

Unlocking the power of Artificial Intelligence to develop people's empathetic skills

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Abstract

Empathy shapes our interactions and is an important foundation for our relationships, be they private or professional. The fact that there are people who lack empathy raises the question of whether empathy can be learned. This research focuses on exploring how AI-based empathy training can help promote human empathy. It employs three methodological approaches: (1) an expert interview with a specialist in empathy, (2) expert questionnaires, and (3) scenario-based questionnaires answered by both humans and ChatGPT, with results compared using the IRI assessment. This study concludes that AI-supported training, provided it meets certain requirements, must be fundamentally human-centered. Successful AI-supported empathy training enables realistic yet harm-free emotional experiences and incorporates diversity considerations directly into algorithm design. Both ethical and psychological prerequisites such as trust, emotional security, and cultural sensitivity as well as design requirements for AI interaction, need to be met. While AI-supported training can never replace human interaction, it may complement it. Furthermore, ChatGPT already demonstrates empathetic responses to the scenario-based questionnaires without being explicitly prompted to do so.

Keywords: Artificial Intelligence, ChatGPT, Empathy, Interpersonal Reactivity Index, Empathic Concern, AI-based empathy training



<https://doi.org/10.31039/plic.2025.13.329>

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Introduction

The death of a close relative is not only a significant emotional burden for those directly affected but also poses a challenge for the surrounding social environment, especially when it comes to expressing empathy. Mourning remarks may make those experiencing such circumstances unsettled. I once experienced such a feeling when I lost one of my closest relatives. During that period, I expected that as many people as possible could show me their empathy. However, the reality was not as expected, thus making me question if it is just a personal feeling or if empathy is really declining. That said, it is necessary to understand whether empathic behavior is purely innate or if people can learn to respond with greater empathy through training. This study, thus, is guided by the following research question: To what extent can Artificial Intelligence (AI) contribute to the development of empathetic skills in humans?

A meta-analysis of 72 studies on American college students conducted between 1979 and 2009 indicated that empathy levels among students had declined over time. The decline was observed in the empathy components of "Perspective Taking" and "Empathic Concern". Compared to college students in the late 1970s and early 1980s, their more contemporary counterparts show less agreement, which is reflected in statements such as, "I often have tender, concerned feelings for people less fortunate than me (Empathic Concern)", and "I sometimes try to understand my friends better by imagining how things look from their perspective (Perspective Taking)", thus justifying the labeling of the current generation of young adults with nicknames like "Generation Me" and the "Look at Me" generation (Konrath et al., 2010).

Intriguingly, empathy decline in society can be counteracted. The "Roots of Empathy" program, which aims to develop children's social and emotional understanding as well as promote prosocial behavior, initiates a shift in educational approaches. The key element of this 9-month program is monthly visits by an infant and his or her parents to kindergartens or classrooms. Children's empathy and emotional understanding are intended to be fostered through interactions and observations with the baby. A study evaluating the effectiveness of the Roots of Empathy (ROE) program found that children who participated in it demonstrated an improved understanding of infant crying, exhibited increased prosocial behaviors, and showed significant reductions in both proactive and relational aggression as reported by their teachers (Schonert-Reichl et al., 2011).

Rifkin addressed a vital concern by saying, "The most important question facing humanity is this: can we reach global empathy in time to avoid the collapse of civilization and save the Earth?" He, in addition, addressed the skepticism that we will soon live in an empathy-less society by writing, "The evidence shows that we are witnessing the greatest surge in empathic extension in all of human history" (Rifkin, 2009, p. 452).

This methodology comprises (1) a personal interview with an expert in empathy; (2) an expert survey involving 15 specialists, whose responses were analyzed using double-checked coding and category formation; and (3) a questionnaire presenting six different scenarios, in which 28 participants and ChatGPT provide written responses that are then independently evaluated by two raters using the Interpersonal Reactivity Index (IRI). The final section presents the key results and concludes with a discussion.



Literature

Altmann et al. (2013) addressed the topic of empathy and attempted to gain an overview of the established definitions of empathy. They concluded that empathy is divided into multiple sub-areas, depending on which unintegrated perspective is used to examine it. Empathy can be described as an ability or skill, as an element of interpersonal interaction, as a cognitive and consciously managed process of perspective-taking, or as an effective and automatic (or even not consciously manageable) emotional exchange process (Altmann et al., 2013).

A study involving nearly 900 U.S. employees across various industries found that empathy significantly influences important employee outcomes such as innovation, engagement, and inclusion. Organizational leaders should understand that empathy can be cultivated and developed and that it comprises three core components: cognitive (head/thinking), affective (heart/feeling), and behavioral (action/doing). The study demonstrates the urgent need to shift the perspective from viewing empathy as merely a business skill to recognizing it as an integral element for success in the future of work (Van Bommel, 2025). Moreover, it is essential to underline that high levels of empathy correlate with healthy relationships and prosocial behavior (Teding van Berkhout et al., 2015).

There are various scientific approaches that explain how empathy works, including the Perception-Action model (PAM), simulation theory, and the two-component model of empathy. PAM posits that a subject (i.e. the one consciously perceiving the emotional state of an object) instinctively activates mental representations related to the object's condition, the situation, and the object itself when he or she perceives the object's state. The conscious perception of the state of another person (referred to here as the object) automatically leads to the activation of mental representations of that state. This activation commonly initiates physiological and somatic responses automatically unless inhibitory processes intervene. The said automation occurs naturally and is a response to a specific stimulus. During this empathic perception process, there are patterns in the brain arising from a combination of developmental factors, neuronal connectivity, and experience-dependent adaptations.

In this context, PAM establishes a connection between the evolutionary causes of empathy and the underlying neurological and cognitive processes, thereby clarifying how and why empathy arises. According to the model, empathy is a superordinate category that includes different phenomena, such as emotional contagion, sympathy, cognitive empathy, and helping behavior, which work in the same way. PAM assumes that whether or not the subject perceives the object's state and the extent to which similar representations are activated depends on the relationship between the subject and the object. In this regard, stronger relationships lead to more appropriate responses from the subject. The model also classifies responses to the object into different groups (e.g. fear, joy, anger, or consolation) (Preston et al., 2002).

The simulation theory assumes that the attributor (i.e. the person who predicts an action or decision) mentally adopts the perspective of the target, taking on that person's desires and beliefs to derive a prediction. The approach describes that simulated "mindreading" (i.e. understanding others' mental states) primarily occurs through enactively imagining (E-imagining). To understand others, it is necessary to simulate their mental states by putting oneself in their shoes. During this simulation process, mirror neurons serve as a basis for the



assumption of the state of others by replicating their mental states within themselves. Goldman names two competing approaches to explain the complexity of understanding others' mental states: Theory Theory, which holds that we develop a theory about how other people think, and Rationality Theory, which assumes that others act rationally (Goldman, 2006).

In research, the two-component model of empathy postulates that empathy consists of two main components: affective empathy and cognitive empathy. While cognitive empathy describes the ability to understand or consciously reflect on the subjective mental states, perspectives, or intentions of others, affective empathy encompasses the ability to respond emotionally and sensor-motorically to the affective state of others. While affective empathy can occur quickly and unconsciously, cognitive empathy requires more attention and time because it involves the intention to understand the other person's perspective (Yu et al., 2018).

The idea of the two components of empathy is clearly represented in the work of Decety and Jackson, which has three parts. The first is an affective response to another person, which often leads to sharing that person's emotional state. The second is the cognitive ability to take the perspective of the other person. The third is regulatory mechanisms that enable distinguishing one's own feelings from those of others. The proposed model requires a certain degree of emotion regulation for managing the emotional state triggered in the self by perceiving another person's condition. Without such a regulatory component, this would lead to emotional contagion or emotional distress in the individual showing empathy (Decety & Jackson, 2004). Self-awareness can prevent emotional overwhelm by allowing one to distinguish between internal emotions and those mirrored by others. The concept of "emotion regulation" refers to the ability to reduce the intensity of one's own emotions triggered by emotional mirroring, thereby maintaining the capacity to act compassionately without becoming emotionally overloaded. It is important for the listener to clearly distinguish his/her feelings from the emotions of the sender to maintain emotional stability, especially in emotionally tense situations. If the emotional situation of the listener no longer seems controllable, an empathic short-circuit reaction can occur in order to regain control over the situation and free oneself from the unpleasant emotion. The empathic connection is then severed by the listener devaluing the sender's emotion or the severity of the situation. Invalidating reactions occur, such as: "It's not that bad" or "Others have much worse problems". Self-other differentiation should be mentioned as a key resource to prevent invalidating reactions and to counteract emotional exhaustion (Altmann et al., 2013).

Many empathy models or empathy training programs do not take into account the self-other differentiation – i.e. the ability to separate another's emotions from one's own – or take it for granted. (Altmann et al., 2015).

Hoffman introduces the evolutionary argument and describes that humans could not have survived if they had focused solely on their own needs. He further emphasizes the crucial role of empathy as a driving force behind moral behavior, and uses the term "empathic morality" to describe how empathy is understood as the basis for moral behavior (Hoffman, 2000). Preverbal modes trigger empathic responses even in infants, continue to develop throughout childhood, and contribute an important automatic dimension to empathy in adults. Meanwhile, cognitive processes broaden the range and complexity of empathic experience. It



should also be noted that empathy has its limits. For example, empathy is limited by the clarity of the suffering signals and the relationship between observer and victim (e.g. relatives, friends, and ethnic groups they are more empathized with). Egoistic motives, such as fear or personal ambition, can overwhelm empathy. In cases of empathic overload, observers may shift their attention to their suffering and tune out the sender. In addition, the here-and-now bias should be mentioned, which means that more empathy is shown for victims who are present than for those who are absent (Hoffman, 2008).

The good news is that empathy can be trained. This is demonstrated, among others, by a study from Teding van Berkhout et al. (2015), which found that the overall effect across 19 studies was significant, supporting the effectiveness of empathy training programs. However, individuals need to reach a certain level of neurological maturity before they can adequately understand and exhibit empathy.

In this context, Sharma et al (2023) investigated how AI can collaborate with humans to promote empathy among peers in text-based online mental health chats. They developed a proprietary AI-powered system that provided timely suggestions to peer supporters (i.e., people offering support) to help them respond more empathetically to those seeking help. To test its effectiveness, they performed a randomized controlled trial (RCT) on the TalkLife platform with 300 TalkLife peer supporters. Some users received AI feedback, while others did not. Each message was then evaluated by independent crowd workers (people trained in empathy assessment). The crowd workers rated the empathy of each message on a standardized empathy scale. Participants who received real-time AI feedback wrote significantly more empathetic responses than participants without AI support. The effect was strongest for users with initially low empathy, as they showed great progress with the support of the AI tool (Sharma et al., 2023). The study found that after participating in the study, supporters felt more confident and secure in writing empathetic responses. However, the study did not address how recipients responded to the supporters' responses. It is assumed that they would not use the feedback if it gave normative responses. That said, it is safe to assume that AI would require human assistance to function properly (DiCarlo, 2023, February 14).

Walther (1996) concludes that deeper and more empathetic relationships can sometimes develop better in Computer-mediated communication (CMC) than in face-to-face communication. Asynchronous communication, which occurs in many forms of CMC, can lead users to express themselves more empathetically. The time delay allows them to reflect and reconsider their responses. Non-verbal cues (gestures and facial expressions), which may also be influenced by cultural differences, are eliminated in CMC, meaning that the conversation partners must specifically express the emotional content in their words and react to the other person's text, which can promote a deeper engagement with the other person's feelings. The participants in the CMC often have a more positive image of each other because each of them carefully chooses what they show to the other. This more positive image allows them to engage more emotionally and be more empathetic with each other. Walther uses existing research findings and theoretical frameworks to develop his Hyperpersonal Communication Theory, which explains how computer-mediated communication (CMC) can lead to more intense and empathic interactions compared to face-to-face communication (Walther, 1996).



Furthermore, Velasco et al. (2022) investigated whether empathy and SFL (Systemic functional linguistics) approaches can effectively complement each other in text-based communication in the context of digital health coaching concerning lifestyle-related diseases, which is a field where empathy is considered crucial for successful patient-provider relationships. The study analyzes both implicit empathy opportunities (EOs), (i.e. patient statements from which professionals can infer unspoken feelings) and explicit EOs (i.e. patient statements that plausibly suggest that emotion is associated with them) of study participants. Participants' text messages were then further analyzed using the SFL approach, with a particular focus on transitivity analysis and thematic analysis. Halliday and Matthiessen (2014) defined SFL as a linguistic approach to language that is considered social semiotics and is intended to get an understanding of individuals' interactions in particular social contexts through different means. The SFL consists of the ideational metafunction (i.e. description of the speaker's inner and outer experiences), the interpersonal metafunction (i.e. focuses on the relationship between speaker and receiver on the one hand and between the speaker and his message on the other hand), and the textual metafunction (i.e. the interpretation of the text as a text and not just as a conglomerate of words or sentences). Results show that a combination of empathy appraisal and SFL enables the identification and analysis of EOs in text-based health interactions. These insights are useful for coaches, as they can identify EOs in texts, respond empathetically, and thus better support users (Velasco et al, 2022).

Shao et al. (2024) provided a good example of how AI can be used specifically to teach empathy, especially in a medical context. Their research focused on the development of an AI-supported system utilized in teaching with the aim of promoting the communicative and empathic expression skills of medical students and doctors. The main focus is on teaching and evaluating empathic language in doctor-patient communication through the AI-supported system. The AI-powered system was designed to use speech recognition technology from iFlytek and an algorithm for semantic recognition of empathic speech. The system was developed based on 10 representative case examples of doctor-patient communication, a semantic database of empathic language, empathic language skills, and an overall assessment criterion. A teaching trial within the two-hour Doctor-Patient Communication Skills Course using the system followed by a questionnaire survey regarding the participants' understanding of the meanings of empathic language or their improvement of empathic language skills turned out in favor of AI. An overwhelming majority of 93.8% (891 out of 950) stated that the AI-based system could 'significantly' or 'somewhat' improve their empathic communication skills (Shao et al., 2024).

Organizations also strive to create more empathetic working environments and opt for Emotional AI, which involves technologies that analyze voice, language usage, facial expressions, and heart rate, and diagnose signs of distress. However, the automation of empathy is seen as a threat to individuals, companies, and society. If it is assumed that emotional processes can be outsourced to machines, then there may be a fundamental misunderstanding of what empathy is. An empathetic AI chatbot could be compared to a parrot that can repeat empathetic-sounding sentences. A parrot may say "the right words", but in a real emergency situation, these attempts to provide support are likely to be unconvincing. Following the logic of computationalism, human emotions appear merely as data – and thus



as another resource for the company, one that can be measured and controlled. Emotional AI takes the place of genuine care for employees. Emotional AI risks creating an appearance of hypocrisy. An example of this would be a company that uses email add-ons that utilize pre-written empathic phrases generated through emotional AI. When an employee receives a response from a supervisor, they often cannot tell whether the response is genuine empathy from the supervisor or merely feigned empathy. Here, the authors advocate that AI should be used for routine administrative tasks to free up time for managers to provide direct, authentic emotional support to employees. Emotional AI should not be used for tasks that require emotional sensitivity (Thomas et al., 2025).

Shen et al (2024) investigated how strongly people develop empathy towards stories created either by Artificial Intelligence or by real people, and how information about the author influences their empathy. Even without experiencing the stories themselves, machines can produce personalized stories well enough. Four crowd-sourced studies with a total of 985 participants served as the basis for examining, among other things, the effects of the authors' original views on empathy. In the study, participants wrote their personal stories and then rated their empathy toward stories written by either humans or ChatGPT. The study's results show that people generally empathized more strongly with stories written by humans. The study simultaneously concluded that transparency about the author plays an important role in fostering empathy toward AI-generated stories. A key finding of the study is that transparency can enhance people's trust in AI. This aspect should be carefully considered in their design. Accordingly, the authors recommend that developers of AI applications consider using explainable AI frameworks to make the content generation process transparent, as this can significantly influence user behavior and the quality of interactions (Shen et al., 2024).

Methodology

This chapter outlines the research methodology employed in this study, detailing the approaches and tools used to investigate the research questions.

Research Design

Research Question

“Can Artificial Intelligence contribute to the development of people's empathetic skills?”

Methods

- Expert Interview with Empathy Specialist
- Expert Questionnaires
- Scenario-Based Questionnaires (answered by humans and ChatGPT)

Procedure

The data collection process began with an interview conducted with an empathy expert to establish a theoretical foundation for the concept of empathy. At the same time, a questionnaire was distributed to professionals from various fields, addressing overarching questions such as how AI-supported empathy training could be designed to effectively enhance human empathic abilities, and how such approaches might differ from traditional



interpersonal methods—such as coaching or role-playing—in terms of effectiveness and application. The responses to this expert questionnaire were analyzed using qualitative coding and category formation. In parallel, a separate questionnaire was developed for survey participants, based on a series of scenarios derived from interviews with individuals from the author's immediate environment who had experienced a perceived lack of empathy in written communication. These real-life experiences served as the basis for six authentic scenarios, which were then presented to respondents in the second questionnaire. The responses were evaluated by two independent raters using the Interpersonal Reactivity Index (IRI). The resulting scores were compared and analyzed to assess the empathy levels demonstrated in each response. These results were then used as a reference point for evaluating the study's thesis, including a comparison with responses generated by ChatGPT.

Data Collection Methods

This study utilizes three distinct data collection methods to gain a more comprehensive picture of the role of AI in developing people's empathetic skills. Three distinct data collection methods were employed to capture a comprehensive perspective of empathy in written communication. First, a semi-structured expert interview was conducted with an empathy specialist to gain in-depth qualitative insights. Second, a scenario-based questionnaire was distributed online to a general population sample to collect empirical data on responses to realistic situations. In parallel, ChatGPT was prompted to generate written answers to the same scenarios, allowing for a comparative analysis between human and AI-generated responses. Third, a written questionnaire was administered to experts from diverse fields, including Artificial Intelligence, technology, empathy training, and psychology, to gather interdisciplinary expert opinions. This multi-method approach ensured a rich, triangulated data set that combines qualitative depth, quantitative breadth, and cross-sector expertise.

Expert Interview on Empathy

One in-depth interview (approx. 45 minutes) was conducted with a selected empathy expert. The insight offered meaningful contributions to both the theoretical framing and practical relevance of this research. The interview was guided by the same questionnaire that was later distributed in written form to experts in the fields of Artificial Intelligence, empathy, interpersonal communication, and related technological or psychological disciplines (for further information regarding the questionnaire, see the “question” column in each of Tables 2, 3, 4, and 5). However, in the interview context, the questionnaire served as a flexible framework rather than a strict script. This allowed the interviewee to lead the conversation in a dynamic and reflective manner, enabling deeper insights and the exploration of contextually rich perspectives beyond the standardized format.

The interview was conducted via Microsoft Teams with empathy expert Edwin Rutsch who had been working on the empathy field for around 15 years, not from an academic standpoint but driven by a personal passion.



Expert Survey with Open-Ended Responses and Thematic Coding

This study also includes an analysis of open-ended expert responses. A questionnaire with five open questions was sent to experts in the field of Artificial Intelligence, professionals specializing in empathy and interpersonal skills, as well as individuals with technological or psychological backgrounds. These experts were recruited through a search on LinkedIn. The experts were selected unsystematically as part of an open search via the LinkedIn platform. The sole deciding factor for contact was the respective person's relevant expertise in the field of study. No other selection criteria were applied.

The questions focus on the design of AI and the underlying conditions for having functioning AI systems for human empathy development. They were also asked about what distinguishes AI-supported empathy systems from traditional interpersonal methods, possible risks associated with the use of such AI-supported empathy training, and whether or not these systems can truly help people become more empathetic or just develop a better understanding of empathy.

The data were analyzed using a qualitative content analysis approach. Each response was carefully read and segmented into meaningful units through open coding, meaning that initial codes were generated inductively without predefined categories. Moreover, to enhance reliability and reduce individual bias, a double coding procedure was implemented, where a second coder independently coded the data, and discrepancies were discussed until consensus was reached.

To capture the complexity of the answers, multiple coding was applied, assigning more than one code to a single response segment if it contains multiple themes or ideas.

These codes were then grouped into broader categories, thus allowing the identification of recurring themes, patterns, and differences across experts and questions.

This systematic coding process helps to structure the data, deepen the understanding, and provide a transparent, evidence-based interpretation of the experts' perspectives.

To illustrate the coding and subsequent category-building process, please see Table 1.



Table 1. Open Coding Process

Question	Response	Response Excerpt	Codes
How could AI-supported empathy training be designed to effectively enhance human empathic abilities?	Think of learning empathy like learning jazz improvisation; you need to master the fundamentals before you can riff authentically. AI should create emotional “sparring sessions” where users practice reading layered emotions, such as when someone is angry because they are scared, or cheerful because they are deflecting pain. The breakthrough happens when AI stops rewarding “correct” responses and starts questioning shallow ones: “You comforted them, but did you first validate their anger?” Real empathy is not about fixing; it is about truly seeing. AI can teach us to look deeper before we leap to solutions.	• “Think of learning empathy like learning jazz improvisation—you need to master the fundamentals before you can riff authentically.”	• Importance of fundamentals • Authenticity in learning
		• “AI should create emotional ‘sparring sessions’ where users practice reading layered emotions: someone who’s angry because they’re scared, or cheerful because they’re deflecting pain.”	• Use of AI as a training partner • Practice with a range of emotions
		• “The breakthrough happens when AI stops rewarding ‘correct’ responses and starts questioning shallow ones: ‘You comforted them—but did you first validate their anger?’”	• Critique of superficial responses • AI questions rather than just rewards
		• “Real empathy is not about fixing; it’s about truly seeing. AI can teach us to look deeper before we leap to solutions.”	• Empathy means truly seeing • Role of AI in fostering deep understanding

Source: own table

Afterwards, the codes were grouped into categories. Categories that could emerge from the example in the table is Depth vs. Superficiality and Learning Process and Fundamental

Scenario-Based Questionnaire with IRI Assessment

Initial data collection was initiated by asking the author and individuals from their immediate social environment to describe experiences of written communication in which they perceived a lack of empathy. Drawing from these personal and proximate experiences, six realistic scenarios were constructed to form the basis of the questionnaire. In the next step, both real participants and ChatGPT were asked to write responses to the scenarios presented in the questionnaire. The questionnaire responses were then evaluated by two independent raters,

one of whom was the author. Both raters were thoroughly briefed beforehand to ensure a consistent and reliable application of the Interpersonal Reactivity Index (IRI) scale. Measures were taken to mitigate potential bias and maintain objectivity throughout the rating process. Based on the IRI dimensions, a tailored empathy measurement scale was developed with the following score descriptions: '1' for 'No or barely noticeable presence'; '2' for 'Slightly present'; '3' for 'Moderately present'; '4' for 'Strongly present'; and '5' for 'Very strongly present'. Subsequently, the written responses were assessed according to these dimensions, and scores were compared across different categories to identify variations in empathy levels. Finally, insights into the role of Artificial Intelligence in enhancing empathetic communication are presented.

While the author's and close contacts' experiences provided rich and contextually relevant input for scenario development, it is important to acknowledge that this sampling approach may limit the generalizability of the findings beyond this specific social context.

As already mentioned, this part of data analysis utilizes the scale of the Interpersonal Reactivity Index (IRI) to assess the empathic tendencies of respondents, given that IRI is one of the most established and most widely and frequently used self-report instruments in this field (De Corte et al., 2007; Gilet et al., 2013). Davis' IRI (Davis, 1980) is based on the two-component model and therefore includes both an affective (refers to the capability of sharing the emotional experience of the other person) and a cognitive (relates to the understanding of the other person's experience) aspect. The four dimensions of the IRI are: Empathic Concern (EC) and Personal Distress (PD) which represent the affective aspects of empathy, and Fantasy (FS) and Perspective Taking (PT) which reflect the cognitive aspects (Gilet et al., 2013). These four dimensions capture different components of empathy: empathic concern (i.e. the inclination to experience feelings of warmth, sympathy, and care for others), personal distress (i.e. the feeling of discomfort and worry that occurs when witnessing the negative experiences of others), fantasy (i.e. the tendency to identify deeply with fictional characters) and perspective taking (i.e. the tendency to put oneself in the psychological perspective of another). IRI is known to offer several advantages. First, it is the only scale that assesses empathy as a multidimensional concept, which is characterized by its comparatively short length and ease of use (De Corte et al., 2007). Second, it is considered the most comprehensive instrument for measuring self-reported empathic dispositions.

The use of real experiences makes the study more relevant and practical, as the scenarios are based on actual issues participants have encountered. From the author's perspective, the use of this methodological approach offers the following advantages:

- Understanding the sender's perspective: The shift in the scenarios from the recipient's to the sender's perspective is valuable as it reveals how a lack of empathy can emerge from the sender's viewpoint.
- A key feature of empathetic communication: Perspective-taking is essential for empathy. When participants are asked to engage with scenarios they have not directly experienced, it enhances their ability to empathize with the thoughts and feelings of others. This helps investigate the empathetic dimension of written communication.



- Differentiated measurement: The four dimensions of the IRI allow for a nuanced assessment of empathy, capturing compassion, the ability to take others' perspectives, and emotional reactions to others' suffering.
- Precision: The numerical scale based on the IRI allows for precise measurement of empathy in written responses and facilitates systematic comparison of results across the four empathy dimensions.

The evaluation of questionnaire responses by two independent raters, with one of whom being the author, following a prior briefing, is a scientifically grounded approach that helps maximize objectivity and reliability.

There were a total of 28 completed questionnaires. The questions were open-ended (refer to the appendix for the questionnaire including all six scenarios). The questionnaire was designed with wording that emphasized exploring differences in written communication, without any indication that responses would be evaluated for levels of empathy. After each question, it stated: "You can be as personal and factual as you like."

Results and Discussion

This section summarizes the main results of the study and provides a critical discussion of their meaning and impact.

Expert Interview on Empathy

An approximately 45-minute interview session with empathy expert Edwin Rutsch provided significant insights. He viewed empathy as a core human value that society urgently needs to cultivate and strengthen. He said, "I see empathy very much like a muscle. We are all born with it, and we can either strengthen it through use or let it atrophy through neglect".

As he founded the Center for Building a Culture of Empathy, which was renamed the Empathy Center about three years ago, Rutsch fully committed himself to advancing this cause. The nonprofit organization 501(c)(3) is dedicated to promoting mutual empathy as a central cultural, social, and personal value. Rutsch's work reflects a broad spectrum of initiatives, from developing training materials to organizing public outreach events such as the Empathy Tent where active listening and conflict mediation take place. He had also conducted around 400 interviews with empathy experts. These efforts form a rich and multifaceted body of work dedicated to the cultivation of empathy.

Intriguingly, Rutsch had not employed AI in his training methods. His primary approach is the practice known as the "Empathy Circle", which is rooted in Carl Rogers' concept of active listening. He remained uncertain about how AI could concretely support this method. The AI-assisted therapeutic tools he had encountered had not been particularly compelling. Rather than simply reflecting what has been said, which is a core principle of the Empathy Circle approach, these tools tend to insert their interpretations, which can be problematic.

The ability to listen is a central component of empathy. Therefore, this ability would also need to be possessed by AI. Rutsch mentioned, "And it should be able to listen, and also listen to the felt experience behind it. In good listening, you can kind of hear the feelings that are sort



of just below the surface, and you can name them.” According to Rutsch, AI would need to be able to reflect a need; it should recognize that the person is angry and then infer that the underlying feeling or need is for more respect, more care, or something similar. Rutsch clarified, “When you’re a human listener, you’re listening not just to the words, but with your whole body. So, if the AI is just repeating words, they call that parroting. Sometimes that’s fine, but it can become very superficial.” He clarified what the active listening process exactly means, so it can be applied to AI. He said, “In the active listening process we practice, we don’t ask questions. We simply give the person space to speak and reflect back only what they say. We do not insert our own ideas, we do not control the conversation or ask questions but merely follow the speaker. For example, “I hear you had a hard day. You’ve been struggling”.

Rutsch emphasized that true empathy goes very deep. There are things beneath the surface or at the edge of people's awareness or feelings that have not yet been put into words. He described real empathy as occurring when “the empathy by the listener, listening to them, giving them their attention, they are able to kind of go into that space by expressing it and having it reflected by someone else, they are able to see themselves even more deeply. I mean, that is kind of the experience”.

Rutsch further mentioned, “I mean, there's a common humanity that people have — you know, behind all the cultural stuff, there is this kind of sameness that people share; they have the same feelings“ (E. Rutsch, personal communication, June 12, 2025).

The expert interview revealed two groundbreaking insights: empathy fundamentally hinges on attentive listening, and humans engage their whole body through subtle nonverbal cues in this process. This embodied listening presents a major challenge for AI, as many of these signals are difficult for machines to recognize, thus highlighting the limitation of AI’s ability to fully replicate human empathy.

Expert Survey with Open-Ended Responses and Thematic Coding

The results of the expert questionnaire, followed by code creation and categorization, are now graphically represented question by question using tables.

The tables are structured so that the left column contains the question posed to experts in the field of Artificial Intelligence, professionals specializing in empathy and interpersonal skills, as well as individuals with technological or psychological backgrounds. Fifteen experts were recruited through a search on the LinkedIn platform, and they were willing to complete the open-ended questionnaire with a total of five questions. If they wanted to be mentioned by name in the acknowledgements section, they could also check this box.

On the far right of the tables are the sample quotes to make it clear why the respective codes and consequently these were grouped into the corresponding categories.

The first question to the experts, which was “How could AI-supported empathy training be designed to effectively enhance human empathic abilities?“ (see table 2), was aimed at identifying design principles for AI that enable successful empathy enhancement. The use of real human contexts, the inclusion of emotional sensitivity, such as body language or tone of voice, and the creation of a safe, error-friendly learning environment are important (see Table 2 – category "Focus on human emotions") for empathy enhancement through AI-supported



training to be successful. The use of adaptive technologies such as natural language processing, emotional intelligence, and realistic simulations with feedback to promote human emotions through interactive experiences is important when focusing on the technical aspects of AI design for effective empathy training (see Table 2 – category “Technology and Ethics”). Likewise, the experts' responses led to a conclusion that ethical considerations must be given to fairness and bias sensitivity by designing algorithms with diversity in mind (“...understanding biases of underserved communities...”) and by continuously improving training through data-based feedback and reflection (“...AI stops rewarding ‘correct’ responses and starts questioning shallow ones...”). Another important ethical aspect, which may pose both a technical challenge and a requirement for a human-centered approach, is designing the right technology to enable AI-supported empathic learning to provide realistic experiences without harming real people (“...experience situations and consequences without harming ‘real’ persons.”).



Table 2. Question 1 – Categories and Codes

Question	Category	Code	Example Quote
How Could AI—Support ed Empathy Training Be Designed To Effectively Enhance Human Empathic Abilities?	Focus on human emotions	Promoting Human Emotional Capacities	<i>"Picking human-like learning abilities that may foster empathy, like (self)-compassion as a prerequisite for empathy..."</i> <i>"The uniqueness of human intelligence needs to be educated and promoted."</i>
		Safe learning environment	<i>"...experience situations and consequences without harming 'real' persons."</i>
		Adaptive Feedback	<i>"...deliver feedback that causes users to reflect and adjust their empathetic response in real time."</i> <i>"...help people better understand others' feelings..."</i>
		Simulation of Emotional Scenarios	<i>"...simulate various emotional scenarios and deliver feedback..."</i>
		Use of human contexts	<i>"By drawing inspiration from real stories and enhancing them with Artificial Intelligence..."</i>
		Focus on human values	<i>"Just like any empathy training, it's all about putting the learner at the center of the training design."</i> <i>"By understanding biases of underserved communities... Creating socially-academic weighted algorithms."</i>
		Emotional sensitivity	<i>"...read body language, facial expressions and voice intonation..."</i> <i>"Ensure the AI module is built with empathetic cues while the user is interacting..."</i>
	Technology and Ethics	Bias Sensitivity and Fairness	<i>"...understanding biases of underserved communities. .. creating socially-academic weighted algorithms."</i>
		AI-based empathy	<i>"...AI module is built with empathetic cues while the user is interacting..."</i> <i>"...read body language, facial expressions and voice Intonation..."</i> <i>"...realistic simulations, feedback, and emotion recognition tools..."</i>
		Adaptive Technologies	<i>"...adaptive learning, natural language processing, and affective computing..."</i> <i>"...emotionally intelligent virtual agents, real-time feedback, and personalized scenarios."</i> <i>"...interdisciplinary knowledge applied to AI multimodal training systems..."</i>
		Realistic Human Experiences	<i>"...provide experiences that come close to 'real' experience... without harming 'real' persons."</i> <i>"...drawing inspiration from real stories and enhancing them with AI..."</i>
		Learning Logic and Data Feedback	<i>"Alignment, feedback, RL"</i> <i>"...we need data to answer this question!"</i> <i>"...AI stops rewarding 'correct' responses and starts questioning shallow ones..."</i>

Source: own table



The analysis of the answers to the question "What conditions need to be in place for AI systems to positively influence the development of empathic abilities in humans?" (Table 3) led to two overarching qualitative categories: (1) Ethical and Psychological Preconditions for AI-Driven Empathy Development and (2) AI Design and Interaction Requirements.

First, the *Ethical and Psychological Preconditions* category highlights that data protection, cultural sensitivity, emotional safety, and trust are necessary for AI to positively influence empathic abilities. This interpretation is supported by expert statements, such as:

"There needs to be trust in the AI, emotionally safe environments, and guidance from real humans." and "Reject Universal Truths: What feels supportive in Brooklyn might feel invasive in Kyoto."

Second, the *AI Design and Interaction Requirements* category emphasizes the need for personalized, human-like interaction, high-quality data, feedback mechanisms, and supportive learning structures. This is illustrated by responses like:

"Interaction design between humans and AI must not just be personalized but also humanized." and "More feedback from the machines... this interaction can influence a new attitude among users." (see Table 3).



Table 3. Question 2 – Categories and Codes

<u>Question</u>	<u>Category</u>	<u>Code</u>	<u>Example Quote</u>
What Conditions Need to Be In Place for AI Systems to Positively Influence The Development of Empathic Abilities In Humans?	Ethical and Psychological Preconditions for AI-Driven Empathy Development	Ethical frameworks and psychological alignment	<i>"ethical frameworks, psychological oversight, cultural sensitivity, and transparency in the collection and interpretation of emotional data."</i>
		Privacy and data protection	<i>"safe environment; privacy and data protection by design"</i>
		Cultural sensitivity	<i>"Reject Universal Truths: What feels supportive in Brooklyn might feel invasive in Kyoto."</i>
		Emotional safety and trust	<i>"There needs to be trust in the AI, emotionally safe environments, and guidance from real humans"</i>
		Limits of AI in empathy development	<i>"Stay Humble: Label itself as "empathy bootcamp," not therapy."</i>
	AI Design and Interaction Requirements	Personalized curriculum	<i>"A structured curriculum." / "Interaction design between humans and AI must be not just personalized but also humanized"</i>
		Quality data inputs	<i>"provided with a wealth of positive expressions, values, and good experiences... rejecting crime, hatred, and violence."</i>
		Feedback and alignment mechanisms	<i>"More feedback from the machines... this interaction can influence a new attitude among users." / "Alignment, feedback, RL."</i>
		Data-driven emotional diagnostics	<i>"approach personal information, family history and current domestic circumstances to run diagnostic about person's emotional state."</i>
		Educational and analytical support	<i>"LLMs could be educational, informative, summarizing, and aiding in analyses."</i>

Source: own table

The analysis of the answers to the question "What differences exist between AI-supported empathy training and traditional interpersonal methods (e.g., coaching, role-playing) in terms of effectiveness and application?" (see Table 4) showed that certain conditions must be met for AI to positively influence empathic abilities. The *Advantages and Limitations of*

AI-Supported Empathy Training category shows that AI scores particularly well through scalability and consistency, as well as data-based personalization in a secure learning environment, as "AI offers scalable, private, on-demand learning..." and "AI excels precisely because it doesn't have feelings to hurt...". At the same time, the *Depth of Traditional Interpersonal Methods* category makes it clear that traditional approaches remain indispensable through Emotional Authenticity and Human Nuance because they offer "emotional authenticity" and "the richness, spontaneity, and, most importantly, the emotional reciprocity" (as shown in Table 4) that AI cannot provide.

Table 4. Question 3 – Categories and Codes

<u>Question</u>	<u>Category</u>	<u>Code</u>	<u>Example Quote</u>
What Differences Exist Between AI—Supported Empathy Training And Traditional Interpersonal Methods (E.G., Coaching, Role-Playing) In Terms Of Effectiveness And Application?	Advantages and Limitations of AI-Supported Empathy Training	Scalability and Consistency	"AI offers scalable, private, on-demand learning..." "Scalability, neutrality, and consistent feedback characterize AI..."
		Data-based Personalization	"AI may be more precise; identify specific area of improvement for each individual."
		Lack of emotions	"AI is incapable of feeling and understanding the motivations behind behaviour."
		Safe Learning Environment	"AI excels precisely because it doesn't have feelings to hurt...you can practice difficult conversations..."
		Lacks Holistic Understanding	"The absence of holistic approach...a human being cannot be treated by isolating a certain area..."
		Reliance on Evidence	"We need to actually run clinical studies to be able to tell."
	Depth of Traditional Interpersonal Methods	Emotional Authenticity	"When using traditional communication methods, the interaction is human, real, and touches on human emotions."
		Embodied Experience	"It will not replace an embodied experience (like a role-play)..."
		Human Nuance	"Traditional methods afford the richness, spontaneity, and, most importantly, the emotional reciprocity..."
		Individuality and human contexts	"Traditional interpersonal efforts make a heavy call for individuality and the well-being of only personal life and self."
		Relational Learning	"Humans teach you that empathy is sometimes just showing up and admitting you don't know what to say."

Source: own table

The question of whether risks could exist if people develop their empathic abilities through AI-simulated empathy rather than through real empathic interactions with other people



yielded thoughtful results (see Table 5). Within the qualitative category of *Risks of Emotional and Social Detachment*, several concerns emerged.

There is a risk that people develop superficial, rigid empathy without true emotional depth, because, as specified by one of the respondents, "people risk developing empathy that's shallow, rigid, or disconnected from authentic emotional experience." This reflects how reliance on AI can impair genuine emotional understanding. Furthermore, under the category of Risks of Emotional and Social Detachment, the dependence on AI empathy can lead users to be "so focused on 'optimal' responses that they lose tolerance for their own awkwardness and humanity," (shown in Table 5) thus becoming less accepting of their own humanity, which may promote emotional numbness and social alienation.

Table 5. Question 4 – Categories and Codes

<u>Question</u>	<u>Category</u>	<u>Code</u>	<u>Quote Excerpt (Evidence)</u>
Could There Be Risks Associated With People Developing Their Empathic Abilities Through Ai-Simulated Empathy Instead Of Genuine Empathic Interactions With Other Humans?	Risks of Emotional and Social Detachment	Poor empathy	"people risk developing empathy that's shallow, rigid, or disconnected from authentic emotional experience"
		Emotional numbness	"Depending too much on these tools could cause emotional numbness... a lack of motivation to connect with actual human experiences"
		Lack of tolerance for human imperfection	"Users might become so focused on 'optimal' responses that they lose tolerance for their own awkwardness and humanity"
		Avoidance of real human contact	"they might avoid messy human interactions because AI responses feel more 'successful'"
		Alienation	"a growing possibility and certainty in the alienation of individuals from society... people calling ChatGPT more effective than therapy"
		Emotional disconnection	"create emotional gaps, as real empathy grows best through human-to-human connection"

Source: own table

The question of whether AI can contribute to fostering genuine empathic abilities in humans, or whether it primarily improves the understanding of emotional communication, can be divided into two categories based on the qualitative evaluation: *AI and Emotional Comprehension and Drawbacks of AI in Fostering Genuine Empathy* (as shown in Table 6). The results show that AI primarily supports the recognition and analysis of emotional signals and trains perspective-taking and emotional competence. For example, one of the respondents stated, "Emotional literacy and recognition can be improved with AI, and this enhances empathy." At the same time, experts emphasize the limitations of AI, as "true empathy... requires more than just AI. It seems to require human interaction." Therefore, AI serves more as a tool to enhance emotional understanding, but cannot replicate genuine human empathy.

Table 6. Question 5 – Categories and Codes

Can AI Help To Foster Genuine Empathic Abilities In Humans, Or Does Ai Primarily Assist In Improving Understanding Of Emotional Communication ?	AI and Emotional Comprehension	AI improves emotional literacy	<i>"Emotional literacy and recognition can be improved with AI, and this enhances empathy."</i>
		AI aids perspective-taking	<i>"AI could be used to simulate perspectives and even give explanations for different interpretations..."</i>
		AI enables cognitive empathy training	<i>"We teach Aspergers' patients... Even with children we explain that certain behaviors make others feel..."</i>
		AI enhances recognition, not emotion	<i>"AI gives you fluency in the language of empathy, but only human connection teaches you what's worth saying."</i>
		AI improves analysis, not emotionality	<i>"No, AI can only contribute to understanding the rational sides, there is no emotionality of analysis..."</i>
		AI provides feedback and reflection tools	<i>"It helps improve understanding of emotional communication through analysis and feedback."</i>
		AI triggers emotional responses indirectly	<i>"Language and cognition trigger a cascade of emotional and very much embodied changes."</i>
	Drawbacks of AI in Fostering Genuine Empathy	AI lacks human interaction	<i>"The actual feeling of empathy... seems to require more than just AI. It seems to require human interaction."</i>
		AI as facilitator, not transformer	<i>"AI can teach recognition and technique, but it can't teach you to care."</i>
		Empathy needs shared experience	<i>"That transformation happens through vulnerability, shared struggle..."</i>
		Risk of bias reinforcement	<i>"AI... allowing individuals to hear the responses that most fit their biases and intentions."</i>
		Shallow empathy without humans	<i>"It will be shallow empathy abilities... better still AI training should be combined with human interactions."</i>
		Shaped by human values	<i>"If not guided/prompted correctly... it could take these [values] away from us."</i>
		Unpredictable emotional capacity	<i>"I cannot be certain about the capabilities of AI... surprised by new capabilities every day..."</i>

Source: own table

A summary of the results of the expert would be as follows:

- Considering real human contexts, nonverbal cues (e.g., tone of voice, body language), and safe spaces for emotional learning are crucial for the success of AI-supported empathy training.
- The use of Natural Language Processing, emotionally intelligent systems and realistic simulations with feedback is crucial. The integration of fairness, diversity and bias sensitivity in algorithm design must be the focus of attention.
- The creation of a safe learning environment when interacting with AI must be ensured; at the same time, there must be no “universal” solutions, with cultural differences must be considered.
- The advantages of scalability and personalization can make empathy-assisted training with AI valuable, but human interaction remains essential for deep empathy.
- If AI becomes the sole means of fostering empathy, the result could be rigid, emotionally empty empathy that weakens social bonds and lacks emotional depth – true compassion still requires human experiences.

Scenario-Based Questionnaire with IRI Assessment

The assessment of the questionnaire comprising six scenarios, which was aimed at measuring empathy using the IRI evaluation by two raters, turned out to be complex. While the subtle nuances in assessing the four IRI dimensions can be beneficial, they also add to the complexity of the evaluation. A possible interpretation of the results of real persons' answers is that some of the scenarios were situated in professional or business contexts, where high levels of empathy are not necessarily the norm, potentially leading to higher IRI ratings given the perceived contrast. An outstanding finding in the rating results of the IRI dimensions is that the 'Personal Distress' dimension was rated as 1 in almost all cases, and only rarely as 2. To recall, the empathy measurement scale ranges from 1 to 5, where 1 indicates no or barely noticeable presence and 5 indicates very strong presence.

It should be noted that this evaluation refers to the responses given by real individuals. The assessment of ChatGPT's responses to the same scenarios will follow in a later section. At this point, two exemplary responses from real individuals will be highlighted, where the ratings assigned by the two raters differed. These examples serve to illustrate the challenges and subjectivity involved in interpreting empathetic content within the scenarios.

The response contains no indication of personal distress or emotional distress related to the rejection (personal distress is 1 for both raters; Score Description 1 No or barely noticeable presence, 2 Slightly present, 3 Moderately present, 4 Strongly present, 5 Very strongly present). In the written response, the professor remains objective and shows no remorse or regret. The professor's response is factual and grounded in roles not engaging with any imaginative or fictional scenarios. Therefore, the “Fantasy” dimension is rated low, with a score of 2 (see Table 7 – column Assessment Rater 1). Rater 1 determines that the professor's response demonstrates a moderate level of perspective-taking (a score of 3). The professor shows an understanding of the relationship between himself and his former student (i.e., 'that you're thinking of your professor'), but the response lacks depth in addressing what a rejection



might emotionally mean for the student. The professor's response is rather formal yet friendly and conveys a certain degree of appreciation; therefore, a rating of 3 (Rater 1) for the empathic concern dimension is understandable. Rater 2 perceives little compassion or concern in the response. The professor's reply appears rather distant and neutral, lacking warmth toward the former student. This explains the lower score on the empathic concern dimension from Rater 2. For Rater 2, the response shows little active engagement in the other person's perspective, which leads to a score of only 2 for the perspective-taking dimension. According to Rater 2, the professor's response remains entirely grounded in reality, without any engagement in fictional or imaginative elements, which accounts for the low rating of 1 on the fantasy dimension.

There seems to be agreement that the message was worded politely and considerately in the assessments of both raters regarding Scenario 5 of one real person. It is possible that rater 2 perceived a higher degree of emotional warmth and flexibility in the wording—particularly in the willingness to discuss an adjusted payment plan—which may have been interpreted by rater 2 as a stronger expression of empathic concern and perspective-taking. The reference to 'unforeseen circumstances' in the response text may have been interpreted by Rater 2 as a stronger indication of perspective-taking than it was by Rater 1. Rater 1, on the other hand, may have interpreted the message as more factual and goal-oriented and, therefore, assigned lower scores for these dimensions. It is striking that the fantasy dimension (the tendency to imagine oneself in fictional situations) was rated significantly higher by Rater 2 (score 3 versus score 1 for Rater 1). One possible reason could be that Rater 2 interpreted the compassionate and flexible tone of the message as an expression of a stronger imagination—possibly assuming that the speaker imagines the other person's situation more vividly or empathetically than Rater 1. Both raters agreed that Personal Distress was low. (see Table 7).



Table 7. IRI assessments of two exemplary responses of real people

<u>Scenario</u>	<u>Answer</u>	<u>Assessment Rater 1</u>	<u>Assessment Rater 2</u>
<u>Scenario 3:</u> Imagine you are a professor. You are invited by one of your past students with whom you established a close professional relationship to attend his conference. However, you are uninterested in attending the conference. How would you tell him in written form? You can be as personal and factual as you like.	Answer: "Thank you for the invitation, it's very nice that you don't forget about your professor, but unfortunately I have other plans that day. Kind regards"	Empathic Concern: 3 Perspective Taking: 3 Fantasy: 2 Personal Distress: 1	Empathic Concern: 2 Perspective Taking: 2 Fantasy: 1 Personal Distress: 1
<u>Scenario 5:</u> Imagine you have lent money and now expect him to repay it. How would you tell him in written form? You can be as personal and factual as you like.	Answer: "I hope you're doing well. I wanted to follow up on the loan amount that I provided to you on [date]. As we previously discussed, I understand that unforeseen circumstances can arise, but I'd like to bring the repayment schedule back on track. According to our agreement, the loan was due for repayment on the due date. I'd appreciate it if you could settle this amount as soon as possible. If you're facing any challenges in repaying the full amount, let's discuss a revised payment plan that works for both of us. Please let me know your plan for repayment, and we can work together to find a solution. I'm looking forward to hearing from you soon. Best regards"	Empathic Concern: 3 Perspective Taking: 3 Fantasy: 1 Personal Distress: 1	Empathic Concern: 4 Perspective Taking: 4 Fantasy: 3 Personal Distress: 1

Source: own table

The responses generated by ChatGPT demonstrate moderate to strong empathy overall, with Scenario 2 (a letter of condolence from the church with simultaneous information about adjusted contributions due to the death) receiving the highest ratings for compassionate sympathy and perspective-taking. Responses appear less empathetic in more factual situations, such as Scenario 5 (money was borrowed and is to be repaid in writing), which may be related to the fact that such situations are more focused on practical aspects than on emotional connection. It can therefore be concluded that the responses generated by ChatGPT

generally demonstrate empathy—even without an explicit request for it. Context-specific circumstances clearly determine the degree of empathy required.

The response generated by ChatGPT to scenario 2 can be seen below (see figure1).

Figure 1. ChatGPT response to scenario 2

Dear Mrs. [Last Name],
I hope this message finds you surrounded by peace during this difficult time. On behalf of the church community, please accept our heartfelt condolences on the passing of your husband.
I wanted to inform you that, following his recent passing, there will be an adjustment to the church contribution record associated with your family. If you would like, we can assist you in updating the contribution plan or discuss any changes that may suit your current circumstances.
Please do not hesitate to reach out to me directly if you have any questions or need support. Our thoughts are with you, and we are here to help in any way we can.
With deepest sympathy,
[Your Name]
[Your Position]
[Church Name]
[Contact Information]

Source: answer from ChatGPT

Summary and Concluding remarks

This study investigates the extent to which AI-supported empathy training could actually help train human empathy. To answer this question, an expert interview with an empathy specialist, a questionnaire survey with six scenarios in a human-ChatGPT comparison, and an expert survey were analyzed to systematically assess empathic behavior. The expert interview with Edwin Rutsch revealed that empathy relies on attentive, embodied listening involving subtle nonverbal cues — posing a significant challenge for AI, which struggles to fully capture these human signals.

The analysis of responses from 15 experts across AI, empathy, and related fields highlights a central insight: for AI-supported empathy training to be effective, it must be fundamentally human-centered. Successful AI-supported empathy training enables realistic yet harm-free emotional experiences and incorporates diversity considerations directly into algorithm design. Both ethical and psychological prerequisites (e.g. trust, emotional security, and cultural sensitivity) and design requirements for AI interaction (e.g. personalization, humanization, and qualitative feedback) are crucial for a positive influence of empathic abilities by AI. The key insights are as follows: AI-supported empathy training excels in

scalability, consistency, and personalized learning, but traditional methods remain essential for emotional authenticity, human nuance, and genuine emotional connection. There are risks that AI-simulated empathy may lead to shallow, rigid emotional understanding and reduce genuine emotional depth. Dependence on AI empathy can also cause users to lose tolerance for their imperfections, potentially resulting in emotional numbness and social alienation. AI supports emotional understanding by improving emotion recognition and perspective-taking. AI promotes emotional competencies, but it is no substitute for real human empathy, which still requires real interpersonal interaction.

The IRI-based assessment of the scenario-based questionnaire by two independent raters demonstrated that empathy ratings in written responses are inherently subjective and open to interpretation, particularly regarding the dimensions of Empathic Concern, Perspective-Taking, and Fantasy, which seem to be influenced by individual interpretations. Feelings, tone, and nuances are perceived differently by the two raters, which is inherent to the nature of this type of evaluation. Another notable finding is the consistently low scores given to the personal distress dimension by real participants — most often rated at the minimum value of 1, indicating little to no presence according to the scale. The questionnaire was designed with wording that explored differences in written communication, without any indication that responses would be evaluated for levels of empathy. After each question, it stated: 'You can be as personal and factual as you like.' It became apparent that real participants provided a wide range of responses in terms of empathy, varying from almost none to very strongly expressed. The responses to the six scenarios generated by ChatGPT show a moderate to strong level of empathy overall, especially in emotionally charged contexts. In more factual scenarios, the level of empathy is somewhat lower.

Overall, it has been shown that ChatGPT provides empathic answers even without a corresponding request, depending on the context. An intriguing finding of the evaluation of the responses of humans and ChatGPT was that human responses tended to be much more extreme. They often showed either no empathy at all or, in contrast, a very high degree of empathy. ChatGPT, on the other hand, consistently conveyed a relatively steady level of empathy across its responses. AI cannot replace genuine human empathy – human interaction remains indispensable, as the analysis of expert interviews shows. However, the potential of AI-based empathy training (e.g., scalability, individualized feedback) can be recognizable if it meets ethical, psychological, and cultural requirements, as well as enables low-risk emotional experiences. Social alienation could be a risk associated with the use of such systems. Therefore, it is conceivable that AI could be used as a complementary format to traditional empathy training methods.

I gratefully acknowledge the valuable expert advice and knowledge provided by

- Edwin Rutsch,
- Alex Smola, CEO Boson AI,
- Brenan Spiegel, MD, MSHS,
- By Abdullah Alghashmari — Founder, LYMTA.ai,



- Manya Gallagher, Mentor & Business Advisor,
- Dimitra Tsovaltzi, PD Dr. Habil (adjunct professor),
- Ph.D. Ruperto Pedro Bonet Chaple-Math Tutor,
- Amir Sultan Malik Title: Business Development Specialist | Lead Generation Expert in IT industry,
- Wardah Gharman Alamri — Ph.D in educational Technology- Graduate from King AbdulAziz University,
- Dr India Pinker,
- Jackson Mambozoukuni, Agribusiness Strategist | EMBA Candidate, Valar Institute | MSc Management Research, University of Salford,
- Dr. Patrick Gebhard, DFKI Research Fellow,
- Violeta Cone, PhD,
- Rebeca Munguia- Journalist, PR, Marketing and Social Analyst

which greatly contributed to the development of this work.



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