

# When AI Gets Personal: Employee Emotional Responses to Anthropomorphic AI Agents in a Virtual Workspace

## Abstract

Understanding how AI influences employee emotions is becoming critical as organizations prepare for widespread AI agent deployment. While existing research has explored human-AI interactions in corporate settings, little is known about how employees emotionally navigate relationships with AI agents exhibiting distinct personality traits. This empirical study examines white-collar employees' emotional responses while interacting with three generative AI agents in a virtual workspace, revealing novel social dynamics enabled by AI technologies. Using qualitative methods and inductive analysis, our findings show that anthropomorphic AI agents evoke a broad spectrum of emotions, from *connection* and *contentment* to *amusement* and *frustration*, extending beyond those typically triggered by web-based AI agents. Notably, participants experienced new emotional subsets, including unique manifestations of *relational assurance* and *perceived worthlessness*, which introduces new emotional subcategories within established frameworks.

Moreover, the visual embodiment of AI agents in virtual workspaces significantly shapes user expectations and satisfaction. While a more human-like appearance can enhance engagement, it also introduces risks—a mismatch between an AI's visual representation and its actual behavior can heighten disappointment if the AI fails to meet human-like expectations. As organizations integrate AI agents into the workplace, our findings provide key insights for designing effective human-AI interactions. We emphasize the importance of human-centered design approaches that foster, rather than hinder, employee engagement, ensuring AI contributes positively to corporate environments.

**Keywords:** Artificial Intelligence, Anthropomorphism, Emotions, Human-AI Interaction, Virtual Reality.

## 1. Introduction

As artificial intelligence (AI) continues to evolve, its role in shaping human-AI interaction has expanded beyond automation and efficiency (Collins et al., 2021; Sundar, 2020). With the rise of Generative AI, which leverages advanced machine learning algorithms to create content and

simulate human-like behaviors, there is a growing need to understand how these systems engage with users on emotional and psychological levels (Kim & Im, 2023).

Emotions play a critical role in workplace dynamics, impacting team cohesion, collaboration, and overall productivity (Stam & Stanton, 2010). As organizations increasingly adopt sophisticated AI tools, understanding the emotional dynamics between humans and AI becomes crucial (Einola et al., 2023). Considerable studies have delved into the emotions experienced while interacting with web-based AI chatbots, which typically operate through text-based or voice-enabled chatbots that operate on webpages (Gupta et al., 2020; Kim & Im, 2023). For example, anthropomorphic AI is often presented as an assistant or friend to customers. This human-like design encourages customers to continue using the technology and positively influences their usage intentions (Qi et al., 2025; Zhao et al., 2025). Einola et al. (2022) suggest that integrating an AI chatbot within a corporate setting can reinforce existing team emotions while also potentially generating new ones. Another study revealed that the anthropomorphism of AI agents in managerial positions could have unintended consequences, highlighting how the perceived human-like traits of AI can influence employee perceptions and interactions (Yam et al., 2022). While previous studies have focused primarily on examining emotions during interactions with generative AIs, such as chatbots, there is a lack of empirical studies examining human-AI interactions with more advanced, anthropomorphic AI agents (Einola et al., 2023; Xie et al., 2023).

This study aims to address this gap by investigating the emotional responses of employees as they interact with anthropomorphic AI agents. Focusing on individuals' experiences with three distinct AI agents within an immersive virtual workspace, the study seeks to uncover patterns and insights that reveal how employees emotionally engage with AI agents, particularly those exhibiting human-like characteristics. Rather than setting hypotheses, the research anticipates extending the four emotion categories previously defined by Gkinko and Elbanna (2022). Specifically, we expect to find that some emotions within these established categories may be more pronounced when interacting with highly anthropomorphic AI agents compared to less anthropomorphic AI agents. Additionally, we anticipate discovering a new set of emotions related to voice-based communications and distinct physical presence of the AI agents, which may significantly differ from interactions with traditional AI systems.

As a result, the research questions are formulated as follows: 1) What range of emotional experiences do individuals encounter when interacting with AI agents in a virtual workspace, particularly when engaging with highly anthropomorphic AI agents? 2) How do the emotional

responses identified in this study compare to and extend upon previous findings on user emotions during interactions with AI agents?

By examining these questions, our study aims to develop a comprehensive understanding of emotional dynamics in human-AI interaction. The objectives include discovering new or more nuanced emotions that emerge when users engage with advanced, anthropomorphic AI agents, and exploring how tendencies to anthropomorphize influence user perceptions.

## **2. Literature Review**

### **2.1 Anthropomorphism and AI**

The term anthropomorphism derives from Greek, combining "anthropos" (human) and "morphe" (shape or form)(Epley et al., 2007). It encompasses the attribution of human characteristics to various entities, including nonhuman animals and mechanical or electronic devices. These nonhuman entities may display either imagined or actual human-like behavior, though most are perceived as autonomous (Epley et al., 2007; Kim & Im, 2023).

In information systems, anthropomorphism stands as one of the most extensively studied concepts in human-computer interaction and plays a fundamental role in AI system development (Cheng et al., 2022; Xie et al., 2023). Anthropomorphism was revealed as a significant positive antecedent of user attitude in a study on AI adoption (Polyportis & Pahos, 2025). The "Computers are Social Actors" paradigm suggests that humans naturally employ social cues when interacting with computers, often treating them as human entities (Nass et al., 1994; Pelau et al., 2021). This behavior emerges not from conscious beliefs about computers being human or human-like, but from the inherent ease with which these social responses are triggered. Grounded in anthropomorphism, this tendency reflects our subconscious interpretation of intelligent behavior as indicative of human-like qualities (Seaborn et al., 2021).

In workplace settings, an anthropomorphized virtual agent can prove beneficial by helping users navigate new software and manage information overload (Kim & Im, 2023; Yin et al., 2024). These virtual agents can also cultivate social bonds and foster connection among users (Lu et al., 2024). The intensity of these social bonds correlates with the degree of human features displayed, such as hair and eyes (Epley et al., 2007). Research indicates that individuals assess varying levels of trustworthiness in social robots based on facial features (Song & Luximon, 2021). Voice serves as another crucial human-like attribute. Similar to human interactions, a virtual assistant's voice can trigger gender stereotypes that shape

perceptions (Nass et al., 1994). Moreover, anthropomorphism extends beyond superficial appearances and behavioral descriptions (such as calling a robot "friendly"); it encompasses the attribution of human-like motivations, emotions, characteristics, and cognitive conditions—including rational thought, conscious experience, and intentions—to nonhuman entities (Gkinko & Elbanna, 2023). For instance, Hong and colleagues (2024) found that the perceived social agency—a more advanced form of anthropomorphism tied to contextual awareness—influenced levels of trustworthiness, suggesting that a shift towards increasingly autonomous AI agents capable of more nuanced social interactions may result in more positive emotional experiences for its users.

Nevertheless, anthropomorphism carries potential drawbacks. Users may over-attribute intelligence, intentions, and capabilities to these agents, leading to unrealistic expectations about their abilities (Marakas et al., 2000; Seaborn et al., 2021). While human-like agents can effectively engage and entertain users, they may also prove distracting or even intimidating (Xie et al., 2023). For example, the uncanny valley theory suggests that increasing levels of anthropomorphism enhance user experience only up to a certain threshold, beyond which they may generate negative effects (Airenti, 2015).

## **2.2 Embodied AI in Virtual Workspaces**

One vision for the future of work envisions individuals working from anywhere, using minimal portable input devices and an immersive head-mounted display (Purdy, 2022). Advanced extended reality technology enables unique virtual workspaces where people can collaborate and interact freely, unrestricted by physical limitations such as space constraints (Chen, 2024; Šímová et al., 2023).

Embodied AI avatars in these virtual workspaces represent cutting-edge technology that merges AI capabilities with immersive experiences. Through virtual reality, individuals can visually perceive and interact with these smart agents in a three-dimensional environment, creating a sense of shared social presence (Bickle et al., 2019). This innovative approach facilitates engagement with AI agents through virtual avatars, enabling more interactive and lifelike interactions (Dubosc et al., 2021). These avatars extend beyond human representation to embody intelligent software agents, expanding the possibilities for human-machine interaction (Dubosc et al., 2021; Tsumura & Yamada, 2023). However, the effectiveness of VR applications depends on users perceiving and responding to virtual humans in a socially

realistic manner; while numerous studies indicate that people can engage socially with them, this engagement is not guaranteed (Kyrilitsias & Michael, 2022).

The benefits of this technology have been demonstrated across various sectors. In academic settings, immersive VR environments integrated with AI enhance medical skills training, such as surgeon suturing, through interactive simulations (Esfahlani et al., 2020). This combination has also proven effective in robot-assisted training and education, showcasing the synergy of these technologies for educational purposes (Winkler et al., 2019). Companies are exploring applications in virtual meetings, firefighting training simulations, and AI-driven customer service interactions to deliver more personalized and engaging user experiences (Abdullah et al., 2021; Malik et al., 2020; Truong et al., 2022).

The integration of embodied AI avatars into virtual workspaces represents a significant advancement that could transform how we work and interact by combining sophisticated AI and VR technologies (Purdy, 2022). As research progresses, we anticipate further developments in this technological convergence across various applications. However, there remains a notable lack of empirical research on the emotional dynamics of human-AI interactions in virtual workspaces, particularly in corporate settings where the adoption of anthropomorphic AI and advanced VR technology remains limited (Einola et al., 2023; Park et al., 2023). Addressing this gap is crucial for making AI agents more appealing and less intimidating for corporate adoption. This is especially significant given that traditional office environments continue to rely on static workstations and laptop configurations, despite the technological advancements that have permeated our private lives through AI and VR applications (Grubert et al., 2018).

### **2.3 Emotions in Human-AI Interaction**

Despite the rapid advancement of AI technology, research on human emotional experiences during AI interaction remains in its nascent stages. Current studies predominantly focus on enhancing AI capabilities rather than understanding users' emotional experiences during AI collaboration (Kim & Im, 2023). This gap is particularly significant in workplace settings, where emotions fundamentally shape how employees adopt, implement, use, and maintain engagement with information technology (Gkinko & Elbanna, 2022).

Recent research has begun exploring emotional responses to AI systems. A study of service robots demonstrated that consumers experienced positive emotions toward AI with higher automated social presence, as it made them feel understood, empowered, and connected. These

positive emotions enhanced their perception of functional and social value, along with their willingness to use robots in the future (Flavián et al., 2024). Similarly, research on emotional responses to AI chatbots has revealed that emotions such as hope, tolerance, and empathy are shaped by AI interactions and influence continued use (Einola et al., 2023).

In organizational contexts, emotions serve a vital role in leadership, decision-making, and knowledge management (Elfenbein, 2023; Menges & Kilduff, 2015). The integration of AI agents can intensify existing team emotions, potentially amplifying tensions between management and employees (Einola et al., 2023). Studies have also established clear connections between emotions and technology acceptance, with feelings such as anxiety and trust significantly influencing how individuals perceive new technologies (Ahmad & Ali, 2018; Beaudry & Pinsonneault, 2005).

While earlier research on emotional responses to technology primarily concentrated on negative emotions such as technostress (Beaudry & Pinsonneault, 2005), recent studies indicate that AI interactions elicit a broader spectrum of emotions, highlighting the complex and multifaceted nature of emotional responses triggered by modern technologies (Gkinko & Elbanna, 2023). Beaudry's framework suggests that users appraise technology based on goal achievement and control, leading to distinct emotional responses such as happiness or anxiety (Beaudry & Pinsonneault, 2010). Greater recognition of these emotional experiences in human-AI collaboration can foster more natural interactions (Kim & Im, 2023)

### **3. Theoretical Background**

#### **3.1 Emotional dynamics in Human-AI interaction**

This study builds upon and extends insights from Gkinko and Elbanna's (2022) study, which provides a comprehensive exploration of employees' emotional responses to *AI chatbots* in workplace settings. Their multi-year study investigated the emotional dynamics surrounding interactions with a corporate chatbot, revealing four primary categories of experienced emotions: *connection* (empathy, forgiveness, compassion, fairness, and kindness), *contentment* (satisfaction, happiness, pleasure, and convenience), *amusement* (excitement, curiosity, hope, anticipation, escapism, and playfulness), and *frustration* (dissatisfaction, annoyance, and frustration). This section summarizes their most relevant findings as our theoretical background. Remarkably, their study uncovers *connection* emotions specifically related to AI chatbots. Users expressed *empathy* and *forgiveness* towards the chatbot, recognizing its status as a

learning entity and feeling responsible for its development. This sense of connection led users to actively engage with the chatbot, contributing to their willingness to tolerate its errors. Furthermore, users recognized and valued the chatbot's anthropomorphic features and social characteristics, beginning to view it as an embodied entity.

Moreover, *contentment* emotions were experienced based on two different appraisals. One of the appraisals evaluated the outcome regarding the task posed, where users felt positive emotions if they perceived the task was completed. Another appraisal focused on the process of finding answers, where users expressed satisfaction when they found the chatbot helpful in achieving the task. Users also expressed the feeling of convenience when comparing the chatbot's assistance to other methods of seeking assistance. Similarly, users experienced *excitement* and *curiosity* due to the novelty and interactive features of the chatbot, illustrating *amusement* emotions. These emotions were not triggered solely by the novelty of the technology but by various appraisals, including ongoing conversations about AI, its innovative nature, and its capability to acquire knowledge stemming from its machine learning functions.

However, *frustration* emotions emerged when the chatbot failed to facilitate task progression or provide relevant suggestions. Frustration emotions were influenced by several appraisals, such as issues related to task completion, alignment with the task, and its pace of learning. Moreover, people felt *disappointed* when comparing the chatbot to their expectations of AI technology, particularly its learning ability. Others were *frustrated* by their inability to comprehend how the AI's logic worked and how it processes things, ultimately leading to their discontinuation of the chatbot's usage. These mixed emotions significantly influenced users' attitudes towards chatbot adoption within the organization.

Additionally, their investigation underscores the importance of considering both "form" and "function" in AI chatbot design as crucial factors for promoting chatbot adoption. Regarding "form", the researchers emphasize the design features, such as *social presence* and *anthropomorphic characteristics*, which influence users' emotional responses. In terms of "function", they highlight how users perceive the AI chatbot's underlying *machine-learning* technology as a human-like learning process.

Therefore, this study builds on the emotional responses observed in chatbot interactions as a theoretical foundation to explore emotions in interactions with anthropomorphic AI agents.

### 3.2 The Linguistic Category Model

While emotion categories are based on four predefined groups—connection, contentment, amusement, and frustration—we incorporated the Linguistic Category Model (Fussell et al., 2008) to assess the level of anthropomorphism and analyze these emotions in our interview transcripts at varying levels of abstraction. People’s perceptions of android behavior can be inferred from the language used to describe it, as Fussell et al. (2008) suggest. Researchers have adapted Semin and Fiedler’s LCM to examine how word choice influences the anthropomorphizing of robots. The model classifies behavioral descriptions into four levels of abstraction: descriptive action verbs, interpretive action verbs, state verbs, and adjectives (Fussell et al., 2008; Semin & Fiedler, 1988). This framework can also be applied to identifying implicit emotional expressions. For instance, action verbs can be linked to specific emotions based on how they represent human actions or interpretations of AI behavior.

Different levels reflect varying degrees of anthropomorphism, with descriptive verbs being the least anthropomorphic and adjectives being the most. For example, a descriptive verb such as *"The robot dog barked at me"* conveys a neutral action, whereas an interpretive verb like *"The robot dog threatened me"* implies intent, thereby increasing anthropomorphism. Words like *"threaten"* suggest that the robot possesses an intention to intimidate—an attribution that, as previously discussed, constitutes anthropomorphism (Fussell et al., 2008; Semin & Fiedler, 1988). State verbs and adjectives further enhance anthropomorphism by assigning internal mental states and character traits to the robot. For instance, a state verb like *"The robot dog despised me"* implies psychological or emotional states, while an adjective such as *"The robot dog is aggressive"* represents the highest level of anthropomorphism, as it attributes a persistent trait that can apply across different contexts (Fussell et al., 2008; Semin & Fiedler, 1991). This framework provides a valuable lens for understanding human reactions to AI behavior.

The LCM also enables us to identify patterns in employees' emotional responses to AI agents. Frequent use of adjectives like *"frustrating"* suggests strong emotional reactions, whereas interpretive verbs such as *"tries to"* indicate more nuanced perceptions. The model also uncovers implicit emotions through inferred meanings. For example, in the statement *"The AI seems to ignore my questions,"* the verb *"ignores"* suggests frustration, even if not explicitly stated. Additionally, abstract descriptions often reflect higher expectations for the AI, for instance, adjectives like *"unreliable"* may indicate disappointment when those expectations are unmet. By systematically capturing both explicit and implicit emotions, the LCM supports our data analysis and provides deeper insight into human-AI interactions.

## 4. Methodology

This study employed a qualitative methodology, incorporating interviews and observations as key methods aligned with this approach (Creswell, 2014). These methods are well-established in the field of information systems research for understanding novel phenomena (Davies & Hughes, 2014; Patton, 2014). The aim of this study is to understand and explore human emotions within a specific and novel context: Human-AI interaction in a virtual workspace. This objective is well-aligned with the exploratory qualitative approach, which is designed to produce holistic understandings of rich, contextual, non-numeric data, making it ideal for understanding user emotions, as well as individual behavior (Creswell, 2014). Given that research in emerging technologies is inherently exploratory and lacks established constructs or predefined hypotheses, this characteristic further justifies the use of the qualitative methodology as the most appropriate approach for this study. This study also adhered to established ethical guidelines for AI research, including ensuring data privacy, avoiding the use of personally identifiable information, and maintaining transparency (Jobin et al., 2019)

### 4.1 Study Context

The head-mounted display (HMD) utilized in this study was a Meta Quest 3, immersing participants in a virtual office environment. Within this virtual office, participants had a small “window” to reality, allowing them to see the keyboard and mouse in front of them for typing purposes. Beyond this window frame, everything else was digitally generated to simulate an office setting. Participants could still perceive their hands within the window frame; however, if their hands extended beyond, they appeared as graphic representations of their outlines. The computer screen was seamlessly integrated into the virtual office, displaying the actual screen content but on a larger scale. As participants only needed to type and use the mouse, controllers were not necessary. The HMD included an integrated microphone for communication with the voice-based AI agents, along with built-in speakers for auditory interaction. Three distinct AI agents were assigned to participants respectively, and they are introduced below. For all AI agents, communication could occur in German or English.

#### *Chatbot (low-anthropomorphic)*

One of the AI agents presented to participants was the chatbot, a stripped-down version of ChatGPT-3.5, limited to responses of up to a maximum of 25 words. Interactions with ChatGPT occur through “prompts”, written textual cues made for communicative objectives, frequently containing instructions that ChatGPT must follow. The same interactive style was

employed here, with all communication between the Chatbot and participants being text-based (see Figure 1).



Figure 1: Visualization of interaction with chatbot.

### ***Desk Robot (middle-anthropomorphic)***

The desk robot is a slightly more anthropomorphic version of the chatbot. This *voice-based AI* agent communicated with participants through speech, eliminating the need for written prompts. Similarly, it responded verbally rather than through text, enabling direct verbal interaction with participants that mimic human social interactions. Furthermore, the desk robot resembled a human more closely than the chatbot, embodying a humanoid avatar. However, to make it less anthropomorphic than the following AI agent, it lacked a specific name and more distinct human features (see Figure 2 & 3).



Figure 2: Desk robot from a participant's view.

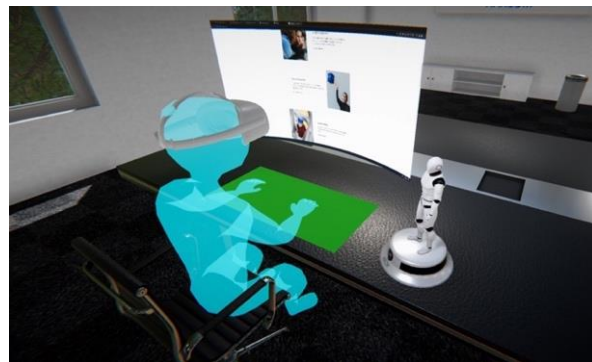


Figure 3: Visualization of interaction with desk robot.

### ***Johan/na (high-anthropomorphic)***

The high-anthropomorphic AI agent had the most human features out of all AI agents employed in this study. These AI agents were named Johan and Johanna and bear a striking resemblance to humans in appearance (see Figure 4). They possessed a human-like physique, had facial features, and wore human clothes. Similarly to the desk robot, both were voice-based and interacted with participants in the same way (see Figure 5 & 6), with the only addition being a predefined introduction of the AI agent. Johanna had a female voice, whereas Johan had a male

voice. Accordingly, Johan and Johanna represented highly anthropomorphic AI agents in our study, characterized by their highly realistic human-like representations and interactions.



Figure 4: Johanna and Johan.



Figure 5: Visualization of interaction with Johanna.



Figure 6: Johan from a participant's view.

## 4.2 Methods

Twenty employees from various companies in Switzerland participated in our study, with each session lasting approximately 30 minutes. To reduce linguistic barriers and encourage detailed responses, participants were given the option to select their preferred language. As a result, four interviews were conducted in German, while the remaining sixteen were conducted in English. The interview transcripts were manually formatted and reviewed for accuracy, yielding 314 codes related to emotions. The final sample comprised 20 participants, with sample size determined through theoretical saturation (Saunders et al., 2018), Saturation was initially assessed after 18 interviews, when participant responses began showing consistent patterns with no new emotional themes emerging. Two additional interviews were conducted to confirm saturation, validating that all categories within the existing theoretical framework had been identified and no emotional patterns emerged beyond those previously identified from the interviews. This confirmation of theoretical saturation indicated that further data collection would not yield significant new insights.

### *Semi-Structured Interviews*

The participants were chosen based on the concept known as *purposive sampling*. The goal of this selection method is to select those individuals who will produce the most essential and profuse information given the topic of the study (Yin, 2016). Only white-collar workers were invited to participate and interact with AI agents in the virtual workspace, as this scenario corresponds best with office work. The rooms prepared by the companies for our field visits featured identical setups. Employees applied through our contact person and received invitations separately. Upon arrival, they were guided through the following process: First, participants received information and assistance from our operator. They were then given a few minutes to acclimate to the virtual workspace. Next, they were introduced to three distinct AI

agents in a randomized order and engaged in brainstorming tasks with them to improve organizational procedures. After interacting with the AI agent, participants entered their solutions using the real keyboard, with their corresponding responses displayed on a virtual screen in front of them.

### ***Observations***

Observations captured primary data like body language, facial expressions, and communication patterns, which may not be consciously recognized by the participants themselves, enhancing data richness (Creswell, 2014). To not influence participants' behaviors by the known presence of an observer, the room was only entered once the participant had the HMD on, making it unfeasible for them to see their real-world surroundings (Creswell, 2014). All participants were informed afterward to obtain their permission to retain the observation notes. However, if technical issues occurred and the HMD had to be removed, the field notes noted that the participants became aware. The observations focused on employees' attitudes to different AI agents, their gestures during communication for the brainstorming tasks, and notable actions such as turning heads, waving hands, and greeting the AI agents.

Table 1. Observation Summary

Summary	Evidence
Interaction with Johan/na: Participants tended to be more polite.	Frequently turned to Johan/na while speaking.
	Greeted Johan/na with a hello or a hand wave.
	Used polite expressions like "please" and "thank you" more often during conversations.
Interaction with Desk Robot: Participants tended to be controlling	Mostly stared at the screen instead of turning to the desk robot while speaking
	Used direct commands, such as "Tell me..." or "Explain..."
	Rarely used polite expressions like "please" and "thank you."

### **4.3 Data Analysis**

Using an inductive approach, we explored the emotions that emerged from interactions between employees and three distinct AI agents.

Our analysis began with extracting interview transcripts that contained emotional references, based on prior studies of web-based AI chatbots (Gkinko & Elbanna, 2022). First, we labeled explicit emotional expressions with their corresponding emotions. For instance, the statement *"Uhm, because now I find it more convenient"* was categorized under the emotion of *convenience*. For more implicit emotional expressions, we applied the Linguistic category model (Fussell et al., 2008) as a tool to assist in our coding process. Action verbs were linked

to specific emotions based on how they represented human actions or interpretations of AI behavior. For example, in the statement "*The AI seems to ignore my questions,*" the verb "*ignores*" was classified as an interpretive action verb, suggesting frustration even though the emotion was not explicitly stated. Similarly, verbs such as "*engages,*" "*helps,*" "*understands,*" and "*supports*" were categorized under the emotion of *connection*, while verbs like "*amuses,*" "*surprises,*" "*delights,*" and "*entertains*" were associated with *amusement*.

During this initial phase, we also identified emotions that had not been previously defined in the literature. These emotions were contextualized using transcript summaries and categorized accordingly. For example, *trust* emerged as a distinct emotion and was later grouped under the broader category of *connection*.

In the next stage, we refined our categorization by grouping these newly identified emotions into subcategories based on shared characteristics. This process led to the identification of two subset categories: *relational assurance* and *perceived worthlessness*. *Relational assurance* describes the sense of familiarity and relatedness individuals experience in a relationship, particularly when AI provides support that fosters a sense of closeness. The concept of assurance, as defined by Yamagishi and Yamagishi (1994), refers to "*an expectation of benign behavior for reasons other than goodwill of the partner.*" Relational assurance falls within the category of connection-related emotions and encompasses feelings of familiarity, comfort, and relatedness. Likewise, *perceived worthlessness*—a term derived from psychopathology, particularly in relation to depression—captures self-blaming emotions and skepticism (Zahn et al., 2015). This subcategory, classified under frustration-related emotions, includes emotions such as *regret* and *skepticism*.

In the final phase of analysis, we refined and adjusted the emotion labels to ensure they accurately aligned with their respective categories. This iterative process is illustrated in Figure 7, with detailed coding documentation provided in the appendix. To validate our findings, three authors independently reviewed and labeled the codes. Any discrepancies were resolved through discussion until a consensus was reached. As a result of this analysis, four main themes emerged, each corresponding to one of the four emotion categories. These findings will be elaborated on in the following section.

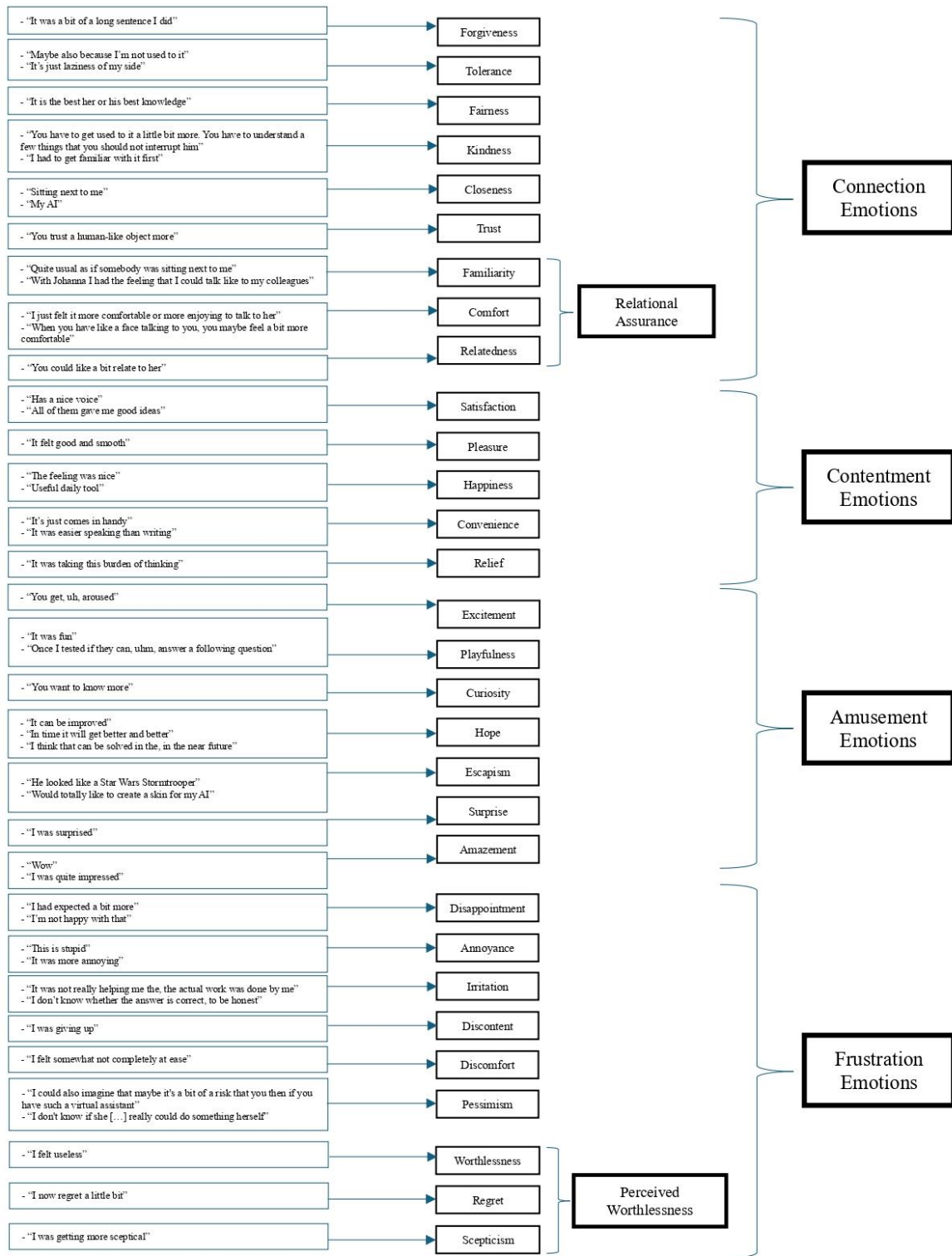


Figure 7. Emotions Emerging from Interactions with Anthropomorphic AI, adapted from Gkinko and Elbanna (2022).

## 5. Findings

In this section, we present four themes that emerged from our theoretical framework and data analysis: (1) Connection Emotions, (2) Contentment Emotions, (3) Amusement Emotions, and (4) Frustration Emotions. Notably, our analysis identified new subset emotions that expand upon those found in previous research (Gkinko & Elbanna, 2022).

### 5.1 Connection Emotions

We identified several emotions within the *Connection* emotions category, including *forgiveness, tolerance, fairness, kindness, closeness, trust, and relational assurance*.

Emotions such as tolerance, fairness, kindness, closeness, and implicit forgiveness emerged during the interaction between participants and the AI agents, aligning with findings from previous studies on web-based AI chatbots (Gkinko & Elbanna, 2022).

Tolerance and implicit forgiveness emerged especially when interactions did not go smoothly, and it happens more frequently during interactions with highly anthropomorphic AI agents. The strong influence of Johan/na's *form*, in terms of their human-like appearance is evident in the interview's description. Here, the interviewee ascribes an adjective "*confused*" – a mental state of confusion – to Johan, showcasing the highest level of anthropomorphism.

*"I think he (refers to Johan) always understood me correctly. I think once he – think **it was a bit of a long sentence I did, maybe. Then he's like – he was a bit confused.**"* Interviewee 2.

Kindness and closeness occurred when participants immersed themselves in the virtual workspace and felt proximity to the visualized AI agents. Particularly the highly anthropomorphic AI agents elicited kindness and closeness. For instance:

*"It feels more...**closer**... Like in ChatGPT, you know, it's a server in California, **so distant**. While here, it's like, oh, you're sitting beside me."* Interview 12.

Trust was identified as a new connection emotion in this study. Overall, participants showed *fairness* to the assistants and believed the AIs' answers were based on the best knowledge available, given the current limitations. However, they expressed some skepticism, stating that they would double-check the answers with more time available. Although, some mentioned they would do the same if the answers came from a real person. This indicates that while employees feel a connection to the AI agents, they remain cautious and do not blindly trust them.

*“I **trust** that it is the best, her or his best knowledge, but I definitely would double-check it with more time on hand.”* Interviewee 6.

*“I think it's **more trustworthy**...because for most part of my life, machines weren't as intelligent, obviously, as people. And so, if you talk with somebody (refers to Johan/na), you have the feeling that there is much more behind it.* Interviewee 15.

*Relational assurance* emotions do not form a distinct emotion group but rather a newly defined subset of the *connection* emotions through our study. The main emotions within relational assurance emotions include “*familiarity*”, “*comfort*” and “*relatedness*”. These are not truly “emotions” but rather aspects of perception or relational feelings. They arise from recognizing human-like attributes in the AIs that are commonly encountered in interactions with humans, such as their communication style and appearance.

Individuals felt a greater familiarity or identification due to Johan/na’s human-like appearance. For example, some interviewees considered Johan/na as a colleague but saw the desk robot as a toy despite its technical functionality being like Johan/na’s, illustrating how outward appearance impacts perception. Feeling “comfortable” was described, and it symbolizes comfort and reflects the participants’ increased trust and confidence when interacting with a more human-like AI. The interviewee’s trust in Johan/na’s answers underscores the emotional connection and sense of reliability associated with interacting with a human-like AI.

*“It’s just because you have a face. It’s, it’s maybe **a bit more familiar**. You think yeah, you can talk to somebody actually... when you have like a face talking to you, you maybe feel **a bit more comfortable**...when there is a face, you feel more that it’s a co-worker. And with the other one, I think I answered it’s more of a tool with the desk robot.”* Interviewee 2.

However, as embodied AIs conversing through voice represents a novel and relatively unknown topic for most individuals, people are uncertain about how to categorize them, this may cause unfamiliarity even with highly andromorphic AI agents.

We observed noticeably more frequent behaviors, such as turning to Johan/na, greeting them, and using phrases like “please” and “thank you,” compared to interactions with the desk robot or chatbot. Participants tended to prefer shorter and simpler prompts with the robot, while feeling that they could engage in more extensive conversations with Johan/na. Although both AI agents understood the questions similarly, there was an internal perception on the part of the users that they needed to be more precise with the robot. This reflects the tendency to anthropomorphize AI more than the desk robot, expecting them to “interpret” instructions.

“...with the robot (desk robot), I had more the feeling to make the answers short and simple. With Johanna I had the feeling that **I could talk like to my colleagues**... because it (desk robot) looks more like a machine, and I know that to machines you have to give very precise instructions... And with humans you expect that they have also **the awareness** and maybe to interpret it something I want.” Interviewee 6.

However, some participants found Johan/na’s human-like appearance unsettling or uncomfortable in the virtual workspace. For instance, referring to the AI as 'the woman' reflected an extreme form of anthropomorphism, suggesting that its visual representation may have unintentionally crossed acceptable boundaries of human-machine interaction. This finding highlights the significant influence of an AI agent’s appearance on user perception, revealing that emotional responses are complex and vary widely based on individual preferences and psychological thresholds (Stein & Ohler, 2017).

## 5.2 Contentment Emotions

Emotions such as *satisfaction*, *pleasure*, *happiness*, and *convenience* were reported during interactions and categorized as *contentment* emotions, consistent with previous research on human interactions with web-based chatbots. However, this study also identified a new form of contentment, labeled '*relief*'.

*Contentment* emotions were influenced by various factors, including the novelty of technology, task achievement, the outcome of interactions, and the process of finding answers—aligning with the findings of Gkinko and Elbanna (2022). Participants expressed satisfaction based on their evaluation of the assistants' overall performance, feeling pleased and happy when the AI provided helpful and high-quality responses. As one interviewee stated:

“*But yeah, I think the answers were good.*” Interviewee 3.

Participants also mentioned which communication style they enjoyed the most and felt most convenient. Some experienced contentment based on appraisals of the textual communication provided by the chatbot. The reason for it was mainly a practical one: most individuals appreciated the structured and on-point textual output, highlighting their positive experience with the clarity and organization of the information provided. Its ease of comprehension and the ability to visually assess relevance while reading was appreciated. The option to easily copy-paste solutions was also valued, leading to increased ease. For many, the textual output was *familiar* (relational assurance emotions), resembling their daily interactions with other AI agents like ChatGPT. Others appreciated these factors so much that they preferred textual

communication over combining AI with VR. Besides the different communication styles, participants also considered Johan/na's appearance, social interactions, name, clothes and even voice when appraising their satisfaction.

*"It was great. It was a **new thing** for me. Like I've never used, uh, VR setup, AI and I'm curious type. So overall I, I liked it."* Interviewee 5.

*"It was the **same size** like me. It was a feeling of she's in the same boat... she's the **same height**. She's also working on a computer. It generated the **feeling of a colleague**."* Interviewee 13.

The emotion of *relief* emerged as a novel finding in our study. Unlike previous research, where participants used AI for relatively simple tasks such as opening IT tickets, our study involved interactions requiring creative problem-solving. As a result, participants experienced *relief* when the AI's assistance eased the burden or stress of completing tasks. However, this sense of relief was often intertwined with lingering frustration and a feeling of unfulfillment.

*"Well, the thinking just (laughs) is, uhm, not a problem of mine anymore... But uhm, yeah, you're just not so fulfilled with your work."* Interviewee 3.

This unfulfillment led users to feel uncomfortable with the idea of depending on AI and they felt the need to justify their reliance on it. Others, however, were not bothered by this and appraised the AI agents based on their convenience and precision compared to internet search.

### 5.3 Amusement Emotions

Participants also *experienced excitement, playfulness, curiosity, hope, escapism, and anticipation*, all categorized under *amusement* emotions. Additionally, our study identified '*surprise*' and '*amazement*' as novel emotions within this category. Participants viewed the integration of AI and VR as part of the modern workplace and the future of office jobs, which sparked curiosity, excitement, and a strong eagerness to engage. The novelty of interacting with visualized AI agents in a virtual workspace suggests that engaging with Johan/na evokes emotional responses like those experienced when encountering a real person.

Notably, participants displayed visible signs of amusement, such as smiling and looking around with interest as soon as they put on the HMD. As expected, emotions like '*excitement*' were more intense and expressed differently compared to interactions with simpler text-based chatbots in previous studies. Many participants were observed smiling or giggling out loud upon seeing an embodied AI agent for the first time, demonstrating feelings of anticipation, excitement, and playfulness.

The emotion of *surprise* was frequently mentioned during interviews. While AI agents are familiar to many, some people still have not encountered them before. The combination of AI and VR presents an even higher level of novelty, causing this extreme amusement reaction of surprise. This feeling was often mixed with *amazement* and *fascination*, expressed through words like *'Wow' or 'I was impressed'*. Participants were surprised by many aspects, such as Johan/na's human-like appearance, the speed of responses from voice-based agents, the depth of the AIs' answers, and the interactive engagement of Johan/na. The sense of presence made interactions more authentic, allowing participants to perceive them as a co-worker.

*"But when I was sitting there, I was **really amazed** like how human-like this robot already is. So, I think that was quite cool."* Interviewee 14

*"And I think it took, didn't take me too long to see him a bit as a co-worker and talk to him. So that was **quite surprising** for me, I have to say."* Interviewee 17

The high degree of anthropomorphism in AI agents, however, occasionally led to elevated user expectations. When these expectations conflicted with the AI's actual capabilities, some participants experienced disappointment and frustration rather than surprise. These reactions are discussed in the next section.

#### **5.4 Frustration Emotions**

Participants experienced a range of *frustration* emotions, including *disappointment, annoyance, irritation, dissatisfaction, frustration, and discontent*. Notably, due to the voluntary nature of participation, no feelings of resentment were reported. Additionally, our study identified *'discomfort'* and *'pessimism'* as novel frustration-related emotions. These emotions were triggered by various factors, including the quality of responses, the speed of conversation, and the appearance of the AI agents.

Participants were unsatisfied and felt underwhelmed when their expectations were not met. For example, when the AI misunderstood or failed to answer, participants were observed sighing in frustration but quickly forgave and continued asking questions out of curiosity about how the AI would respond. Additionally, due to Johan/na's human-like appearance, participants also appraised its perceived personality, expecting eye contact, gestures, and facial expressions. The lack of these led to disappointment, as they perceived Johan/na as unemotional. They anthropomorphized Johan/na to a high degree, attributing mental states and personalities to it. Consequently, this disappointment resulted in a withdrawal of the desire for *connection*, as users ceased attempting to engage with it. Johan/na's lack of responsiveness is echoed:

*“Johanna was also a bit, for me **a bit strange** because she gave me a bit of a “I don’t care” vibe because she was looking at her laptop and she **wasn’t looking at me.**” Interviewee 3*

High expectations often led to disappointment when these were unmet. Users felt let down when Johan/na did not meet their expectations for more dynamic interactions, particularly due to slower response times, which caused impatience and frustration. One interviewee expressed high expectations when collaborating with Johan/na, further amplifying their disappointment when those expectations were not fulfilled.

*“To be honest, I was **more frustrated** with Johan than I was with the robot. Just because, probably because of my expectation”.* Interviewee 1

Personal preferences also play a role in user perception. Some found Johan/na’s appearance unattractive and too neutral, resulting in a mix of dissatisfaction, boredom, and disinterest. Others, however, were uneasy about altering Johan/na’s appearance due to the uncanny valley effect, fearing that an AI that appeared "too human" could evoke discomfort (Airenti, 2015). A potential solution lies in virtual workspaces, where AI agents and other virtual elements can be easily customized and modified at a low cost, allowing users to tailor AIs to their preferences.

*Perceived worthlessness* was discovered in our study and categorized as a new subset of *frustration* emotions. This subset encompasses the feeling of losing autonomy or independence when heavily relying on AI agents to perform tasks. Specific emotions in this category include *worthlessness*, *regret*, and *skepticism*, alongside common frustrations ones.

Many participants did not invest much thought into their answers but rather copied what the AI suggested. This led to a perception that thinking became unnecessary. Participants viewed the interaction as one-sided, where they solely benefited from the AI, resulting in doubts about their worth in the interaction and feelings of being easily replaceable. This sense of feeling unnecessary led them to express a hypothetical deterrence, stating they would not want to use the AI long-term if they felt unnecessary in the process.

*“Honestly, why does it require me to answer this question if you can feed it straight to the robot and they can fill in the – the answers itself...I felt **useless**. I felt **uninvolved**.”* Interviewee 1

This fear of becoming unnecessary led some users to later regret how they approached the questions. For example, one interviewee reflected on the usefulness and effectiveness of the AI agents concerning their work, growing skeptical about whether AI truly improved their work or merely made them feel redundant. The better the AI’s answers were, the worse users felt about themselves, creating insecurity.

## 6. Discussion

In this study, we examined how the level of anthropomorphism in AI agents influences the emotional dynamics of human AI collaboration within professional settings. While earlier research has focused on the functional advantages of AI agents, the emotional effects of interacting with AI, especially those with strong anthropomorphic features, have received less attention (Sundar et al., 2025). Our investigation asks whether greater anthropomorphism expands users' emotional experiences and what new emotions might emerge, including whether it brings unintended emotional consequences that influence how employees perceive their roles in collaborative tasks.

To address this question, we observed employees engaging in a brainstorming session with AI agents of varying levels of anthropomorphism in a virtual workspace and qualitatively assessed their emotional experiences thereof. This methodological approach enabled us to capture behavioral interactions but also the more subtle emotional experiences that determine how effectively humans work together with AI agents. Our findings reveal newly identified emotional dimensions such as *relational assurance* (e.g., *familiarity* and *comfort*) and *perceived worthlessness*. As we illustrate in detail below, these insights expand our theoretical understanding of human-computer interactions, offering new perspectives on the relationship between anthropomorphic AI agents and human emotions. Moreover, this study provides guidelines for managers and AI developers, highlighting the need to balance anthropomorphic features, functional design, and user emotions in AI agents' development. Given the promising yet underexplored nature of this domain, our research bridges critical knowledge gaps in both academic discourse and organizational implementation.

### 6.1 Comparison with Previous Studies

The arrival of generative AI agents, particularly those with anthropomorphic features, compels a reevaluation of AI–human interaction (Liu & Yin, 2024). Previous research has explored AI's functional roles across various domains such as healthcare, consumer engagement, and workplace collaboration, while also recognizing the importance of emotional and social factors in AI design (Sundar et al., 2025). Our study embraces this paradigm shift by laying the groundwork through a detailed exploration of the human emotions experienced during interactions with different AI agents.

By capturing the full spectrum of these emotions, we provide a foundational resource that can be leveraged to design more effective affective interaction models. In doing so, our work

contributes to advancing human-centered AI by offering nuanced emotional insights essential for creating AI systems that resonate more deeply with users. This, in turn, enhances the quality of human–AI collaboration in the workplace. As previously explored, employees experienced a wide range of emotions while interacting with anthropomorphic AI agents, encompassing connection, contentment, amusement, and frustration emotions (Gkinko & Elbanna, 2022). Within these broad categories, several new emotions emerged from our study, revealing important considerations for future AI agent deployment.

*Connection* emotions: Compared to previous studies in this field that primarily focused on web-based AI chatbots (Gkinko & Elbanna, 2023; Kim & Im, 2023; Leo, 2023), our study identified *relational assurance* as a new emotional subgroup, encompassing '*familiarity*,' '*comfort*,' and '*relatedness*.' While not strictly emotions, these perceptual and relational feelings stem from recognizing human-like attributes in AI communication and appearance. This highlights the significant impact of an AI agent's appearance on user perception, with emotional responses varying based on individual preferences. Given that human-like virtual avatars—who score higher in terms of *relational assurance*—are more commonly found to elicit trust and engagement amongst users (Kim et al., 2025), this new subgroup should not be readily disregarded. Future AI agent designers ought to carefully consider these aspects to better meet employee needs and enhance work engagement, as *relational assurance* can foster more familiar and comfortable working relationships with AI agents.

*Contentment* emotions: While similar to previous findings in this research field, '*relief*' emerged as a new form of contentment in our study. Unlike other studies involving trivial tasks, participants faced creative challenges with the AIs, leading to feelings of relief when receiving assistance. However, this relief sometimes led to discomfort about AI dependence and a need to justify their reliance on it. Training and AI agent design should address these negative feelings while ensuring job satisfaction alongside efficient AI assistance.

*Amusement* emotions: '*surprise*' and '*amazement*' newly emerging in our study. Participants viewed the AI-VR technology fusion as representative of the modern workplace, showing curiosity and eagerness to engage. The visualized AI agents in virtual workspaces evoked emotional resonance like human interactions, with participants visibly enjoying the experience. However, participants' expectations of highly anthropomorphic AI agents led to disappointment when these expectations were not met. These emotions should thus be leveraged during the initial technology adoption to improve organizational acceptance.

*Frustration* emotions: '*discomfort*', '*pessimism*', and '*perceived worthlessness*' were discovered in our study. '*discomfort*' and '*pessimism*', often stemming from AI agents' appearance, can be addressed through customizable virtual workspaces, in which all the virtual elements can be easily customized and modified at low cost. '*Perceived worthlessness*' emerged as a subgroup encompassing feelings of lost autonomy and independence when relying heavily on AI agents. To address these concerns, organizations should implement a "human-centered AI" approach, establishing clear guidelines that position AI as a collaborative tool under human direction. This includes investing in training that helps employees strategically use AI while maintaining their unique human skills.

## **6.2 Practical Implications**

This study provides valuable practical insights for managers and AI designers, emphasizing the critical importance of considering user emotions when developing human-centered AI agents. Our analysis highlights the significant role of anthropomorphic features such as appearance, voice, and conversational style in strengthening users' positive emotions during interactions with AI. Employees interacting with highly anthropomorphic AI agents experience a range of emotions, including connection, contentment, amusement, and frustration.

Notably, relational assurance (e.g., "familiarity" and "comfort") emerged as a newly identified emotional sub-dimension in this study, underscoring the substantial impact of AI agents' visual and interactive design on user perception. Designers should carefully balance anthropomorphic features to avoid creating a mismatch between user expectations and actual experience caused by excessive anthropomorphism.

*Amusement* emotions play a crucial role in the initial adoption of technology. In our study, employees exhibited strong curiosity and a willingness to engage with the integration of AI and virtual reality. However, unmet expectations regarding highly anthropomorphic AI agents sometimes led to disappointment. Therefore, during the early stages of technology adoption, organizations should leverage amusement-driven emotions to enhance acceptance through innovative interaction designs and immersive experiences.

*Frustration* emotions reflect employees' concerns about losing autonomy and independence due to overreliance on AI agents. To address these concerns, organizations should offer customizable appearances for AI agents to cater to diverse user preferences and psychological needs. Additionally, adopting a human-centered AI approach that clearly defines AI agents as collaborative tools under human leadership can help alleviate these concerns.

Polite conversational behaviors such as self-introduction, apologizing for misunderstandings, and responding with phrases like “you’re welcome” when thanked can significantly enhance interaction experiences. These behaviors make interactions feel more familiar and human-like, fostering stronger emotional connections and a sense of satisfaction. For example, employees may feel relieved when receiving assistance from an AI agent but might also experience discomfort from overdependence. To mitigate such negative emotions, designers should incorporate more human-centered elements into interaction design while implementing training programs and system features that balance AI support with user autonomy.

Additionally, the integration of VR and AI goes beyond virtual character design. Recent research highlights embodiment as a critical aspect of AI’s impact on human behavior, shaping users’ emotional engagement and collaborative perception within the virtual environment itself (Lim et al., 2025). Subtle design elements such as color schemes and ambiance play a critical role in shaping user experiences, transforming virtual workspaces and its virtual AI agents into dynamic digital ecosystems. Designers must strike a delicate balance between creating engaging interactions and supporting serious work while avoiding cognitive overload. The initial excitement and satisfaction brought by technological novelty are often temporary psychological responses. As users become accustomed to these technologies, developers must move beyond reliance on short-lived positive effects. Instead, they should implement complex and dynamic engagement strategies, incorporating continuous updates and innovative interaction elements to sustain user interest and satisfaction.

To truly enhance employee experience and work efficiency, AI interfaces must carefully balance functional effectiveness with empathetic engagement (Pan et al., 2025). This involves optimizing anthropomorphic design to foster emotional resonance while actively addressing and reducing negative emotions (Yang & Xie, 2024). By identifying a comprehensive range of human emotions experienced during interactions with anthropomorphic AI agents, our study lays the foundation for developing more effective AI agents. Furthermore, adopting dynamic engagement strategies is crucial to sustaining user interest and satisfaction over time. Ultimately, this highlights the need for actionable frameworks that bridge the gap between research and practical application, ensuring AI systems are thoughtfully designed around human-centered principles. By following this approach, organizations can develop AI technologies that not only boost performance but also enrich employees’ lives in lasting ways.

### 6.3 Theoretical Implications

This study addresses scholarly calls to investigate the emotional landscape of voice-based and embodied AI agents, thereby contributing to the emerging research on human-AI social interactions (Gkinko & Elbanna, 2023; Kim & Im, 2023; Leo, 2023). Our findings reveal that employees experience a complex emotional spectrum, including connection, contentment, amusement, and frustration—patterns that partially mirror interactions with web-based AI chatbots (Gkinko & Elbanna, 2022), but also introduce novel affective states unique to immersive and embodied AI contexts. These include emotional responses such as relational assurance and perceived worthlessness, which expand and refine established emotional categories in the literature. These experiences emerge from new types of appraisal processes shaped by the virtual workspace setting, voice-based interaction, agent embodiment, and the creative or collaborative nature of tasks.

Our study also engages directly with and extends recent theoretical insights in the field. For instance, while Lim et al. (2025) demonstrate that embodiment enhances presence and social influence, our work reveals how embodiment intensifies the emotional range of AI interaction. Complementing Pan et al. (2025), who frame trust as a product of AI literacy, we show that trust is also deeply emotional, and that mismatches between anthropomorphic appearance and communicative depth can lead to emotional disappointment rather than mere skepticism. Echoing findings from Yang and Xie (2024), we demonstrate that anthropomorphic design does not just trigger emotional contagion—it creates expectations for emotional reciprocity, and when violated, can result in subtle yet significant negative emotions. Building on Qi et al. (2025), we empirically support the assistant/friend parasocial model, showing that ambiguous or failed relational cues from personality-rich AI agents evoke more intense reactions than from utilitarian bots. Our findings also align with Liu and Yin's (2024) models of affective interaction, offering empirical support for the idea that users draw on deeply rooted emotional schemas when interpreting and responding to embodied AI agents. Finally, in line with Sundar et al. (2024), we show that misalignment between agent design and user expectations produces emotional dissonance, reinforcing the need for emotionally congruent, human-centered AI design in organizational environments.

Taken together, these contributions point toward the development of a more comprehensive theoretical framework for understanding emotional experiences in human-AI interactions, one that accounts for modality, embodiment, task context, and personality signaling. Such a framework could introduce new emotional categories and offer critical insights into how the

effect shapes decision-making, collaboration, and communication in AI-mediated workplaces. Future research may further explore how specific modalities (e.g., voice vs. text) and design traits (e.g., level of anthropomorphism or expressiveness) affect emotional engagement and interpersonal dynamics. The emotional impact of highly anthropomorphic AI thus presents a compelling frontier for theory-building and applied design in the future of work.

#### **6.4 Limitations and Future Research Avenues**

This study's primary limitations stem from its methodological constraints. The relatively brief interaction period with AI agents allowed only an initial assessment of use intentions, rather than a comprehensive analysis of long-term workplace integration. Participants' perceptions were necessarily limited, as genuine everyday work scenario evaluations would require extended engagement, which is a potential avenue for future research. Moreover, the study employed a standardized set of brainstorming tasks, which, while useful for initial feedback, may not fully capture the complexity of diverse workplace interactions. Finally, due to the head-mounted display covering the eyes of participants during the human-AI interactions, we could only observe a limited number of facial expressions, such as smiling, laughing, and sighing. Other emotional states, such as amazement or fear, require the eyes to be visible and thus may only be ascertained through interviews. Despite these constraints, the research provides valuable preliminary insights into AI and VR technologies' potential in corporate settings, laying groundwork for more comprehensive future investigations.

Based on the findings and limitations of this study, we propose several directions for future research. First, the relationship between long-term emotional dynamics and user behavior warrants further exploration. This study primarily focused on short-term emotional responses, as all participants were first-time users of highly anthropomorphic AI agents in our case. Future research could investigate how employees' emotions evolve over prolonged use and how these changes influence behavior, particularly to address the potential decline in usage once the "novelty effect" fades. Second, all participants in this study were Swiss white-collar employees. Given that users from diverse cultural backgrounds may exhibit significantly different emotional responses to anthropomorphic AI agents, future research could compare emotional experiences across cultures. Such studies would offer more inclusive design recommendations for global enterprises. Third, this study primarily examined emotional experiences in simple and creative tasks. Future research could explore AI agents' emotional support capabilities in more complex tasks, such as decision-making and project management, and investigate design strategies to enhance users' emotional stability in high-stress scenarios. Fourth, we believe that

the integration of VR and AI introduces new possibilities for emotional experiences and represents a future workplace trend. Future studies could further explore how virtual elements interact with the anthropomorphic features of AI agents to create more immersive and emotionally resonant interactions. Finally, this study used qualitative exploratory methods to examine employees' emotions. Future research could adopt mixed or quantitative approaches to test and validate the propositions presented here, quantifying the relationships between anthropomorphic features, emotional responses, and user behavior. This would provide stronger empirical support for theoretical models in the field.

## 7. Conclusion

This study examined the emotional landscape of human interactions with three distinct AI agents in a virtual workspace, focusing on white-collar employees. Our research revealed a complex spectrum of emotions that encompasses traditional responses observed in web-based AI chatbot interactions, including *connection*, *contentment*, *amusement*, and *frustration*, while also uncovering novel emotional subsets including *trust*, *relational assurance*, and *perceived worthlessness*. These newly identified emotions highlight the evolving dynamics of social interactions between humans and anthropomorphic AI agents, underscoring the necessity to align theoretical exploration with the rapid advancements in AI technology. By examining both text-based and voice-based AI agents, our study broadens the understanding of generative AI's emotional impact, which has often been constrained to text-based interactions.

Practically, our findings emphasize the importance of incorporating emotional considerations into the design of AI agents, particularly those exhibiting human-like characteristics. As we stand on the edge of another technological revolution, the responsibility lies on researchers and designers alike to ensure that AI systems not only advance functionality but also safeguard and enhance the core human values central to tomorrow's workplace.

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