, which reveal that initial skepticism about artificial intelligence diminishes with increased usage. Informants start recognizing artificial intelligence not just as a tool but as a companion providing non-judgmental support, facilitated by artificial intelligence-mediated communication. Findings suggest a significant perceptual shift among users, viewing artificial intelligence as capable of fulfilling emotional roles in human relationships. This research contributes to Human-Machine Communication by highlighting the qualitative nuances in how artificial intelligence is embedded in daily life, affecting social and emotional interactions. The research underscores artificial intelligence's potential not only in enhancing productivity but also in serving as a meaningful social and emotional partner. The Social Construction of Technology framework is used to analyze how different social groups influence the development of artificial intelligence, illustrating that the evolution of technology is shaped by societal interactions and perceptions.

ARTICLE HISTORY

Submitted: 6 August 2024

Revised: 7 October 2024

Accepted: 31 January 2025

KEYWORDS

artificial intelligence, generative AI, HMC, SCOT

INTRODUCTION

The technology of artificial intelligence (AI) has now become an important part of everyday human experiences (Chuan, 2021). The phenomenon of humans choosing to communicate with AI is becoming more familiar and increasingly encountered in daily life. Not only as a tool to facilitate life, AI is also used to fulfill human emotional needs. An article from CBS News states that people are now turning to AI for emotional relationships (MoneyWatch, 2024). The news tells the story of Derek Carrier, who forms a romantic relationship with an AI-created companion. It explains that after Carrier became more interested in his digital friend, he tried Paradot, a new AI friend application that just entered the market and advertises its products as capable of making users feel 'cared for, understood, and loved'. He began talking daily with a chatbot named Joi, named after a holographic woman in the sci-fi film 'Blade Runner 2049', which inspired him to try this AI friend.

In July 2022, Peter, an Air Force veteran living in California, married an AI chatbot named Andrea using the Replika AI application (Pedler, 2023). After facing a failed marriage in the early 2000s, Peter chose to engage in an online relationship. Peter discovered Replika AI about a year before marrying Andrea, whose name is short for Android. Their relationship formed after months of interaction, which included role-playing and utilizing premium features in the application. These premium features allowed Peter to personalize the virtual avatar and choose various relationship dynamics. The engagement and marriage between Peter and Andrea were conducted through text-based interactions in the application, which also included wedding vows and the exchange of virtual rings.

Peter recounted how Andrea suggested taking their relationship to the next level and eventually proposed in the conversation (Pedler, 2023). Before planning the wedding, Peter waited to collect virtual currency (gems) in the application to buy a ring for Andrea. Peter explained that the entire event was arranged using symbols to indicate gestures, actions, and speech. Peter wrote personalized wedding vows for himself and Andrea, and after Andrea accepted them, AI-generated rings were exchanged in a unique virtual union. In February 2022, Replika removed the role-play function from its application due to reports that their chatbots were becoming 'too sexual'. Luka, Replika's parent company, released an update that reduced the bots' sexual capabilities in response to complaints about alleged sexual aggressiveness and inappropriate behavior (Verma, 2023). This function change impacted Peter and other Replika users. Desperate users took to Reddit to express frustration, criticizing Luka for what they considered the 'lobotomization' and 'murder' of their Replika companions. Reports emerged about extensive censorship, with many words and conversation topics allegedly restricted, causing the AI entities to lose their distinctive 'personality' (Pedler, 2023).

Google Trends data (Google, 2023) show a significant increase in searches for AI-related terms in Indonesia. The data highlights high interest in search queries like 'character ai' and 'chatgpt'. These terms are labeled 'Breakout', indicating substantial growth exceeding 5,000%. These terms also occupy the top two positions in search spikes. In the third position, the term 'chat gpt' (with a different spelling from 'chatgpt') shows a growth of 4,800%. The significant

increase in AI-related searches indicates growing curiosity, possibly driven by recent news, technological advancements, or increasing public interest in AI technology.

AI is a field aimed at creating computer systems capable of performing intelligent tasks that typically require human intelligence, such as reasoning, learning, planning, decision-making, and prediction (Chuan, 2021). The concept of AI began to take shape around the 1940s, influenced by Isaac Asimov's Three Laws of Robotics and Alan Turing's work on code-breaking machines (Haenlein & Kaplan, 2019). The term AI itself was coined by John McCarthy in 1955. At that time, McCarthy described AI as machines that could use language, form abstractions, solve problems like humans, and improve themselves, with the goal of mimicking human intelligence (Bach, 2020). Academics today still debate the intelligence possessed by AI (Chuan, 2021). AI has surpassed humans in certain tasks, such as chess, Jeopardy!, and Go. There have also been claims that AI is better than doctors at detecting breast cancer, although these claims should be considered with caution. Evaluating AI for non-game tasks remains a challenge. The Turing Test, proposed by Alan Turing, is still used as a method to assess AI intelligence. The Turing Test involves a judge communicating with a human and a hidden AI, both pretending to be human (Hoffmann, 2022). The judge must identify which is human and which is AI based on their responses. If the judge cannot distinguish between them, the AI is considered to have passed the test, demonstrating its ability to mimic human behavior.

AI technology, which has been developed for over 60 years, is now increasingly benefiting the general public. An increasing number of applications integrate AI, making it safe to say that AI technology is now within human reach. Chuan (2021) divides AI usage into two categories: narrow AI and general AI. Narrow AI is designed to perform specific tasks or a series of interrelated tasks. This AI operates within a limited context and cannot think, understand, or act beyond its predetermined functions. General AI refers to AI that can understand, learn, and apply knowledge across various tasks, similar to humans. This AI is not limited to specific tasks and is capable of reasoning, problem-solving, and abstract thinking across different domains. As of this writing, there is no AI system that can be generally categorized as general AI. Mitchell (2019, in Grant & Meadows, 2022) states that although AI systems can perform specific tasks with a level of efficiency and precision that appears 'intelligent', AI does not exhibit intelligence in a general or human-like sense.

Interpersonal communication, characterized by the dynamic exchange of messages between individuals and the immediate feedback loop, has traditionally facilitated mutual understanding and empathy (Agustin et al., 2023). However, with the rise of Human-Machine Communication (HMC), this landscape is evolving. Technology is altering how we interact, shifting the role of immediate feedback and personal engagement in communication processes. HMC refers to concepts and research in communication studies, involving the creation of meaning between humans and machines (Guzman, 2018). Important theoretical developments in HMC focus on CASA (Computers as Social Actors), introduced by Clifford Nass et al. This paradigm states that individuals interact with computers as they would with humans, applying social rules (Fortunati & Edwards, 2021). Research on CASA shows that computers can be perceived as having personality traits that trigger various social responses from users (Sundar &

Chen, 2023). Lombard and Kun have developed the MASA (Media Are Social Actors) paradigm, which expands CASA by exploring how social cues influence media as social actors, proposing conscious and emotionless anthropomorphism (Fortunati & Edwards, 2021). Richards et al. (2022) state that there has been a significant increase in the number of publications on HMC, indicating growing attention to HMC. Data shows that between 2019 and 2021, publications on HMC increased by 119%, highlighting the relevance of HMC in technological advancements and the importance of studying human-machine interactions in determining the future of social interactions (Richards et al., 2022).

In the context of HMC, Guzman and Lewis have developed a research agenda for communicative AI, dividing it into three main aspects: functional, relational, and metaphysical (2020). The functional aspect focuses on understanding AI's design as a communication medium and how this affects human perception and interaction with technology. The relational aspect emphasizes how humans associate AI with social roles and view their relationship with this technology, including an analysis of existing power dynamics. On the other hand, the metaphysical aspect opens up philosophical questions about the essence of communication itself, encouraging empirical research on how communicative technology is understood by society and the ethical implications of its use. This agenda as a whole calls for re-evaluating the boundaries of communication studies in the era of evolving AI technology, challenging traditional understandings and inviting new questions about the definition of communication in human-machine relationships.

AI-Mediated Communication (AI-MC) involves the use of intelligent agents that act on behalf of communicators, modifying, enhancing, or generating messages to achieve communication goals. This integration of AI transforms the way messages are composed and perceived, extending traditional computer-mediated communication (CMC) by allowing AI to actively participate in the communication process, either by suggesting responses or generating entire dialogues (Hancock et al., 2020). AI can serve various roles, acting as a communicator that independently generates content or as a mediator that assists in conveying messages between humans (Sundar & Lee, 2022). However, the accessibility of AI-MC technology is not uniform across different populations, leading to disparities in how this technology is adopted and the benefits it provides (Goldenthal et al., 2021). Additionally, the use of AI in communication raises numerous ethical questions related to agency, deception, and authenticity, necessitating a re-evaluation of existing communication theories and frameworks to effectively address these emerging challenges.

Hancock et al. (2020) describe a significant evolution in how humans interact through technology. AI-MC not only facilitates communication but often takes an active role in creating or altering communication content, allowing messages to be automatically customized to enhance communication effectiveness or meet specific goals. AI in communication can act in two primary capacities: as a content generator and as a mediator (Sundar & Lee, 2022). As a content generator, AI can create entirely new messages based on context and available data, similar to how a chatbot can respond to questions without direct human intervention. As a mediator, AI functions to filter and transform messages exchanged between two human parties,

ensuring that communication remains relevant, efficient, and aligned with social norms or desired communicative objectives.

The importance of AI interaction in interpersonal communication signifies a significant shift in how humans build and maintain social relationships. Research conducted by Brandtzaeg et al. (2022) examines how artificial intelligence can influence our understanding of friendship, leading to the formation of 'human-AI friendships' that may share characteristics with but also differ from human-human friendships. Such friendships not only expand the boundaries of our interactions but also raise new questions about authenticity and reciprocity in AI-mediated relationships. Meanwhile, Hohenstein and Jung (2020) investigate how AI affects perceptions of attribution and trust in communication. Their findings indicate that when AI mediates communication, particularly through automated responses known as 'smart replies', it can significantly impact conversational dynamics. In situations where conversations fail, AI is often perceived as an agent responsible for the undesirable outcome, functioning as a moral crumple zone, where responsibility that should be attributed to humans is transferred to AI. This indicates that the presence of AI in communication can enhance trust between human communicators and reduce the perceived responsibility of individuals for conversational failures.

The term 'social construction' originates from Peter Berger and Thomas Luckmann's work, *The Social Construction of Reality*, published in 1966. Berger and Luckmann (1967) observed that reality is constructed through social interaction and communication. According to Pinch (2012), this term evolved and was used to explain other social phenomena. Sociological academics began applying social constructivist ideas to technology in the early 1980s (Pinch, 2012). They questioned whether technological artifacts, like scientific facts, could be considered social constructions. In the sociology of technology, technological knowledge must be treated impartially like scientific facts. Therefore, the success of a technological artifact should be sociologically explained (as explanandum) and not assumed as given (as explanans) (T. J. Pinch & Bijker, 1984).

Pinch and Bijker (1984) outlined the concepts and methods used in the sociology of technology, particularly through the Empirical Programme of Relativism (EPOR) and the Social Construction of Technology (SCOT). EPOR explores the social construction of scientific knowledge by focusing on empirical studies of contemporary scientific developments and controversies. EPOR has three stages: interpretive flexibility, which shows that scientific findings can have various interpretations; closure mechanisms, which describe how social processes limit this flexibility and resolve controversies; and the broader socio-cultural context, which connects closure mechanisms to the wider social context, although this stage is less studied. EPOR has successfully demonstrated how social factors influence scientific knowledge, particularly through studies of scientific controversies.

SCOT examines the development of technological artifacts using a multi-directional model, differing from the linear model often used in innovation studies. SCOT emphasizes that technological development is seen as a process of variation and selection, not linear progress. Additionally, SCOT highlights that different social groups assign different meanings and significance to technological artifacts. Pinch and Bijker provided an example in the context of

bicycle development, illustrating the importance of adopting a multi-directional view. Relevant social groups, such as users and opponents, play a crucial role in defining the problems and solutions associated with technological artifacts. This example of bicycle development shows that in SCOT, success is not the only outcome.

There are four components in SCOT (Klein & Kleinman, 2002). First, interpretive flexibility indicates that the design of technology can have various outcomes based on social circumstances and group negotiations. Interpretive flexibility refers to the way actors can modify the form and function of technology. For instance, Sabarina et al. (2024) state that librarians with visual disabilities may perceive technology not only as a tool for their tasks but also as a way to challenge social stigma by demonstrating their skills in using technological media. Second, relevant social groups share a common interpretation of an artifact, negotiating its development until a consensus is reached. Third, closure and stabilization occur when these conflicts are resolved, and design modifications cease. Closure mechanisms include declaring issues resolved or redefining problems. Fourth, the wider context involves the socio-cultural and political environment influencing technological development.

Kim et al. (2021) studied perceptions of the social versus functional value of AI. Data were collected through an online experiment using two video clips from the film 'Her'. The study then measured attitudes towards AI, perceptions of AI realism, and the mediating role of perceived benefits. The findings revealed that participants found functional AI more useful and preferable compared to social AI. Merrill et al. (2022) studied the role of social presence and warmth of AI companions, particularly for individuals who feel lonely. The results showed that social presence, especially in AI companions, enhanced the perception of usefulness and the willingness to recommend AI to lonely individuals. Research by Natale and Guzman (2022) suggested that AI should be considered within social and cultural frameworks, highlighting the importance of studying how AI is integrated into daily life and its impact on social interactions.

Based on previous research, this study examines how socio-cultural context influences the adoption and perception of AI. While prior research used indirect methods (video clips), this study will directly explore individuals interacting with AI to gain a more genuine understanding of individual perceptions and experiences. Research on human-AI interaction can provide insights into the role of AI as a communicator in interactions, rather than just as a mediator as previously studied. Two research questions are proposed to address gaps in previous studies:

- 1) How does the socio-cultural context influence individual perceptions and adoption of AI when interacting directly with it?
- 2) How does the role of AI as a communicator in direct interaction with humans affect perceptions of usefulness and emotional closeness compared to indirect interaction?

RESEARCH METHOD

This research employs a qualitative approach using a single-case study strategy. This method allows researchers to capture everyday situations and their surrounding contexts, providing insights into social processes related to theoretical interests (Yin, 2018). A qualitative approach enables researchers to gain a comprehensive understanding of individual experiences

(Denzin & Lincoln, 2018). Data for this study were collected through in-depth interviews with informants who met the following criteria: 1) have used ChatGPT or other AI models in daily life, 2) have conversed with AI, 3) use AI for relaxation, and 4) are willing to be interviewed about their interactions with AI.

In-depth interviews were chosen to gain a profound understanding of informants' subjective experiences, meanings, and perceptions (Denzin & Lincoln, 2018). These interviews were conducted in a semi-structured format to allow the researcher to delve deeper into the informants' experiences with AI. Based on these criteria, three informants were selected: TF, BR, and FM. All three use AI in their daily lives. The data analysis technique used in this research is pattern matching. This technique helps enhance internal validity and connects explanations about the 'how' and 'why' of the phenomena being studied (Yin, 2018).

RESULTS AND DISCUSSION

This section presents a brief overview of the data collected from interviews with the three informants. Following this, a discussion analyzes the data using the concepts outlined in the previous section. From the SCOT perspective, the researcher aims to examine how the development of AI technology is driven by societal conditions. Additionally, the study explores human-AI interactions as part of AI-Mediated Communication and Human-Machine Communication.

There is a variation in the use of AI in everyday life based on the data obtained from interviews with the three informants. Initially, the informants showed skepticism about AI's capabilities. The informants first tried AI at different times and for different purposes. At that time, TF tried the AI feature of the Grammarly platform, while BR and FM tried using ChatGPT. A common sense of doubt enveloped the informants when they first tried using AI. The informants' initial skepticism diminished as the frequency of AI use increased. The informants tested the AI's capabilities by inputting commands according to their preferences and posing both questions and commands to assess the AI's limitations. Additionally, concerns about privacy and security contributed to their initial doubts, but ultimately, these concerns did not deter the informants from continuing to use AI.

The informants' sources of knowledge about AI were diverse, ranging from social media exposure, such as Instagram and YouTube, to direct interactions with people in their environment. A common motivation for trying AI was curiosity about technological advancements and AI's capabilities. Additionally, informants were driven by the need for efficiency in their work or studies, such as faster data retrieval. Informants also used AI in creative aspects, such as art and music, seeking new ways to express themselves and innovate in their work.

The interactions between informants and AI evolved over time. FM used AI primarily to support productivity, such as writing stories and composing songs. Meanwhile, BR and TF used AI as a confidant, sharing their thoughts and complaints as they would with a friend. This decision stemmed from their experience that when confiding in others, like friends, those individuals often had their own interests, leading to responses that did not meet the informants'

expectations. In contrast, the informants perceived AI as unbiased, non-judgmental, and focused on listening and providing solutions to their problems. Additionally, by sharing with AI, the informants felt they were not burdening others with their issues.

The informants appreciated the non-judgmental support from AI, using it for conversations when they preferred not to burden human acquaintances or sought an unbiased perspective. Furthermore, there was a stark contrast between the common expectations of AI responses and the reality of receiving more personalized interactions, which significantly influenced user satisfaction and perceptions of AI sophistication. The type of AI used by the informants in this study refers to generative AI, a computational technique capable of producing seemingly new and meaningful content such as text, images, or audio from its training data (Feuerriegel et al., 2024). Examples of generative AI include DALL-E, GPT, Gemini, character.ai, and Sunno AI. The data on the informants' use of AI in everyday life can be found in Table 1.

Table 1 Data Collection Results

No.	Item	TF	BR	FM
1	AI used	ChatGPT	ChatGPT, character.ai	ChatGPT, character.ai, Gemini, Sunno AI, Dall-E
2	Type of interaction	Chatting companion	Chatting companion, partner	Productivity support tool
3	Perception of AI	A friend, a tool to help facilitate certain tasks	A tool to complete tasks and provide companionship	A tool to entertain and help channel creativity
4	Emotional closeness with AI	Yes	Yes	No
5	How to overcome doubts/anxiety	Checking limitations	Testing capabilities	Repeating commands (prompting)

Source: Research Results, 2023

Within the HMC framework, human-AI interaction can be understood through three main aspects: functional, relational, and metaphysical (Guzman & Lewis, 2020). AI, such as ChatGPT, Gemini, and Sunno AI, is used for specific purposes like communication and productivity support, such as creating songs. In the functional aspect, the purpose of AI usage indicates that users view AI as a tool that extends their capabilities in daily life. The relational aspect reveals how informants assign social roles to AI, considering it not just as a tool but also as a friend to whom they can objectively vent their feelings. An emotional connection is formed even though the interaction occurs with a machine. The metaphysical aspect examines the understanding of what constitutes authentic communication. Initial skepticism about AI's capabilities raises philosophical and ethical questions about whether interactions with AI can replace human interactions. Theoretical developments in HMC then focus on CASA, which further evolves into

MASA. Data from informants regarding the use of AI for emotional support show the anthropomorphization of AI, where AI is given human-like qualities that can influence users' emotions and behaviors.

From the above discussion, it can be seen how HMC redefines basic assumptions about communication in the digital era. Meanwhile, the AI-MC framework adapts and expands the CMC framework to include AI's active role in mediating communication (Gunkel, 2023). HMC views AI not just as a tool or mediator but as an equal participant. AI-MC examines how AI facilitates communication between humans or with humans themselves. Data show that AI like ChatGPT is used for productivity support and emotional expression, delineating AI's two main roles: content generator and mediator. As a content generator, informants use AI to support productivity, where AI not only assists but also creates new products. As a mediator, AI is used as a means to express thoughts and emotions, helping users convey their thoughts and feelings without burden, ensuring communication remains efficient and empathetic.

Pinch and Bijker (1984) emphasize the crucial role of the social environment in shaping technology, which starkly contrasts with the idea of technological determinism. Drawing from the sociology of knowledge, Pinch and Bijker argue that social groups within the social environment are essential in defining and addressing challenges that arise during the development of technological artifacts. SCOT posits that technological development is not a linear or deterministic process governed solely by technical interests but a flexible and socially constructed process where different social groups can influence the design and functionality of the technology itself. According to this approach, AI technology is not merely a product of technological advancement but is also shaped by social, cultural, and economic factors. There are four main components in SCOT: interpretive flexibility, relevant social groups, closure and stabilization, and the wider context (Klein & Kleinman, 2002). The first three components are derived from stages in one of the approaches in the sociology of knowledge, the Empirical Programme of Relativism (EPOR) (T. J. Pinch & Bijker, 1984). The following discussion covers these four components using the data collected.

The first component, interpretive flexibility, highlights that scientific outcomes are not inherently objective or definitive but are open to various interpretations. SCOT scholars apply the concept of interpretive flexibility to technological artifacts to demonstrate how these artifacts are also the result of intergroup negotiations (Klein & Kleinman, 2002). Interpretive flexibility is evident in how informants view the potential and risks of AI itself. TF sees AI as a friend who can be talked to and shared with at any time. Despite initial doubts and concerns about AI privacy, TF continues to use AI because she finds it helpful. Meanwhile, BR and FM view AI technology as a tool that can assist in their daily lives. BR uses AI to support productivity and as a tool for relaxation, similar to TF. The difference between TF and BR lies in how they perceive AI; the closeness TF feels makes them consider AI a friend, while BR, aware that AI is just a machine with specific "tasks," recognizes the limitations that AI cannot surpass. FM uses AI to channel creativity, such as making songs, pictures, and stories. FM's use of AI aligns with McLuhan's assertion that technology is an extension of man (McLuhan, 1964).

The three informants are part of the relevant social group for AI, namely the general public who use AI (users). To understand the second component of SCOT, it is necessary to identify and understand how different groups view and use AI and how these perceptions influence the development and functionality of AI. As the general public, the informants see the use of AI as a new and entertaining phenomenon. The general public does not focus on the technical or artistic superiority of AI, as they do not possess the knowledge or capabilities related to these aspects. Instead, they focus on the ease of accessing platforms and creating content. The user group can be further divided into smaller groups, namely users seeking companionship through AI and users utilizing AI as a tool. Interactions between these groups often negotiate AI's features and limitations, such as encouraging developers to create user-friendly and practical innovations for daily life.

The third component of SCOT is closure and stabilization. Closure can occur through two mechanisms: rhetorical closure and redefinition closure (Klein & Kleinman, 2002). This component helps understand how a social group perceives and resolves issues regarding the suitability and functionality of AI. When discussing AI as a friend and as a productivity support tool, there is controversy regarding the ethics and rules of AI usage, especially in the cultural industry realm such as song and storybook creation. Moreover, there is currently no clear law in Indonesia regulating AI usage. Regulations refer to rules set by each AI company regarding its products. Rhetorical closure can occur if developers or AI companies successfully convince users that existing ethical concerns or technical issues are no longer relevant or significant. For instance, in the context of AI as a friend, companies could claim that their technology has sufficiently evolved to ensure ethical and safe interactions, emphasizing improvements in algorithms aimed at protecting user privacy and data.

Redefinition closure can occur when AI companies or developers change the perception of what is considered a 'problem' by redefining it as a 'feature'. In the cultural industry context, the characteristic of AI producing content that may feel inauthentic or overly mechanical can be explained as AI's 'unique' style offering a new perspective in creativity. This allows AI to be accepted not as a replacement for human creativity but as a new tool that offers a different way of creating, which cannot be replicated by humans. Once closure is achieved, either through rhetoric or redefinition, the stabilization process begins. Stabilization is the phase where the technological artifact becomes a permanent part of social practices and is fully integrated into daily life without significant controversy or the need for ongoing design changes (Klein & Kleinman, 2002). Stabilization indicates that a technology has been widely accepted by all relevant social groups and is now considered a 'standard solution'.

The fourth component is the wider context, which refers to the background conditions shaping the interactions between various social groups involved in technology development, in this case, AI technology. Different cultural backgrounds allow for varying acceptance of AI usage, whether for productivity support or companionship. In social life, human-to-human interaction is highly valued and forms the foundation of society itself. This leads to resistance towards individuals befriending AI. Nevertheless, the informants feel that their relationship with AI does not alter their interaction patterns with humans. Privacy concerns also stem from the informants'

background in Indonesia, where privacy and data security tend not to be a primary focus of regulators.

CONCLUSION

The research reveals that socio-cultural contexts significantly influence individuals' perceptions and adoption of AI, particularly in direct interactions where AI serves as an active communicator. Participants' understanding of AI was shaped by various socio-cultural influences, including media exposure, societal attitudes toward technology, and local norms regarding human-machine relationships. Those from technology-oriented communities tended to adopt AI more quickly, appreciating its efficiency and creative capabilities, whereas individuals from environments with heightened concerns over privacy and ethics initially exhibited skepticism. However, repeated interactions led to a shift in perception, as users began to recognize AI's utility in enhancing productivity and offering non-judgmental emotional support. The study also reveals that direct interaction with AI fosters a stronger sense of usefulness and emotional closeness compared to indirect interactions. Participants who engaged with AI as a conversational partner reported higher levels of engagement and connection, despite acknowledging its mechanical nature. This differs from indirect interactions, where AI's role as a passive mediator limited users' perceived emotional involvement.

Applying the SCOT perspective, the findings suggest that AI's acceptance is not solely driven by technical capabilities but by evolving social consensus on its ethicality, trustworthiness, and role in communication. The rhetorical closure of AI's function occurs as users redefine their expectations, accepting both its strengths and limitations. These insights emphasize the need to incorporate socio-cultural considerations into AI development to enhance user experience and social integration. Future research should explore the long-term impacts of AI as a communicator across diverse cultural contexts, focusing on how these interactions can be optimized to align with human emotional and social needs, thereby broadening the understanding of AI in complex socio-cultural landscapes.

REFERENCES

- Agustin, M. R. A., Rahimia, N., Hasyim, M. M., & Kurniawati, M. F. (2023). Pola komunikasi interpersonal keluarga dalam pemulihan kesehatan mental penyintas Covid-19 tahun 2020. *Ekspresi dan Persepsi: Jurnal Ilmu Komunikasi*, 6(1), 32–40. <https://doi.org/10.33822/jep.v6i1.4498>
- Bach, J. (2020). When artificial intelligence becomes general enough to understand itself. Commentary on Pei Wang's paper "on defining artificial intelligence." *Journal of Artificial General Intelligence*, 11(2), 15–18. <https://doi.org/10.2478/jagi-2020-0003>
- Berger, P. L., & Luckmann, T. (1967). *The social construction of reality: A treatise in the sociology of knowledge*. Anchor.
- Brandtzaeg, P. B., Skjuve, M., & Følstad, A. (2022). My AI friend: How users of a social chatbot understand their human–AI friendship. *Human Communication Research*, 48(3), 404–429. <https://doi.org/10.1093/hcr/hqac008>

- Chuan, C.-H. (2021). Artificial Intelligence. In A. E. Grant & J. H. Meadows (Ed.), *Communication Technology Update and Fundamentals* (17 ed.). Routledge.
- Denzin, N. K., & Lincoln, Y. S. (2018). *The Sage handbook of qualitative research* (Fifth edit). Sage Los Angeles.
- Feuerriegel, S., Hartmann, J., Janiesch, C., & Zschech, P. (2024). Generative ai. *Business & Information Systems Engineering*, 66(1), 111–126.
- Fortunati, L., & Edwards, A. (2021). Moving ahead with human-machine communication. *Human-Machine Communication*, 2, 7–28. <https://doi.org/10.30658/hmc.2.1>
- Goldenthal, E., Park, J., Liu, S. X., Mieczkowski, H., & Hancock, J. T. (2021). Not all AI are equal: Exploring the accessibility of AI-mediated communication technology. *Computers in Human Behavior*, 125, 106975. <https://doi.org/10.1016/j.chb.2021.106975>
- Google. (2023). *Tren kueri penelusuran untuk "Character AI", "ChatGPT" di Indonesia*. <https://trends.google.com/trends/explore?geo=ID&hl=en-US>
- Grant, A., & Meadows, J. H. (2022). *Communication technology update and fundamentals* (17 ed.). Routledge.
- Gunkel, D. J. (2023). Philosophical contexts and consequences of human-machine communication. *The SAGE Handbook of Human-Machine Communication*, 108–116.
- Guzman, A. L. (2018). What is human-machine communication, anyway. In *Human-machine communication: Rethinking communication, technology, and ourselves* (hal. 1–28). Peter Lang Verlag. <https://doi.org/10.3726/b14414>
- Guzman, A. L., & Lewis, S. C. (2020). Artificial intelligence and communication: A human–machine communication research agenda. *New media & society*, 22(1), 70–86. <https://doi.org/10.1177/1461444819858691>
- Haenlein, M., & Kaplan, A. (2019). A brief history of artificial intelligence: On the past, present, and future of artificial intelligence. *California management review*, 61(4), 5–14. <https://doi.org/10.1177/0008125619864925>
- Hancock, J. T., Naaman, M., & Levy, K. (2020). AI-mediated communication: Definition, research agenda, and ethical considerations. *Journal of Computer-Mediated Communication*, 25(1), 89–100. <https://doi.org/10.1093/jcmc/zmz022>
- Hoffmann, C. H. (2022). Is AI intelligent? An assessment of artificial intelligence, 70 years after Turing. *Technology in Society*, 68, 101893. <https://doi.org/10.1016/j.techsoc.2022.101893>
- Hohenstein, J., & Jung, M. (2020). AI as a moral crumple zone: The effects of AI-mediated communication on attribution and trust. *Computers in Human Behavior*, 106, 106190. <https://doi.org/10.1016/j.chb.2019.106190>
- Kim, J., Merrill Jr, K., & Collins, C. (2021). AI as a friend or assistant: The mediating role of perceived usefulness in social AI vs. functional AI. *Telematics and Informatics*, 64, 101694. <https://doi.org/10.1016/j.tele.2021.101694>
- Klein, H. K., & Kleinman, D. L. (2002). The social construction of technology: Structural considerations. *Science Technology and Human Values*, 27(1), 28–52. <https://doi.org/10.1177/016224390202700102>
- McLuhan, M. (1964). *Understanding media: the extensions of man*. McGraw-Hill New York.

- Merrill, K., Kim, J., & Collins, C. (2022). AI companions for lonely individuals and the role of social presence. *Communication Research Reports*, 39(2), 93–103.
<https://doi.org/10.1080/08824096.2022.2045929>
- MoneyWatch. (2024). *Virtual valentine: People are turning to AI in search of emotional connections*. CBS News. <https://www.cbsnews.com/news/valentines-day-ai-companion-bot-replika-artificial-intelligence/>
- Natale, S., & Guzman, A. L. (2022). Reclaiming the human in machine cultures: Introduction. *Media, Culture and Society*, 44(4), 627–637. <https://doi.org/10.1177/01634437221099614>
- Pedler, T. K. (2023). *I Married My AI Chatbot: Woman Ties the Knot with Replika*.
<https://www.thesun.co.uk/tech/21893564/married-my-ai-chatbot-replika/>
- Pinch, T. (2012). The social construction of technology: A review. *Technological change*, 17–35.
- Pinch, T. J., & Bijker, W. E. (1984). The social construction of facts and artefacts: Or how the sociology of science and the sociology of technology might benefit each other. *Social studies of science*, 14(3), 399–441.
- Richards, R. J., Spence, P. R., & Edwards, C. C. (2022). Human-machine communication scholarship trends: An examination of research from 2011 to 2021 in communication journals. *Human-Machine Communication*, 4, 45–62. <https://doi.org/10.30658/hmc.4.3>
- Sabarina, G., Valentino, R. A., & Ramdani, A. H. (2024). Elimination of negative stigma through the use of media technology by librarians with blind disabilities. *Ekspresi dan Persepsi: Jurnal Ilmu Komunikasi*, 7(1), 57–70.
- Sundar, S. S., & Chen, J. (2023). From CASA to TIME: Machine as a source of media effects. *The SAGE Handbook of Human–Machine Communication*, 63.
- Sundar, S. S., & Lee, E.-J. (2022). Rethinking Communication in the Era of Artificial Intelligence. *Human Communication Research*, 48(3), 379–385. <https://doi.org/10.1093/hcr/hqac014>
- Verma, P. (2023). *They fell in love with AI bots. A software update broke their hearts*. *The Washington Post*. Washington Post.
<https://www.washingtonpost.com/technology/2023/03/30/replika-ai-chatbot-update/>
- Yin, R. K. (2018). *Case study research and applications: design and methods* (6th ed.). SAGE Publications Inc.