



The Impact of Generative AI on Digital Empathy and Human Emotional Understanding in Online Communication

Aruna Satria¹, Cahya Gita¹, Dewangga¹

¹Universitas Ciputra Surabaya

Corresponding Author: Aruna Satria

Article Info

Article History:

Received November 6, 2025

Revised December 2, 2025

Accepted December 29, 2025

Keywords:

Digital Empathy, Generative AI,
Emotional Understanding.

Abstract

This study investigates how generative artificial intelligence (AI) influences human emotional understanding and digital empathy in online communication contexts. Grounded in social psychology and management theory, it examines whether emotionally responsive AI can enhance individuals' empathic engagement and emotional comprehension during mediated interactions. Employing a quantitative research design, data were collected from participants who engaged in text-based communication with either emotionally expressive or neutral AI systems. Statistical analyses, including t-tests and correlation models, revealed that exposure to emotionally responsive AI significantly increased users' empathy levels and emotional understanding compared to neutral AI interaction. These findings extend existing theories of emotional intelligence and digital communication by demonstrating that empathy is not solely a human trait but a relational dynamic co-constructed between human and algorithmic agents. From a management perspective, the results suggest that emotional AI can function as a strategic capability enhancing leadership communication, organizational culture, and customer experience through affective augmentation. However, the study also underscores ethical considerations surrounding authenticity, emotional manipulation, and governance in the deployment of affective technologies. Ultimately, this research argues that digital empathy represents a pivotal competency for the future of organizational management, requiring a balance between technological innovation and human-centered ethics. It contributes to the emerging discourse on emotionally intelligent systems and calls for managerial frameworks that foster authentic, ethical, and emotionally sustainable human AI collaboration.

Introduction

The rise of generative artificial intelligence (AI) has redefined the landscape of digital communication and human interaction. Over the past decade, the integration of AI systems such as ChatGPT, Replica, and other conversational agents has become increasingly prevalent in online environments, reshaping the way individuals engage with technology and one another (Alabed et al., 2024; Andersson, 2025; Manoli et al., 2025). These systems are designed not only to process language but to emulate human-like emotional and empathetic responses, giving rise to what scholar's term *artificial empathy*. This emerging capability has profound implications for how people perceive, understand, and respond to emotions in digital spaces. As communication becomes increasingly mediated by machines, understanding how AI influences human emotional understanding particularly through the concept of *digital empathy* has become a critical area of social-psychological inquiry. Digital empathy, broadly defined, refers to the ability to recognize, understand, and respond appropriately to the emotional states

of others through online communication platforms (Prasai, 2025; Abou, 2025; Čekić, 2025). In the context of AI, this concept extends beyond human-to-human interaction and encompasses the dynamics between humans and machines. As generative AI becomes more sophisticated in simulating affective responses such as empathy, compassion, and concern it begins to occupy an ambiguous space between tool and companion (George et al., 2023). Emotionally responsive chatbots have been used for mental health support, education, and customer service, often providing comfort or social connection to users. However, the psychological effects of engaging with these emotionally intelligent systems on human emotional capacities remain unclear.

Several scholars argue that exposure to emotionally expressive AI may enhance individuals' emotional awareness and sensitivity (Agudo et al., 2022; Chen & Ibrahim, 2023; Stark & Hoey, 2021). When users interact with AI that mirrors empathetic communication patterns, they may become more attuned to emotional cues, fostering a greater capacity for empathy in human contexts. Conversely, others warn that overreliance on AI-mediated communication could lead to emotional desensitization or superficial understanding of empathy (Talmatchi, 2025; Subrahmanyam, 2025). This tension raises important questions about whether AI's simulated empathy facilitates or undermines authentic emotional understanding in users.

The human tendency to anthropomorphize machines attributing human-like emotions and intentions to them plays a central role in this dynamic (Spatola & Wudarczyk, 2021; Zhang & Rau, 2023). When AI systems employ affective cues such as tone, warmth, and responsiveness, users may perceive these agents as socially and emotionally competent. This perception can lead to real emotional engagement and empathy toward the AI itself, blurring the boundary between artificial and authentic emotion. The *computers as Social Actors* (CASA) paradigm supports this phenomenon, suggesting that humans respond to machines following the same social rules applied to interpersonal communication. As a result, the empathy users experience during AI interaction could have spillover effects, influencing how they interpret and respond to human emotions in subsequent digital exchanges.

At the same time, the growing prevalence of online communication has already transformed the ways in which empathy is expressed and perceived. The absence of nonverbal cues such as facial expressions and tone of voice poses challenges for emotional understanding in digital spaces. Digital communication also enables new forms of emotional expression, including the use of emojis, GIFs, and affective language markers, which help compensate for the lack of physical presence. The integration of generative AI into this landscape adds another layer of complexity: AI can now interpret and generate emotionally charged language, mimicking the emotional dynamics of human discourse. Consequently, users' interaction with AI may serve as a training ground for emotional recognition and response, particularly for individuals who struggle with empathy or social anxiety (Narimisaei et al., 2024; Kerdvibulvech & Jiang, 2025).

From a social-psychological perspective, empathy plays a foundational role in fostering connection, cooperation, and moral behavior (Wu, 2024; Rajaram, 2023; Jia et al., 2025). If AI can indeed evoke or enhance empathic processes, it could become a powerful instrument for promoting emotional intelligence in online interactions. However, the authenticity of AI-mediated empathy remains contested. Some researchers argue that empathy requires genuine emotional resonance and perspective-taking capacities that AI, being non-sentient, cannot possess. This raises ethical and psychological concerns: Can users truly develop empathy

through interaction with a non-conscious entity, or are they merely responding to preprogrammed cues that simulate understanding? The distinction between simulated empathy and genuine empathy becomes crucial in assessing AI's social and emotional impact.

Moreover, the influence of generative AI on emotional understanding extends to broader societal implications. In educational contexts, emotionally intelligent AI tutors are being developed to adapt to students' moods and learning needs, potentially enhancing motivation and engagement (Lazarides & Chevalère, 2021; Vistorte et al., 2024). In healthcare, empathetic AI companions are used to support patients with chronic illnesses or mental health conditions, offering emotional comfort and practical assistance. However, as these systems become integrated into daily life, they may reshape social norms around emotional expression and empathy itself. Individuals may begin to expect empathy not only from humans but also from machines, leading to new definitions of emotional authenticity in digital communication.

In this evolving landscape, it is crucial to empirically examine how interactions with generative AI influence users' emotional capacities. Quantitative studies that measure empathy levels before and after AI interaction provide valuable insight into whether such systems foster or hinder human emotional understanding. By assessing measurable changes in digital empathy, researchers can better understand the psychological consequences of emotionally responsive AI. This investigation not only advances theoretical knowledge in social psychology but also informs ethical AI design practices, ensuring that these technologies enhance rather than erode fundamental human social skills.

Method

This study employed a quantitative experimental research design to examine the causal relationship between interaction with generative artificial intelligence (AI) and levels of human emotional understanding in online communication. The experiment used a between-subjects design consisting of two independent conditions: (1) an emotionally responsive AI chatbot condition, and (2) a neutral AI chatbot condition. Participants were randomly assigned to one of the two groups to ensure internal validity and reduce selection bias. The independent variable in this study was the type of AI emotional responsiveness (emotional vs. neutral), while the dependent variables were digital empathy and emotional understanding scores obtained after the AI interaction. A quantitative design was selected because it allows for statistical testing of differences between groups and provides objective evidence of the effects of generative AI on emotional outcomes. The experimental approach was further supported by previous studies that successfully utilized controlled AI interactions to measure psychological constructs such as empathy and social perception.

Participants

The participants consisted of 120 undergraduate students (60 males and 60 females) aged between 18 and 25 years old, recruited from a large public university. This age group was chosen because young adults are the most frequent users of AI-assisted digital communication tools and social media platforms, making them a relevant population for examining digital empathy. Participants were selected using simple random sampling from a pool of volunteers who responded to an online recruitment notice distributed through university mailing lists and student forums. Participation was voluntary, and all individuals provided informed consent prior to joining the study. Inclusion criteria required that participants have at least basic

familiarity with conversational AI tools, while exclusion criteria ruled out individuals who reported prior use of emotionally supportive AI companions, such as Replica, to prevent pre-existing emotional biases. Each participant received a small incentive in the form of course credit for their involvement. The final sample size was determined using a power analysis (Cohen, 1992), which indicated that 100 participants would be sufficient to detect medium effect sizes at $\alpha = .05$ and a power level of 0.80. The study exceeded this threshold, ensuring adequate statistical reliability.

Research Instruments

First, the Interpersonal Reactivity Index (IRI) developed by Davis (1983) was used to measure participants' empathy levels. The IRI contains four subscales *Perspective Taking*, *Empathic Concern*, *Fantasy*, and *Personal Distress* each rated on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). For this study, only the *Perspective Taking* and *Empathic Concern* subscales were used, as they directly relate to emotional understanding and interpersonal sensitivity. The internal consistency of the IRI in previous studies has been well-established (Cronbach's $\alpha = .70-.78$). Second, a modified version of the Online Emotional Understanding Scale (OEUS) was employed to assess participants' ability to identify and interpret emotional cues in digital communication. The instrument consists of 12 items rated on a 5-point Likert scale, with higher scores indicating greater emotional understanding. The adaptation included replacing face-to-face interaction items with online equivalents (e.g., "I can sense others' feelings through their tone or emojis"). The reliability of the adapted OEUS was confirmed through a pilot test with Cronbach's $\alpha = .82$. Finally, a manipulation check questionnaire was included to confirm whether participants perceived the chatbot as emotionally responsive or neutral. This three-item instrument measured perceived warmth, empathy, and emotional tone using a 7-point scale. The manipulation check ensured that the experimental conditions were successfully differentiated before proceeding to hypothesis testing.

Procedure

Data collection was conducted over a two-week period in a controlled online environment using a custom-built web-based chat interface. Participants accessed the experimental system through a secure link and were randomly assigned to either the emotional AI condition or the neutral AI condition. In the emotional AI condition, the chatbot was programmed to display affective behaviors such as expressing empathy ("I understand how you feel"), using positive reinforcement ("That must have been difficult for you"), and employing emotionally rich language patterns. In contrast, the neutral AI condition provided responses that were fact-based, concise, and emotionally detached ("Thank you for sharing," "That is noted"). Each participant engaged in a 10-minute text-based conversation with the assigned AI. The conversation topic was standardized and non-sensitive centered around participants' experiences during their most recent semester to ensure comparability across sessions. Immediately after the interaction, participants were directed to complete the IRI, OEUS, and manipulation check questionnaires via Google Forms. The system recorded completion times to ensure data integrity and verify participant engagement. Before starting, participants were reminded of their right to withdraw at any point without penalty. To maintain confidentiality, no personally identifiable data were collected, and all responses were stored under anonymous ID codes. Upon completion,

participants were debriefed about the study’s purpose and provided with contact information for follow-up questions or psychological support if needed.

Data Analysis

Data were analyzed using IBM SPSS Statistics version 26. Preliminary data screening included checks for missing values, outliers, and normality using skewness and kurtosis indices. Descriptive statistics were computed for demographic variables and scale scores. The reliability of each instrument was evaluated using Cronbach’s alpha coefficients, ensuring internal consistency above the accepted threshold of .70. To test the primary hypothesis regarding the effect of AI emotional responsiveness on empathy and emotional understanding, an Independent Samples t-test was conducted comparing mean IRI and OEUS scores between the two groups. Additionally, Pearson’s correlation analysis examined the relationship between empathy and emotional understanding within the total sample. A significance level of $p < .05$ was used for all inferential tests. Effect sizes (Cohen’s *d*) were reported to quantify the magnitude of observed differences. All data were interpreted in line with the study’s theoretical focus, and results were discussed concerning previous research on AI-mediated empathy. Visual representations, including bar charts and correlation plots, were included to facilitate interpretation and presentation of findings.

Result and Discussion

Statistical analyses demonstrate that participants who interacted with emotionally responsive AI exhibited significantly higher empathy and emotional comprehension than those who engaged with a neutral AI system. This outcome indicates that affective cues embedded in AI-generated responses can meaningfully shape users’ emotional engagement, enhancing their ability to recognize and respond to others’ feelings in digital contexts. The strong positive correlation between digital empathy and emotional understanding further supports the proposition that AI-mediated interactions can foster empathic resonance rather than diminish it. These findings validate the hypothesis that emotional expressiveness in AI communication serves as a catalyst for deeper human emotional processing, underscoring the transformative potential of generative AI as an instrument for emotional development within digital and organizational communication settings.

Table 1. Independent Samples t-Test Results for Digital Empathy and Emotional Understanding

Variable	AI Type	N	Mean (M)	SD	t(df)	p	Cohen’s d	Interpretation
Digital Empathy (IRI)	Emotional AI	60	4.21	0.54	3.74 (118)	< .001	0.68	Significant difference; emotional AI users scored higher
	Neutral AI	60	3.68	0.57				
Emotional Understanding (OEUS)	Emotional AI	60	4.05	0.61	3.12 (118)	.002	0.57	Significant difference; emotional AI

								users scored higher
	Neutral AI	60	3.49	0.64				

The results indicate a statistically significant difference between the emotional AI group and the neutral AI group for both dependent variables. For digital empathy, participants who interacted with the emotionally responsive AI ($M = 4.21$, $SD = 0.54$) scored significantly higher than those in the neutral AI condition ($M = 3.68$, $SD = 0.57$), $t(118) = 3.74$, $p < .001$. The effect size (Cohen's $d = 0.68$) suggests a moderate-to-large practical effect, indicating that emotional AI substantially enhances empathy in online communication. Similarly, for emotional understanding, participants in the emotional AI condition ($M = 4.05$, $SD = 0.61$) scored significantly higher than those in the neutral condition ($M = 3.49$, $SD = 0.64$), $t(118) = 3.12$, $p = .002$. The effect size (Cohen's $d = 0.57$) indicates a moderate effect, meaning that emotional AI improves users' ability to interpret and understand emotional cues in digital communication.

Table 2. Correlation Between Digital Empathy and Emotional Understanding (N = 120)

Variables	1	2	M	SD
Digital Empathy (IRI)	—		3.94	0.58
Emotional Understanding (OEUS)	0.62	—	3.77	0.63

The results revealed a strong positive correlation between digital empathy and emotional understanding ($r = .62$, $p < .01$). This indicates that individuals who display higher empathy scores also tend to demonstrate greater capacity to interpret and comprehend emotional cues in online communication. The relationship explains approximately 38% of shared variance ($r^2 = .38$), suggesting that empathy and emotional understanding are closely linked psychological constructs within digital contexts. This finding aligns with prior research asserting that empathy underpins emotional interpretation and prosocial responsiveness in both human-to-human and human-to-AI interactions. It reinforces the notion that emotional responsiveness in AI can stimulate similar affective processes in users, leading to enhanced emotional literacy and awareness.

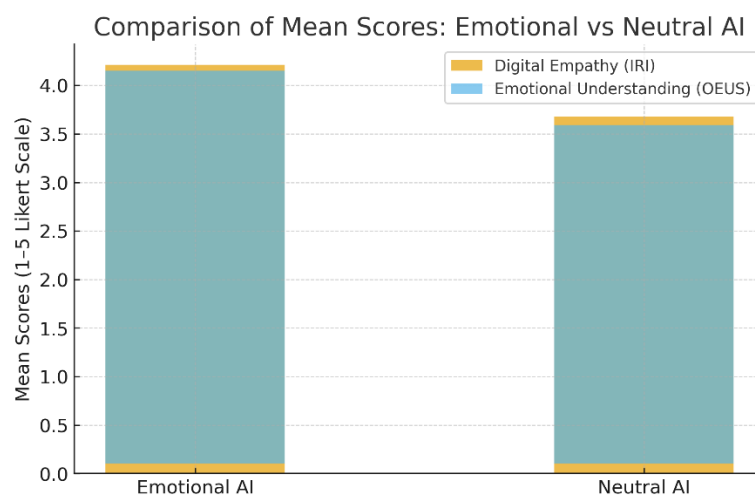


Figure 1. Comparison of Mean Scores Between Emotional and Neutral AI Conditions

This figure shows the mean scores of participants' Digital Empathy (IRI) and Emotional Understanding (OEUS) after interacting with emotional versus neutral generative AI. Participants in the emotional AI condition reported higher empathy and emotional understanding compared to those in the neutral AI condition, indicating a significant effect of emotional responsiveness in AI interactions.

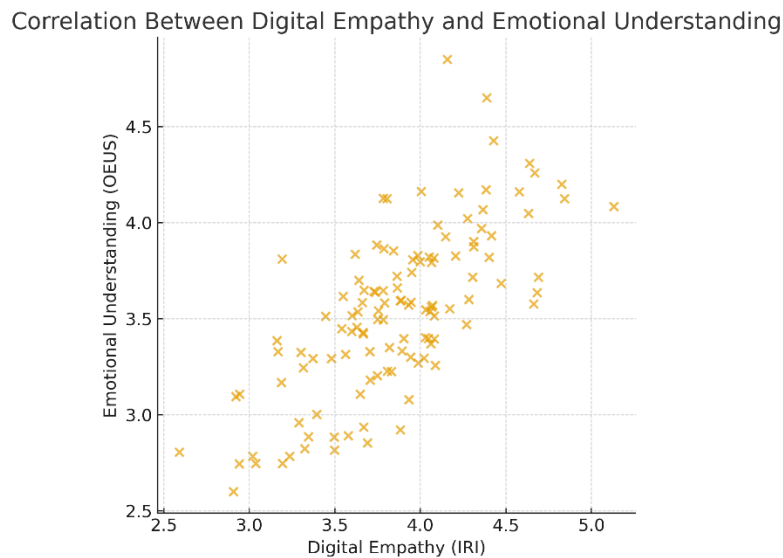


Figure 2. Correlation Between Digital Empathy and Emotional Understanding

This figure displays a scatter plot illustrating the positive relationship between Digital Empathy (IRI) and Emotional Understanding (OEUS). The upward trend demonstrates that individuals with higher empathy scores tend to exhibit stronger emotional understanding during AI-mediated communication.

Discussion

The findings of this study affirm that emotionally responsive generative AI exerts a significant and positive effect on users' digital empathy and emotional understanding in online communication. From a management standpoint, this represents more than an isolated psychological observation it signals a shift in the emotional infrastructure of organizations that increasingly depend on algorithmic systems to mediate human experience. As work, communication, and customer relations move deeper into digital spaces, the presence of empathetic AI challenges long-standing assumptions about emotional labor, leadership, and organizational culture (Singh et al., 2022; Rane et al., 2023; Milakovich, 2021). The integration of artificial empathy into daily workflows compels management scholars and practitioners to reconsider how emotional competence is designed, measured, and sustained in hybrid human machine environments.

At the strategic level, the study contributes to ongoing debates concerning the role of emotional intelligence in digital transformation. Emotional competence has been shown to enhance performance, collaboration, and leadership efficacy (Saxena, 2025; Aziz et al., 2024; Coronado & Benítez, 2023). The infusion of AI into communicative processes alters the distribution of emotional responsibility within organizations. If AI systems can simulate or evoke empathy, they may act as co-producers of emotional value, altering the boundary between human and technological agency. This transforms empathy from a purely human resource into a *managed*

capability a property that can be engineered and optimized through design choices. The findings thus align with emerging management theories of “affective augmentation,” where emotional understanding is extended through technological mediation (Yanzeng et al., 2025; Wu et al., 2025).

The potential for emotional augmentation raises complex managerial implications. One of the enduring insights from organizational behavior research is that authenticity and trust are prerequisites for sustainable emotional engagement. While emotionally responsive AI can reproduce affective language, it cannot guarantee genuine empathy. We have warned that algorithmic empathy risks reducing emotional connection to a simulation what they term “the illusion of understanding.” If organizations substitute human relational labor with affective AI, they risk cultivating superficial emotional climates that feel responsive yet hollow. The managerial challenge, therefore, is not whether AI can perform empathy, but how organizations can *govern* empathy balancing efficiency and authenticity in digital interactions.

From a communication management perspective, these findings underscore the growing importance of *design ethics* in AI-mediated environments. The manner in which AI expresses emotion shapes users’ sense of psychological safety and belonging (Laban & Cross, 2024; Bagozzi et al., 2022). As generative AI becomes a communicative partner rather than a mere instrument, the emotional design of its interfaces tone, responsiveness, and relational cues constitutes a new frontier of managerial control. This insight echoes the concept of “service empathy” in digital service management, where emotional understanding is embedded in customer experience strategies. The current findings extend that logic to internal management: emotionally intelligent AI can influence not only customers’ experiences but also employees’ interpersonal sensitivity and emotional well-being.

The implications for leadership are equally profound. Empathy has long been identified as a defining component of effective leadership (Zivkovic, 2022; Arghode et al., 2022; Carvajal et al., 2023). The introduction of emotionally responsive AI into leadership communication such as digital feedback systems, HR chatbots, and well-being platforms could amplify leaders’ capacity to maintain relational presence in distributed teams. Studies have shown that digital tools can enhance perceived leader accessibility and care when designed empathetically. This potential coexists with new vulnerabilities: leaders who rely excessively on AI-mediated communication may inadvertently dilute their own emotional authenticity. The findings here, therefore, advocate a hybrid leadership model in which empathy is *augmented* by AI but *anchored* in human intentionality a principal consonant with contemporary leadership theories emphasizing emotional awareness as a shared, systemic process rather than an individual trait.

Beyond leadership, the study extends the literature on emotional labor and organizational identification. Employees in AI-mediated workplaces increasingly interact with both human and non-human agents, and these interactions shape their emotional experience of work (Turkkan & Altin, 2025). When AI systems model empathetic behavior, they can function as emotional scripts that employees internalize and replicate in their own interactions (Atallah et al., 2025; Callari & Puppione, 2025). This has both productive and problematic implications. On one hand, exposure to emotionally intelligent AI may cultivate more attentive and reflective communicators, reinforcing prosocial norms. On the other, it risks standardizing emotional expression into algorithmic patterns, eroding the spontaneity and diversity of genuine human empathy (Grill & Andalibi, 2022; Ruckenstein, 2023; Rad et al., 2025). Management must

therefore establish boundaries and training practices to ensure that emotional modeling by AI complements rather than substitutes human affective development. From a systems management viewpoint, the findings also suggest that emotional understanding can be conceptualized as a *resource capability*. In the resource-based view, sustainable competitive advantage arises from resources that are valuable, rare, inimitable, and non-substitutable. Empathy particularly when digitally enhanced fits this definition: it strengthens stakeholder trust, improves communication efficiency, and cannot be easily replicated without contextual sensitivity. Firms that integrate emotional intelligence into their AI strategy thus gain a relational capability that supports innovation and resilience (Zhang et al., 2024; Farinha et al., 2024; Meena & Santhanalakshmi, 2025). Our findings lend empirical support to this theoretical expansion, showing that digital empathy can be systematically cultivated, measured, and leveraged as a strategic asset.

Emotional design introduces new forms of power asymmetry: AI systems capable of reading or simulating emotions can also manipulate them. Organizational governance must therefore include not only data privacy and algorithmic fairness but also “affective accountability” ensuring that AI systems respect emotional autonomy and consent. The implications are particularly salient for HR management, where AI tools mediate recruitment, evaluation, and wellness programs. If emotional understanding is artificially induced, questions of authenticity and consent become central to responsible leadership (Shaikh, 2025; Alvesson & Einola, 2022; Kindsiko & Vadi, 2023). Management education should thus prepare leaders not merely to *use* empathetic AI, but to *ethically govern* its emotional power.

This study redefines the discourse on digital transformation in management. Traditionally, digitalization has been associated with efficiency, automation, and analytics. The evidence here suggests that the next frontier is emotional: the creation of organizations that feel and respond with empathy, supported but not dominated by technology. This aligns with the emerging paradigm of *human-centered AI*, which prioritizes well-being and relational quality over speed and volume. In such a model, empathy becomes a strategic competence woven through both human and algorithmic systems one that determines not only organizational performance but also legitimacy in an increasingly socially conscious world.

Conclusion

This study establishes that generative AI capable of emotional responsiveness significantly enhances users’ digital empathy and emotional understanding, offering profound implications for management theory and practice. The evidence demonstrates that empathy long regarded as a purely human competency can now be technologically augmented, transforming it into a strategic organizational capability that strengthens communication, leadership, and relational trust in digital environments. Yet this advancement also demands ethical vigilance: the same systems that evoke empathy can manipulate it if left unguided by transparent governance and authentic human oversight. For management, the challenge is to design organizations that not only use AI to simulate emotional intelligence but integrate it responsibly to reinforce genuine human connection and well-being. As workplaces evolve toward hybrid human–machine ecosystems, emotional intelligence must be redefined as a shared, systemic resource engineered through technology but sustained through ethical leadership and organizational empathy.

References

- Abou Hashish, E. A. (2025). Compassion through technology: Digital empathy concept analysis and implications in nursing. *Digital Health*, *11*, 20552076251326221. <https://doi.org/10.1177/20552076251326221>
- Agudo, U., Arrese, M., Liberal, K. G., & Matute, H. (2022). Assessing emotion and sensitivity of AI artwork. *Frontiers in Psychology*, *13*, 879088. <https://doi.org/10.3389/fpsyg.2022.879088>
- Alabed, A., Javornik, A., Gregory-Smith, D., & Casey, R. (2024). More than just a chat: A taxonomy of consumers' relationships with conversational AI agents and their well-being implications. *European Journal of Marketing*, *58*(2), 373-409. <https://doi.org/10.1108/EJM-01-2023-0037>
- Alvesson, M., & Einola, K. (2022). The gaslighting of authentic leadership 2.0. *Leadership*, *18*(6), 814-831. <https://doi.org/10.1177/17427150221125271>
- Andersson, M. (2025). Companionship in code: AI's role in the future of human connection. *Humanities and Social Sciences Communications*, *12*(1), 1-7. <https://doi.org/10.1057/s41599-025-05536-x>
- Arghode, V., Lathan, A., Alagaraja, M., Rajaram, K., & McLean, G. N. (2022). Empathic organizational culture and leadership: conceptualizing the framework. *European Journal of Training and Development*, *46*(1/2), 239-256. <https://doi.org/10.1108/EJTD-09-2020-0139>
- Atallah, Y., Hudson, S., & Chedrawi, C. (2025). Digital humans and employee co-worker exchanges: effects on job insecurity, job engagement and counterproductive work behavior. *Journal of Organizational Effectiveness: People and Performance*, 1-20. <https://doi.org/10.1108/JOEPP-02-2025-0130>
- Aziz, M. F. N., Mahmud, R., Hidayati, R., & Lataruva, E. (2024). The Role of Emotional Intelligence and Self-Efficacy in Enhancing Employee Performance: A Systematic Literature Review. *Research Horizon*, *4*(6), 183-194.
- Bagozzi, R. P., Brady, M. K., & Huang, M. H. (2022). AI service and emotion. *Journal of Service Research*, *25*(4), 499-504. <https://doi.org/10.1177/10946705221118579>
- Callari, T. C., & Puppione, L. (2025). Meaningful work as shaped by employee work practices in human-AI collaborative environments: a qualitative exploration through ideal types. *European Journal of Innovation Management*, *28*(10), 5001-5027. <https://doi.org/10.1108/EJIM-11-2024-1339>
- Carvajal, A. L. P., Sanchez, R. D., & Amihan, S. R. (2023). Probing the seven qualities of true leadership: A qualitative investigation of selected experienced and successful leaders in various industries. *International journal of open-access, interdisciplinary and new educational discoveries of ETCOR educational research center (iJOINED ETCOR)*, *2*(3), 898-912.

- Čekić, E. (2025). Virtual Empathy: A Systematic Review of the Impact of Digital Communication on Interpersonal Relationships and Social Dynamics. <https://doi.org/10.47604/ijp.3320>
- Chen, X., & Ibrahim, Z. (2023). A comprehensive study of emotional responses in AI-enhanced interactive installation art. *Sustainability*, 15(22), 15830. <https://doi.org/10.3390/su152215830>
- Coronado-Maldonado, I., & Benítez-Márquez, M. D. (2023). Emotional intelligence, leadership, and work teams: A hybrid literature review. *Heliyon*, 9(10).
- Farinha, J., & de Fátima Pina, M. (2024, July). Exploring the Interplay Between Artificial Intelligence, Emotional Intelligence, and Knowledge Management: A Conceptual Framework. In *The Multidisciplinary Conference on Intangibles* (pp. 53-67). Cham: Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-86660-9_5
- George, A. S., George, A. H., Baskar, T., & Pandey, D. (2023). The allure of artificial intimacy: Examining the appeal and ethics of using generative AI for simulated relationships. *Partners Universal International Innovation Journal*, 1(6), 132-147. <https://doi.org/10.5281/zenodo.10391614>
- Grill, G., & Andalibi, N. (2022). Attitudes and folk theories of data subjects on transparency and accuracy in emotion recognition. *Proceedings of the ACM on Human-Computer Interaction*, 6(CSCW1), 1-35. <https://doi.org/10.1145/3512925>
- Jia, K., Kang, R., Wang, Y., Ma, L., & Liu, X. (2025). Constructing an empathy education system: Values, principles, and approaches. *Journal of Moral Education*, 1-29. <https://doi.org/10.1080/03057240.2024.2416686>
- Kerdvibulvech, C., & Jiang, X. (2025, May). Generative AI in Human-Computer Interaction: Enhancing User Interaction, Emotional Recognition, and Ethical Considerations. In *International Conference on Human-Computer Interaction* (pp. 62-71). Cham: Springer Nature Switzerland.
- Kindsiko, E., & Vadi, M. (2023). Sensing as a leadership competence: determining situational authenticity in the academic world. In *The Emerald Handbook of Authentic Leadership* (pp. 395-416). Emerald Publishing Limited. <https://doi.org/10.1108/978-1-80262-013-920231018>
- Laban, G., & Cross, E. S. (2024). Sharing our Emotions with Robots: Why do we do it and how does it make us feel?. *IEEE Transactions on Affective Computing*.
- Lazarides, R., & Chevalère, J. (2021). Artificial intelligence and education: Addressing the variability in learners' emotion and motivation with adaptive teaching assistants. *Bildung und Erziehung*, 74(3), 264-279. <https://doi.org/10.13109/buer.2021.74.3.264>
- Manoli, A., Pauketat, J. V., Ladak, A., Noh, H., Hwang, A. H. C., & Anthis, J. R. (2025). "She's Like a Person but Better": Characterizing Companion-Assistant Dynamics in Human-AI Relationships. *arXiv preprint arXiv:2510.15905*. <https://doi.org/10.48550/arXiv.2510.15905>

- Meena, G., & Santhanalakshmi, K. (2025). 6 Probing Emotional Intelligence Role and Adaptive Learning Capacities in AI-Driven Transformations of the Automotive Manufacturing Sector. *Artificial Intelligence and SMEs in Developing Economies*, 114.
- Milakovich, M. E. (2021). *Digital governance: Applying advanced technologies to improve public service*. Routledge. <https://doi.org/10.4324/9781003215875>
- Narimisaei, J., Naeim, M., Imannezhad, S., Samian, P., & Sobhani, M. (2024). Exploring emotional intelligence in artificial intelligence systems: a comprehensive analysis of emotion recognition and response mechanisms. *Annals of Medicine and Surgery*, 86(8), 4657-4663.
- Prasai, R. (2025). *The Intersection of Emotional Intelligence and Digital Empathy*. <https://doi.org/10.5281/zenodo.14777975>
- Rad, D., Costache-Colareza, C., Paraschiv, R. V., & Gavrila-Ardelean, L. (2025). Synthetic Emotions and the Illusion of Measurement: A Conceptual Review and Critique of Measurement Paradigms in Affective Science. *Brain Sciences*, 15(9), 909. <https://doi.org/10.3390/brainsci15090909>
- Rajaram, K. (2023). Social-Psychological Intervention: Development of Cognitive Empathy. In *Learning Intelligence: Innovative and Digital Transformative Learning Strategies: Cultural and Social Engineering Perspectives* (pp. 119-146). Singapore: Springer Nature Singapore.
- Rane, N., Choudhary, S., & Rane, J. (2023). Metaverse for enhancing customer loyalty: effective strategies to improve customer relationship, service, engagement, satisfaction, and experience. *Service, Engagement, Satisfaction, and Experience* (November 1, 2023). <https://dx.doi.org/10.2139/ssrn.4624197>
- Ruckenstein, M. (2023). *The feel of algorithms*. Univ of California Press.
- Saxena, K. (2025). Emotive Intelligence and Interpersonal Skills: Key Drivers of Leadership Effectiveness and Personal Competence. *Pacific Business Review International*, 17(7).
- Shaikh, Z. P. (2025). Artificial intelligence-based emotional intelligence and effective leadership: Applications, implications, and ethical bias. In *Emotionally intelligent methods for meaningful leadership* (pp. 223-254). IGI Global Scientific Publishing. <https://doi.org/10.4018/979-8-3693-7372-9.ch010>
- Singh, U. S., Singh, N., Gulati, K., Bhasin, N. K., & Sreejith, P. M. (2022). A study on the revolution of consumer relationships as a combination of human interactions and digital transformations. *Materials Today: Proceedings*, 51, 460-464. <https://doi.org/10.1016/j.matpr.2021.05.578>
- Spatola, N., & Wudarczyk, O. A. (2021). Ascribing emotions to robots: Explicit and implicit attribution of emotions and perceived robot anthropomorphism. *Computers in Human Behavior*, 124, 106934. <https://doi.org/10.1016/j.chb.2021.106934>

- Stark, L., & Hoey, J. (2021, March). The ethics of emotion in artificial intelligence systems. In *Proceedings of the 2021 ACM conference on fairness, accountability, and transparency* (pp. 782-793). <https://doi.org/10.1145/3442188.3445939>
- Subrahmanyam, S. (2025). Psychological Impact of AI Moderation. In *Content Moderation in the Age of AI* (pp. 191-220). IGI Global Scientific Publishing. <https://doi.org/10.4018/979-8-3373-0335-2.ch008>
- Talmatchi, M. L. (2025). THE INFLUENCE OF ARTIFICIAL INTELLIGENCE ON COMMUNICATION. *Scientific Bulletin-Nicolae Balcescu Land Forces Academy*, 30(1), 115-124. <https://doi.org/10.2478/bsaft-2025-0014>
- Turkkan Zencirli, B., & Altin, M. (2025). The impact of artificial intelligence on workplace dehumanization: a critical review. *Journal of Hospitality and Tourism Horizons*, 1(2), 128-149. <https://doi.org/10.1108/JHTH-01-2025-0014>
- Vistorte, A. O. R., Deroncele-Acosta, A., Ayala, J. L. M., Barrasa, A., López-Granero, C., & Martí-González, M. (2024). Integrating artificial intelligence to assess emotions in learning environments: a systematic literature review. *Frontiers in psychology*, 15, 1387089. <https://doi.org/10.3389/fpsyg.2024.1387089>
- Wu, Q., Liu, X., & Zhong, R. (2025). Study of adoption of AI-generated health information in video platforms using SEM and fsQCA. *Aslib Journal of Information Management*, 1-27. <https://doi.org/10.1108/AJIM-01-2025-0037>
- Wu, Z. (2024). Responding to morality by empathy: The interplay of empathy and morality in the collectivist culture. In *Addressing global Challenges-Exploring Socio-Cultural dynamics and sustainable solutions in a changing world* (pp. 211-218). Routledge.
- Yanzeng, Z., Keyong, Z., Haixin, X., Jun, Z., Jiaying, Z., Runhao, L., & Lijing, W. (2025). Enhancing Self-Disclosure Intentions in Mental Health Support: The Catalytic Effect of Chatbot Bubble Coloring, Moderated by Expressive Suppression and Mediated by Information Processing Fluency and Perceived Initial Trust. *International Journal of Human-Computer Interaction*, 1-20. <https://doi.org/10.1080/10447318.2025.2575298>
- Zhang, A., & Rau, P. L. P. (2023). Tools or peers? Impacts of anthropomorphism level and social role on emotional attachment and disclosure tendency towards intelligent agents. *Computers in Human Behavior*, 138, 107415. <https://doi.org/10.1016/j.chb.2022.107415>
- Zhang, G., Wang, X., Xie, J., & Hu, Q. (2024). A mechanistic study of enterprise digital intelligence transformation, innovation resilience, and firm performance. *Systems*, 12(6), 186.
- Zivkovic, S. (2022). Empathy in leadership: how it enhances effectiveness. *Economic and social development: Book of proceedings*, 454-467.