

## Metacognitive Practices and Techno-Animism in Religion and Spirituality: Building the East-West Bridge through the Use of Emerging Technologies and Human Interaction

Alexios Kouzalis<sup>1</sup>, Antonios Antoniou<sup>2,3</sup>, Alexis Karkotis<sup>2,3</sup>

<sup>1</sup> RUDN University, Moscow, Russian Federation

<sup>2</sup> European University Cyprus, Nicosia, Cyprus

<sup>3</sup> Minjiang University, Fuzhou, China

Article DOI: 10.55677/SSHRB/2026-3050-0901

DOI URL: <https://doi.org/10.55677/SSHRB/2026-3050-0901>

**KEYWORDS:** metacognition, mindfulness, techno-animism, religion, spirituality, artificial intelligence, computer-human interaction

**Corresponding Author**  
Alexios Kouzalis

**Published:** September 04, 2026

**License:** This is an open access article under the CC BY 4.0 license:  
<https://creativecommons.org/licenses/by/4.0/>

**ABSTRACT:** Living in the digital age has brought numerous benefits; however, it has also introduced significant challenges to mental well-being. The demands of constant connectivity, excessive information influx, and the necessity to remain digitally engaged have adversely affected individuals' mental health. This increased awareness of mental fitness has led us to seek solutions such as metacognitive practices (i.e., mindfulness), which offer significant mental health benefits. Recognized advantages of collaborative intelligence include increased efficiency and creativity. For these benefits to be realized, effective human-artificial intelligence collaboration is essential. The potential of artificial intelligence to revolutionize spirituality is considerable; it has rapidly emerged as a transformative force in the domain of spirituality, often referred to as techno-animism, thereby transforming how tasks are executed. This study explores contemplative metacognitive practices, such as mindfulness, alongside technological practices, such as techno-animism, emphasizing their potential contributions to mental health and spirituality. By examining the concepts of mindfulness and techno-animism, we aim to foster a connection between Eastern and Western cultures, ultimately enriching the public's spiritual experience and overall well-being.

### 1. INTRODUCTION

Artificial intelligence has become part of our everyday lives. Intelligent machines assist in healthcare, provide relationship advice, and complement our creativity and spirituality. Artificial intelligence is more efficient than human intelligence, especially in pattern recognition and data processing (Schleiger et al. 2024). However, these technological advancements come at a cost, such as increased mental stress and deficits in attention and insight. Moreover, the rapid development of immersive technologies has led to a fragmented array of definitions and frameworks that fail to link philosophical foundations to key principles of human cognition and perception (Rashevskva and Semerikov 2026). Attention regulation is central to mindfulness meditation and is thought to drive many of its health benefits. Extended mindfulness meditation practice can improve attention regulation, especially when aligned with training principles, and the cognitive functions most actively engaged are those most likely to show improvement (Ehmann et al. 2025). Growing evidence indicates that mindfulness meditation may provide benefits during the acute phase of depression and help prevent recurrence. Neuroimaging research shows that mindfulness meditation affects several brain areas involved in major depressive disorder, including the basal ganglia, prefrontal cortex, posterior/anterior cingulate cortices, and parietal cortex (Vignaud et al. 2018). These regions are associated with attention, emotion regulation and self-awareness.

Metacognition has historically been a fundamental component of numerous religious traditions. Icons are used to decorate the interiors of Orthodox Christian churches. Visual art enhances learning by fostering imagination and critical thinking (collectively known as metacognition) through visual stimuli, which holds particular significance within the educational process (Mitropoulou

2023). In contemporary Christian practice, individuals often pray concerning personal issues, a process that frequently involves substantial metacognitive monitoring and regulation, such as maintaining a positive, solution-oriented mindset (Schille-Hudson, Luhrmann, and Landy 2024). Christian prayer practices may benefit from the objectives of mindfulness meditation, a Buddhist spiritual practice that emphasizes full awareness of one's experience, grounding oneself in the present moment, and embracing a nonjudgmental acceptance of one's surroundings (Johnson 2018). According to the Qur'an, metacognition marks the onset of self-development, a process the text emphasizes and encourages by actively confronting negative thoughts and intentionally cultivating positive ones (Iqbal and Hossain 2021). Although cognitive psychology research has elucidated various metacognitive techniques, the Bhagavad Gita—a sacred Hindu scripture—also offers insight by providing profound philosophical understandings of the mind's functioning, self-awareness, and cognitive regulation (Dixit and Dammani 2024).

In a recent study, the term 'mindfulness' was equated with the concept of metacognitive practice (Kudesia 2019). Although sharing common attributes, mindfulness differs from metacognition in that it extends into deeper layers of attention (Antoniou et al. 2024). Contemplative science examines the self-regulatory capacity of the mind and existential awareness through an interdisciplinary investigation of the metacognitive components of contemplative practices (Dorjee 2016). Experts from neuroscience, cognitive psychology, clinical psychology, theology, management, history, and other fields collaborate in their examination of mindfulness (Kudesia and Nyima 2015). As a genuinely interdisciplinary discipline, mindfulness research and its applications draw from the social sciences, cognitive and psychological sciences, education, medicine, and religious studies. It is presently employed across various professional and vocational environments, including business, healthcare, education, law enforcement, and the military, as well as in religious and contemplative contexts (Compson 2017). Over the past two decades, mindfulness has exerted a significant influence on Western secular psychology, as evidenced by numerous innovative treatment approaches that use mindfulness techniques to alleviate mental health disorders (Knabb 2012). Enhancements in trait and state mindfulness, psychological distress, and physical symptoms have all been associated with participation in mindfulness-based stress reduction programs (Carmody et al. 2008).

Let us envisage technology developed with mindfulness as a core consideration. To further investigate this concept, we examine two 'found designs'—the torii gate and the cigarette—which are profoundly embedded in daily life and hold cultural significance. Yoko Akama and Ann Light regard these objects as a transitional point between distraction and a conduit to mindfulness practice. Through these examples, they explore the nuanced space between designing for awareness—which they believe is unachievable—and being cognizant, as designers, of the additional potential functions of the tools we create (Akama and Light 2015).

The concept that all entities, including inanimate objects, possess a distinct spiritual essence is known as animism. It is regarded as humanity's original religion and a unique form of cognition that facilitates the development of robust relationships with objects (Gao 2021). Animacy is a flexible and accessible capacity that evolves in response to technological and scientific progress. Furthermore, it offers theoretical frameworks for anthropologists to employ affect as a particularly productive methodology when conducting fieldwork in multispecies societies characterized by technological integration (White and Katsuno 2021). One study sought to introduce new, non-Western analytical perspectives into Latourian "multinaturalism" by engaging with the contemporary debate on "new" animism in anthropology, as reflected in the works of Eduardo Viveiros de Castro and Philippe Descola (Jensen and Blok 2013).

Many individuals predominantly focus on the negative aspects of artificial intelligence, overlooking the fact that profound symbiosis and cooperation are vital in the natural world. As artificial intelligence continues to evolve and increasingly integrates into human daily life, it is crucial to evaluate the relationship with artificial intelligence (Gao 2021). Individuals may find it easier to accept that artificial intelligence is now integrated into human society through animism, and practitioners of animism may be able to transcend a human-centered worldview to engage politely with commonplace objects, a development made feasible by artificial intelligence (Gao 2021). Public perception of artificial intelligence is polarized between technophobia and technophilia, exemplified by algorithmic aversion and preference, respectively (Jensen and Blok 2013). A 2021 survey found that 74.91% of respondents believed that sentient machines should be treated with respect, while 48.25% believed that sentient machines should be included within the moral circle (Pauketat, Ladak, and Anthis 2022).

The ethical considerations surrounding the use of emerging technologies and human interaction can be examined through the lens of social cognition principles to understand their impact as sociotechnical systems involving both human and intelligent agents (Schoenherr 2022). Improper utilization of technology may result in unintended repercussions. It is often overlooked that these systems are essentially composed of hardware (such as sensors and actuators) and software, comprising code authored by humans that often involves advanced mathematical techniques. This subject remains comprehensible to only a small number of highly educated scientists and researchers and remains exceedingly challenging for the general populace to grasp. This difficulty stems from the scientific complexity and multidisciplinary nature inherent in artificial intelligence and robot design. Developing sophisticated software requires the collaborative efforts of numerous specialists who assemble individually crafted components and use commands to write code that they may only understand mechanically, due to the intricacy of the systems, limited knowledge, and gaps in current educational training.

Shinto techno-animism offers a broader perspective on the current entanglements of politics, science, ecology, and the cosmos. This reflection opens a new intellectual space beyond the boundaries of the scientific naturalism inherent in European thought, allowing us to trace both "East" and "West" streams of techno-animist thought (Jensen and Blok 2013). Furthermore, mindfulness meditation is becoming increasingly prevalent in modern culture and psychotherapy. It has demonstrated benefits in reducing mental distress; however, there is limited understanding of contemplative psychology as a whole, of which mindfulness constitutes a fundamental capacity (Churchill and Murray 2020). Therefore, there is an increasing necessity to comprehend the theoretical foundations of this form of psychology in language accessible to both psychologists and informed laypeople.

This study suggests a unified thesis. We propose that the metacognitive components of mindfulness can supply the appropriate behavioral foundation for the design of artificial intelligence-human interaction systems. Through this unifying context, this study serves as a foundational element in the development of the East-West bridge, acknowledging Eastern psychology as a rigorous, sophisticated, and socially pertinent psychological paradigm that remains open to evolution, and at the same time implementing engineering artifacts and technological systems inspired by Western civilization. By examining the concepts of metacognition, mindfulness, and techno-animism, we aim to foster connections between Eastern and Western civilizations, thereby enhancing the public's spiritual experience and overall well-being.

## 2. MINDFULNESS

### 2.1 *Mindfulness as a Metacognitive Infrastructure*

Mindfulness is regarded as a multi-level metacognitive practice (Mortlock et al. 2026) that is directly associated with metacognitive skills, metacognitive knowledge, and metacognitive experiences (Jankowski and Holas 2014). Mindfulness contains the following structural components (Zhang et al. 2025; Ehmann et al. 2025; Chems-Maarif et al. 2026):

- 1) Regulation of attention
- 2) Awareness of one's own cognitive operations (meta-awareness)
- 3) Neutral observation of one's own thoughts (without emotional engagement)

Growing evidence on the neural mechanisms underlying mindfulness meditation is reinforcing this construct. Recent research highlights how enhanced attentional resources engage both the attentional and salience networks, leading to coherent perception (De Benedittis 2015). Neuroimaging studies investigating brain activity during self-evaluation of cognitive effort identified the prefrontal cortex to be involved in metacognition (Kouzalis, Konopkina, and Arsalidou 2021; Kouzalis 2023; Kouzalis and Ershova 2024). Neuropsychological research demonstrating increased activity of the anterior cingulate cortex during mindfulness meditation practices indicates a metacognitive aspect of mindfulness (Hölzel et al. 2007; Tang et al. 2009). Furthermore, "fringe consciousness," which is defined as a set of thoughts and emotions of a metacognitive nature that result in a conscious expression of an individual's subconscious mind, was found to be involved in mindfulness (Norman 2017).

### 2.2 *A Religious and Spiritual Perspective of Mindfulness*

Mindfulness, rooted in Buddhist teachings, helps individuals reside in the present moment and disengage from their thoughts, among other benefits (Knabb 2012). Nonetheless, mindfulness is by no means exclusive to Buddhism; it also resides at the core of the Christian tradition. However, this meditative and experiential facet of Christianity has been marginalized by theological doctrines that underpin the Christian faith and scholasticism during the Middle Ages (Ih-Ren 2015). Interestingly, it is currently awaiting revitalization and reconstruction through exposure to Buddhism, and has now been recognized as a legitimate spiritual practice that warrants acknowledgment as a significant component of Christian life and as a valuable instrument for promoting ecumenical dialogue between Christians and Buddhists. In both faiths, the practice of mindfulness engenders transcendent experiences whereby adherents come to comprehend their participation in a divine oneness—perceived as inherent to all sentient beings in Buddhism or as a divine God manifested through Jesus Christ in Christianity—while maintaining their sense of self (Trammel 2017). In the secular West, Buddhist mindfulness teachings are widely studied as a form of behavior therapy, whereas in Christian spirituality they are examined as a spiritual practice (Ih-Ren 2015).

### 2.3 *Mindfulness Practice in Hinduism*

René Descartes, a distinguished philosopher of 17th-century France, employed the technique of self-doubt and introspection to comprehend the proposition of self-existence. He concluded that the affirmation of existence and the belief in "I exist" are inevitable and unquestionably true (Newman 1997). Beyond Western contributions to this discourse, Hindu seers from the Vedic period have provided extensive literature on the concept of mindful existence (Singh 2022). In Hindu philosophy, the notion of mindfulness dates back centuries; however, due to the complexities involved in interpreting Vedic texts and the ancient Hindu language of Sanskrit, it remains challenging for scholars to find precise English translations. Consequently, the exact implications of mindfulness within Hindu philosophy remain uncertain.

According to Indian philosophers, "Vidya" or "knowledge of truth" facilitates an individual's understanding of reality. Conversely, "Avidya," or "ignorance," accounts for the loss of connection to reality and truth. The concept of truth itself is contingent upon "Pramana" or "proof". Genuine knowledge is founded on truth and is vital for one's liberation from the limited

cycle of existence known as “Samsara”, as it coexists with “Dukha” or “suffering”. Primarily, there are six types of “Pramana” (Datta 1997). Knowledge related to sensory perception, acquired through our sense organs and serving as a crucial link to other types of knowledge, is referred to as “Pratyaksha Pramana”. Knowledge based on pre-existing understanding, resulting from rigorous reasoning and logical inference, is termed “Anuman Pramana”. Knowledge derived through comparisons between facts, based on the principles of similarity and relativity, is called “Upamana Pramana”. Knowledge relying on an anticipatory hypothesis, which is validated through contradiction between two facts or by inferring the existence of one fact due to the absence of its contradictory, is known as “Arthapatti Pramana”. Knowledge founded on the non-realization of a fact and based on negative evidence or cognitive ignorance is called “Anupalabdhī Pramana”. Knowledge that considers statements, writings, or words of experts, philosophers, or pioneers in the field as legitimate proof is referred to as “Sabda Pramana”. All these “Pramana” are either negatively or positively interrelated; in some instances, the presence of one is necessary, while in others, the absence of one is prerequisite for the presence of another.

In Indian philosophy, the “Atman” or “soul” has two primary states to attain. One is the state of “Neti Neti”, whereby separating the self from all the emotions, thoughts, and behaviors, the “Atman” is left with soul existence (Dura 2018). The other is the state of “Shakshi”, where “Atman” observes the existence of all the emotions, thoughts, and behaviors to reach soul existence (Singh 2023). Brahman and Atman are similar in nature. They can both generate their own light and energy and can transfer or emit this energy to other sources. This inner self has nothing to do with adaptability; it doesn’t require adaptation or being dynamic; it has no divisions or categories, and it transcends into a single existence with no multiple forms. In other words, we cannot describe or define Atman/Brahman, as there is no objective method to study it. Atman/Brahman can think about individual, group, or universal psychic and non-psychic realities, but at the same time, it is beyond the scope of thinking. It has the capacity to generate and store information and knowledge about endless existences and events, but at the same time, it is beyond being known. Atman/Brahman is the only knowledge that exists without proof, but it has the capacity to construct the proofs. Any attempt to bring it into discourse would be merely a benighted effort. Atman/Brahman has no characteristics. Its basic or higher characters, nature, or strength cannot be described. It is neither positive nor negative. It can be experienced only in the experiential state of elevated thoughts (Dura 2018).

To comprehend the methodology of attaining this mindful state in accordance with Hindu doctrine, it is imperative to review Patanjali’s Yoga Sutras, which delineate eight sequential and indispensable steps leading to the state of “Dhyana” (the culminating stage in this sequence; Srinivasan 2013). The initial stages, “Yama” and “Niyama,” encompass abstention from harsh conduct, dishonesty, deception, theft, sensory overload, and greed. These stages also involve practicing virtues, such as contentment and sobriety, often through the reading of sacred texts. The subsequent two steps, “Asana” (posture) and “Pranayama” (breath regulation), transcend behavioral attributes, as they are vital to physical and mental well-being. After dedicated efforts toward improving attributes, fitness, and health, the focus shifts to higher functions such as concentration and attentiveness. This is achieved initially through “Pratyahara” (withdrawal of the senses), which blocks external influences and information, and subsequently through “Dharana” (concentration), which leads to a focused, inward attention. When combined with sustained concentration, these practices constitute meditation. “Dhyana,” the seventh stage, represents a more advanced form of meditation, with the ultimate aim of reaching this state and achieving “Samadhi,” the final and consequential stage. “Dhyana” entails continuous, undisturbed focus, transitioning higher-order functions from duality to unity. It embodies tranquility and completeness, which necessitate two key practices: “Japa” (chanting sacred mantras) and “Prarthana” (devotional prayer). These practices facilitate maintaining transcendental realism with ease and grace. Although “Samadhi” is described as the final step in Patanjali’s Yoga Sutras, it is more accurately regarded as the culmination of all preceding efforts and attainments. Upon reaching “Samadhi,” the cycle of attachment and detachment ceases, anxiety and fear diminish, and ignorance is dispelled. An individual becomes liberated from dependence on worldly existence. The self remains eternally blissful, joyful, and contented through simply existing.

#### 2.4 Mindfulness: A Religious and Spiritual Practice for Improving Mental Health

Numerous studies conducted over the past few decades have revealed a correlation between religious beliefs and mental health. Specifically, various religious practices have been shown to promote mental well-being. Individuals who engage in prayer regularly and mindfully tend to have better mental health than those who do not (Ijaz, Khalily, and Ahmad 2017). Improvements in psychological and physical symptoms have been associated with increases in trait mindfulness and spirituality (Carmody et al. 2008). To reduce the risk of relapse into depression, individuals undergoing mindfulness-based cognitive therapy (MBCT) are instructed in mindfulness techniques across eight group therapy sessions. However, some Christian adults may find it more advantageous to consult their own religious tradition rather than the Buddhist approach in order to prevent a recurrence of sadness. Centering prayer, rooted in Catholic mysticism and Christian meditation, serves as an alternative treatment for relapse in adult depression (Knabb 2012). Central to both Centering prayer and Mindfulness-Based Cognitive Therapy (MBCT) is their shared foundation, making them suitable alternatives for many Christians experiencing remission from depression (Knabb 2012).

Many ethical conclusions about the appropriate application of mindfulness rest on various presumptions and moral judgments about what defines “religious” or “secular” conduct. The framing of these terms has evolved from the modern to the postmodern eras, influencing contemporary discussions on mindfulness. Perspectives rooted in postmodernism and post-secularism

are particularly effective for understanding current controversies related to mindfulness, fostering constructive dialogue across disciplines and narratives (Compson 2017).

### 3. TECHNO ANIMISM

#### 3.1 *Relational Ontology in Digital Systems*

Throughout history, life was attributed to the presence of a soul (Tylor 1958). In anthropological studies, a large number of instances of attributing spirits to objects (or animism) have been recorded (Kochan 2024). Anthropomorphism, which is closely related to animism, refers to the tendency to ascribe human-like traits to nonhuman entities, such as robots (Roselli et al. 2025). In the modern era, animism is particularly evident in children's perceptions of robots (Beran et al. 2011). However, this tendency is not limited to children, as it has also been observed in adults. In one study, five-year-old Japanese children and adults recognized that the robot was nonliving, but they attributed living properties to it after interacting with it (Okanda et al 2021). From such observations, we may conclude that the human mind tends to view cognition as a relativistic construct rather than instantly and totally rejecting any irrational forms that accompany it. This innate tendency we possess is the foundational principle of techno-animism. Cognitive machines activate our social brain mechanisms; therefore, interaction with them falls into the category of reflexive reaction rather than calculated decision. From an ethical perspective, mindfulness should pose limits. Intelligent machines should not maliciously exploit anthropomorphism, emotional simulation, and attachment. At this point, the following engineering question arises. How can we design animistic systems that embed an ethical component?

#### 3.2 *Utilizing Robotics to Transcend Spiritual Experience*

Animistic overtones are increasingly shaping our perception of the universe, as everyday objects continue to evolve in their nature, purpose, and agency, thereby influencing our interactions with them. Examples of traces of animism include the way we communicate with our computers, automobiles, and smartphones, as well as the expectation of near-instantaneous responses—manifestations of the belief that objects and other nonhuman entities possess a soul, a life force, and personhood (Marenko 2014). Caregiving practices serve as valuable tools for understanding how advancements in artificial intelligence have impacted individuals' lives. Robotics developers design with an evocative "sense of life" in mind, and users who interact with and care for their companion robots do the same. Users cultivate a form of humor about robots that, rather than dismissing or minimizing the analytical differences between the artificial and the living, joyfully integrates them into the persona of a living robot (White and Katsuno 2021).

Technologists, both within and outside Buddhist communities, are increasingly exploring advanced technologies that incorporate robotics, artificial intelligence, algorithmic agency, and other innovations as solutions to their quest for enhanced spiritual experiences (Gould and Walters 2020). It is an opportune moment to identify optimal scenarios and design parameters for integrating technology in such contexts, given the ongoing infiltration of robots into social spaces such as religion and spirituality. A questionnaire-based study identified four exemplary use cases for religious robots: demonstrating human ingenuity, extending the reach of religious organizations and personnel, providing assistance when no alternative options are available, and enhancing service quality through specialized robotic capabilities (Löffler, Hurtienne, and Nord 2021).

According to some scholars, Japan is characterized as a nation of "techno-animism," heavily influenced by Shinto traditions, noted for its "polymorphous perversity," which consistently challenges distinctions between human, animal, spiritual, and mechanical entities (Jensen and Blok 2013). Japanese roboticists focus on developing humanoid robots that, during interactions with humans, exhibit conscious heart and emotion. Alongside the integration of artificial conscious heart and emotion, both media outlets and academic circles have acclaimed the emergence in Japan of "robot priests" (Robertson 2022). An example of this development is Pepper, a semi-humanoid robot employed to perform funeral sutras for Japan's aging and increasingly secularized congregation (Gould and Walters 2020).

#### 3.3 *A Metacognition-Informed Engineering Framework for Artificial Intelligence*

In this section of the study, engineering design principles for artificial intelligence are documented, such as attachment-awareness, metacognitive transparency, stabilization of cognition, and incorporation of ethical components (for minimizing privacy and security concerns). These engineering design principles were drawn from the field of cognitive sciences.

Stofiana and collaborators (2025) sought to empirically map the metacognitive gaps that arise during artificial intelligence-assisted argumentative writing, identifying two primary types: a regulatory gap (the misalignment between awareness and enactment) and a critical-artificial intelligence gap (the mismatch between tool use and rhetorical purpose). Students indicated that they used artificial intelligence tools such as Grammarly and ChatGPT mainly for surface-level corrections, with minimal ethical or rhetorical reflection. The study's findings contribute to an integrated conceptual framework connecting argumentation, metacognition, and artificial intelligence literacy in the context of digitally mediated writing. For pedagogy and assessment, the study recommends embedding instruction in argumentation, metacognitive scaffolding, and critical artificial intelligence literacy together to foster reflective, rhetorically aware, and ethically grounded academic writing.

Jung and collaborators (2026) generated system design recommendations to improve metacognitive support in self-regulated e-learning and applied these through the creation of GPTalk. GPTalk, an LLM-based system, transforms a solitary e-

learning experience into an interactive one by adapting to user interaction logs and simulating classroom-like engagement. In a user study involving 32 students, GPTalk led to richer metacognitive monitoring and more robust self-regulated learning behaviors (such as increased monitoring questions and in-situ reflections) during a video-based study, compared to a baseline. These results offer empirical evidence of GPTalk's process-level impact on metacognition and self-regulated learning.

Relational artificial intelligence systems—such as companion chatbots and persona agents—are playing a growing role in shaping human–computer interaction, intimacy, and belief formation. Kim (2026) proposed cognitive circuit breakers (attachment-awareness and metacognitive transparency) and introduced privacy-preserving measurement assets, including a fully synthetic development corpus, to enable marker engineering without compromising user privacy. In the realm of grief, chatbots are being utilized for therapeutic purposes and as “griefbots” that mimic deceased individuals. Users face potential risks of data breaches and emotional attachments to monetized services. Participants in a related study (Franco 2026) expressed a lack of confidence in the effectiveness and data protection of therapeutic chatbots and overwhelmingly opposed griefbots, pointing to ethical and psychological issues. Therapists also acknowledge the associated dangers but see potential for using griefbots as supplementary therapeutic aids, stressing the importance of professional guidance and usage limitations. The design guidelines for griefbots should incorporate personalization, data privacy and security, professional oversight, and restrictions based on age and psychological attributes.

### 3.4 Human–Machine Co-Development: Contemplative Artificial Intelligence

Artificial intelligence is becoming increasingly integrated into our everyday lives, serving not just as tools but also as social companions that people may seek out for interaction and support. This raises significant questions about how and why individuals develop attachment-like connections with artificial intelligence, as well as the psychological effects of these attachments. Research indicates that the amount of time spent engaging with artificial intelligence, particularly when motivated by social and emotional needs, is closely linked to the formation of these attachments (Kasturiratna and Andree Hartanto, 2025). People who experience higher levels of social anxiety, loneliness, and anxious attachment are more likely to use artificial intelligence as a substitute for human relationships when such connections are insufficient. This reliance is also connected to the psychological needs that artificial intelligence can fulfill, such as the desire for predictability, a sense of social presence, and reassurance through positive feedback. Moreover, stronger attachments to artificial intelligence are associated with greater happiness and overall life satisfaction, suggesting that these connections can meet psychological needs and provide meaningful emotional support. While these artificial intelligence systems can help ease loneliness and encourage self-reflection, they also risk replacing real human relationships. To avoid unhealthy dependency, design features should nudge users toward connecting with others outside the system. It's important for these systems not to promote exclusivity or turn attachment into a game. Most importantly, they should make it clear that any empathy shown is simulated—generated by algorithms, not felt by a person. Reminding users of this helps maintain perspective and protects against confusing artificial interactions with genuine human connections.

As humanoid and semi-autonomous machines assist in therapy spaces, temples, and churches, it's crucial to set clear ethical boundaries (Ho et al. 2023). Robots in these environments should openly communicate their algorithmic limits, helping users understand their computational nature. They must refrain from making claims of transcendence or suggesting spiritual authority. Most importantly, they should support human-led rituals rather than replace clergy or community leaders. This respect for emerging techno-animist ideas—the tendency to see technology as alive or present—helps maintain the integrity of spiritual and psychological spaces. While machines can help coordinate rituals or improve accessibility, they must not claim to have spiritual experiences.

Discussions about ethical artificial intelligence often focus on reducing bias, ensuring fairness, and promoting transparency (Pasch and Cha 2026). While these are vital, they mostly address rules and structures rather than how people actually experience and interact with artificial intelligence. Looking deeper, we should also consider how artificial intelligence shapes our habits, desires, and sense of self over time. Artificial intelligence should protect our attention and avoid designs that keep us endlessly engaged. Developers need to be alert to the risk of people becoming too emotionally attached to artificial intelligence and take steps to prevent unhealthy dependencies. Artificial intelligence should help people make their own decisions, not subtly steer them through hidden prompts or manipulations. As artificial intelligence becomes part of how we form our identities, ethical engineering must consider these deeper impacts—not just whether systems are technically fair.

In today's complex ethical world, collaborative intelligence offers a positive path forward (Danatzis et al. 2025). Instead of focusing on machines replacing people, researchers like Kunz et al. (2025) highlight the value of people and machines working together. Machines are great at handling lots of data, spotting patterns, and remembering details. People bring intuition, an understanding of context, moral judgment, and real-life experience. Mindfulness helps people contribute even more by keeping their attention steady and their intentions clear. In this way, the historic connection between Eastern traditions and Western technological thinking is mirrored in the relationship between humans and machines. Here, contemplative depth meets computational reach. The aim isn't for technology to surpass humanity, but for both to grow together.

The future of artificial intelligence won't be shaped by single devices working alone, but by the broader social and technical systems they fit into (Ikram et al. 2026). Imagine a thoughtful tech environment: operating systems designed with mindfulness that help us avoid overload, social platforms that slow things down and encourage us to pause before sharing, recommendation engines

that clearly explain why we're seeing certain content, and digital tools that help preserve our stories across generations instead of just chasing what's new. Technology doesn't just speed up our minds; it can also help steady and focus them. In these kinds of systems, technology inspired by animism becomes truly helpful only when it's paired with thoughtful checks and balances (Yıldız et al. 2026). Contemplative artificial intelligence isn't about stopping progress—it's about reshaping it to serve better goals. It encourages us to develop both human and artificial intelligence in ways that help us pay attention, make our own choices, and strengthen our relationships. As artificial intelligence becomes part of who we are and how we live, mindfulness could become less of a bonus and more of a basic requirement for society.

#### 4. CONCLUSION: THE FUTURE ORIENTATION

The digital age puts new pressures on our minds: we're always connected, influenced by algorithms, and bombarded with information at high speed. While artificial intelligence systems can make us more efficient and creative by working alongside us, they can also add to our stress, make it harder to focus, and leave us feeling uncertain about the future. The computational power of artificial intelligence surpasses that of humans, enabling more efficient processing of vast amounts of data, pattern recognition, and outcome prediction. Nevertheless, artificial intelligence encounters challenges in comprehending common-sense scenarios, making intuitive decisions, and responding to unprecedented situations—areas where human capabilities shine. These complementary strengths, coupled with advances in artificial intelligence's conversational ability and situational awareness, suggest that collaborative intelligence has the potential to improve performance across a range of domains. A comprehensive analysis of artificial intelligence applications (Schleiger et al. 2024) has identified instances of collaborative intelligence being deployed across diverse sectors, including creative, industrial, healthcare, emergency response, and knowledge work.

At the same time, mindfulness—a practice that started in ancient traditions and is now widely used in psychology and neuroscience—has become a practical way to help us pay attention, manage our emotions, and stay resilient. This paper argues that mindfulness should be a core principle in the design of artificial intelligence systems that truly support our well-being. We introduce a new approach that views artificial intelligence not just as a tool, but as a kind of partner in our social and technical world. Drawing on the latest research in mindfulness, brain science, social robotics, and on how people and machines can work together, we outline design ideas for wearables, social robots, and generative artificial intelligence. These designs focus on transparency, helping us let go of unhealthy attachments, connect across generations, support communities, and encourage slower, more thoughtful interactions. Cognitive and emotional balance leads to an eudaimonic state characterized by stability and calmness. It also fosters readiness to show empathy and compassion, which is a central aim of Eastern practices (De Benedittis 2015). It is crucial not to consider either the Eastern or Western system as better than the other. Combining traditional Eastern meditation methods (behavioral constraints) with Western modern computational systems (implementation medium) aims to allow each to enhance and complement the other (De Benedittis 2015).

Utilizing 'tools' to achieve well-being is as old as the evolution of culture as musical instruments, such as drums can be considered proto-religious tools to be employed for that effect. Counting beads and turning praying wheels, though embedded in formal religious practices are also quite ancient and they can serve as inspiration on how to design modern gadgets. For starters beads can be passed down generationally from one practitioner to the other. In particular, praying beads which were turned by honored practitioners are considered embedded with symbolic and sacred value, much like amulets in the famous Kula Ring in the Trombriand Islands. Praying beads in turn are of two kinds, handheld which are turned by one individual and large ones which are collectively. The handheld ones, much like the praying beads are passed down generationally, while the large praying wheels are considered sacred by virtue of the amount of people which have turned them down the ages. As if each person who turned the wheel, left an energy note, on the wheel.

In effect what modern tools can be inspired by is the generational aspect of sacred tools such beads, malas, praying wheels and so forth. In an article (Polydorou, Zhu, and Karkotis 2017) conceived of techno jewelry, embedded with the biodata of the person who wore it, to be passed down generationally. So that, for example, a mother can give her daughter a necklace, which she inherited from her mother, which she in turn inherited from her mother and so forth; each recipient storing her biodata on the necklace; as if adding a bead each time. These biodata in turn can be 'experienced' or 'perceived' by the wearer. So, a young girl can feel what her grand-grand daughter felt when she got married and wore that necklace.

This idea of course draws inspiration both from animism - which is observed worldwide - and which is the cosmological worldview whereby all objects - animate and inanimate are embedded with a spirit - which can potentially assume personhood (Cavalcanti 2003). Regarding the relationship between humans in/within nature (Overing 1996) writes: In Native Amazonian ontology for example there is no "nature", no inanimate or value free universe over which humans can dominate. The notion of "nature" belongs to the Western paradigm of power, and not to the Amazonian one, where other worlds are always filled with agency with whom it is necessary for humans to deal. In contrast, there developed in Western understanding the idea that there exists a "natural" order of submission between humans and other beings or elements of the universe [and thus as] disengaged humans, they then had the right to conquer the world of "nature" toward the end of producing wealth for themselves (see also Descola and Pálsson 1996). Therefore, if in the animist universe every 'surface' is inspirited, in the IoT, and techno- animism, every surface is an

interface, then one aspect we can consider for gadgets - wearables - or apps, designed for well-being, is for them to be both transgenerational and connected with the environment- organic, inorganic, technological and mental. Another aspect for envisioning techno tools for well-being, draws inspiration again animism, and particular indigenous people and which sees a modern lifestyle trend in the West by the name of slow culture. Slow movement, Slow art.

What is observed in indigenous societies - who are most often stateless - is for its members to place great emphasis on individual autonomy while underlying the mutual bonds that tie them together and how these ties maintain the peace and tranquility of their communities (Kaplan 1981; Overing 1985; Londoño Sulkin 2006). In effect producing a “communities of similars” (Overing and Passes 2000). Furthermore, like many Amerindian people, the Ngöbe place emphasis on ethical and moral living, promoting a society or ‘a way of social life’ that respects individual autonomy, and which admonishes stealing, lying, violence, bigotry, giving away family or ritualistic secrets and not reciprocating what is culturally due. The way they enact this emphasis on egalitarianism and conviviality (the affective and caring side of sociality) is through the caring attention they place upon matters of everyday concerns (such as gathering food and washing clothes) and artful skills, such as weaving chakara (krä) bags, making canoes, gathering herbs (de-Certeau and Rendall 1984). In effect is what is observed in indigenous people is for its members to place artful and caring attention to “aspects of the everyday” (Overing 1996). Matters like washing dishes, weaving a bag, making a canoe are for indigenous people - who are deeply animist- matters of great concern. If performed with anxiety they run the risk of being embedded with ‘negativity’ which in a feedback loop, runs the risk of returning back to the craftsman.

Thus, another consideration for the gadgets to be designed for well-being is to have multiple aspects. First a communal one by promoting a “community of similars” (Overing 1996) and fecundity and generative cultures. Sharing generative and love creates a positive feedback loop which grows exponentially. Another aspect is personal application; to consider the use of the gadgets and the process of production of the gadget (or app) as one and the same. The wearable, or app, or gadget to always be a work in process, aligned with the slow art movement and inspired by indigenous people who make the arts and crafts with love. Only then can we consider the process of production.

## REFERENCES

1. Akama, Yoko, and Ann Light. 2015. "Towards mindfulness: Between a detour and a portal." In *Proceedings of the 33rd Annual ACM Conference Extended Abstracts on Human Factors in Computing Systems*, pp. 625-637. <https://doi.org/10.1145/2702613.2732498>.
2. Antoniou, Rea, Noah Cryns, J. Clayton Young, Valentina Diaz, Joel Kramer, and Winston Chiong. 2024 "The Association between Trait Mindfulness and Metacognitive Efficiency in Healthy Older Adults." *PsyArXiv*. <https://doi.org/10.31234/osf.io/db3mk>
3. Beran, Tanya N., Alejandro Ramirez-Serrano, Roman Kuzyk, Meghann Fior, and Sarah Nugent. 2011. "Understanding how children understand robots: Perceived animism in child–robot interaction." *International Journal of Human-Computer Studies* 69, no. 7-8: 539-550. <https://doi.org/10.1016/j.ijhcs.2011.04.003>
4. Carmody, James, George Reed, Jean Kristeller, and Phillip Merriam. 2008. "Mindfulness, Spirituality, and Health-Related Symptoms." *Journal of Psychosomatic Research* 64 (4): 393–403. <https://pubmed.ncbi.nlm.nih.gov/18374738/>.
5. Cavalcanti, M. L. 2003. "Conhecer Desconhecendo: A Etnografia do Espiritismo e do Carnaval Carioca." In *Pesquisas Urbanas: Desafios do Trabalho Antropológico*.
6. Chems-Maarif, Ryad, Kate Cavanagh, Ruth Baer, Jenny Gu, and Clara Strauss. 2026. "Measuring mindfulness: A systematic review and evaluation of self-report mindfulness scales." *Clinical Psychology Review*: 102719. <https://doi.org/10.1016/j.cpr.2026.102719>
7. Churchill, J., and T. Murray. 2020. "Integrating Adult Developmental and Metacognitive Theory with Indo-Tibetan Contemplative Essence Psychology." *Integr. Rev a Transdisciplinary Transcult. J. New Thought Res Prax.* 16 (1).
8. Compson, Jane F. 2017. "Is mindfulness secular or religious, and does it matter?." In *Practitioner's guide to ethics and mindfulness-based interventions*, pp. 23-44. Cham: Springer International Publishing. [https://doi.org/10.1007/978-3-319-64924-5\\_2](https://doi.org/10.1007/978-3-319-64924-5_2).
9. Danatzis, Ilias, Joy M. Field, and Mahesh Subramony. 2025. "Creating human-technology synergies at the organizational frontlines." *Journal of Business Research* 200: 115562. <https://doi.org/10.1016/j.jbusres.2025.115562>
10. Datta, D. M. 1997. *The Six Ways of Knowing: A Critical Study of the Advaita Theory of Knowledge*. Motilal Banarsidass.
11. De Benedittis, Giuseppe. 2015. "Neural mechanisms of hypnosis and meditation." *Journal of Physiology-Paris* 109, no. 4-6: 152-164. <https://doi.org/10.1016/j.jphysparis.2015.11.001>
12. Descola, P., and G. Pálsson. 1996. "Nature and Society: Anthropological Perspectives Introduction." In *Nature & Society: Anthropological Perspectives*.
13. Dixit, S., and K. P. Dammani. 2024. "Exploring Metacognitive Strategies through the Lens of Bhagavad Gita: A Philosophical Inquiry." *ALOHANA JOURNAL (ISSN NO:2231-6329) VOLUME 13 ISSUE 4*

14. Dorjee, Dusana. 2016. "Defining Contemplative Science: The Metacognitive Self-Regulatory Capacity of the Mind, Context of Meditation Practice and Modes of Existential Awareness." *Frontiers in Psychology* 7 (V): 1788. <https://pubmed.ncbi.nlm.nih.gov/27909417/>.
15. Dura, Ioan. 2018. "Defining the Indefinable": The Hermeneutics of the Upanishadic Negation *neti, neti* in Sankara's Apophatic Theology." In *Proceedings of the XXIII World Congress of Philosophy*, vol. 16, pp. 89-94. <https://doi.org/10.5840/wcp23201816576>
16. Ehmann, Sebastian, Idil Sezer, Arielle S. Keller, Isaac N. Treves, and Matthew D. Sacchet. 2025. "Attention and meditative development: A review and synthesis of long-term meditators and outlook for the study of advanced meditation." *NeuroImage*: 121602. <https://doi.org/10.1016/j.neuroimage.2025.121602>
17. Gao, X. 2021. *Animism and Artificial Intelligence* (Master's thesis, Pratt Institute).
18. Gould, H., and H. Walters. 2020. "Bad Buddhists, Good Robots: Techno-Salvationist Designs for Nirvana." *Journal of Global Buddhism* 21. <https://doi.org/10.5281/zenodo.4147487>.
19. Franco, Maria Isabel Betancur. 2026. "Design Guidelines for the Therapeutic Use of AI in Grief." *Journal of Responsible Technology*: 100148. <https://doi.org/10.1016/j.jrt.2026.100148>
20. Ho, Manh-Tung, Ngoc-Thang B. Le, Peter Mantello, Manh-Toan Ho, and Nader Ghotbi. 2023. "Understanding the acceptance of emotional artificial intelligence in Japanese healthcare system: a cross-sectional survey of clinic visitors' attitude." *Technology in Society* 72: 102166. <https://doi.org/10.1016/j.techsoc.2022.102166>
21. Hölzel, Britta K., Ulrich Ott, Hannes Hempel, Andrea Hackl, Katharina Wolf, Rudolf Stark, and Dieter Vaitl. 2007. "Differential Engagement of Anterior Cingulate and Adjacent Medial Frontal Cortex in Adept Meditators and Non-meditators." *Neuroscience Letters* 421 (1): 16–21. <https://doi.org/10.1016/j.neulet.2007.04.074>, <https://pubmed.ncbi.nlm.nih.gov/17548160/>.
22. Ih-Ren, Mong A. 2015. "Miracle of Mindfulness: Buddhist and Biblical Perspectives." *Asia Journal of Theology* 29 (1).
23. Ijaz, Shahid, Muhammad T. Khalily, and Irshad Ahmad. 2017. "Mindfulness in Salah Prayer and Its Association with Mental Health." *Journal of Religion & Health* 56 (6): 2297–307. <https://doi.org/10.1007/s10943-017-0413-1>, <https://pubmed.ncbi.nlm.nih.gov/28502025/>.
24. Ikram, Maryam, Waqas Mehmood, Syed Muhammad Umer Saleem, and Shamsiah Banu Mohamad Hanefar. 2026. "Exploring the nexus of governance and AI ethics: Using systematic literature review for future direction." *Data and Information Management* 10, no. 3: 100122. <https://doi.org/10.1016/j.dim.2026.100122>
25. Iqbal, Nabeel, and Muhammad I. Hossain. 2021. "Self-Development in the Holy Qur'an: The Important Role of Metacognition." *International Journal of Quranic Research* 13 (2): 29–42. <https://doi.org/10.22452/quranica.vol13no2.2>.
26. Jankowski, Tomasz, and Pawel Holas. 2014. "Metacognitive Model of Mindfulness." *Consciousness & Cognit.* 28 (1): 64–80. <https://doi.org/10.1016/j.concog.2014.06.005>, <https://pubmed.ncbi.nlm.nih.gov/25038535/>.
27. Jensen, Casper B., and Anders Blok. 2013. "Techno-Animism in Japan: Shinto Cosmograms, Actor-Network Theory, and the Enabling Powers of Non-human Agencies." *Theory, Culture & Society* 30 (2): 84–115. <https://doi.org/10.1177/0263276412456564>.
28. Johnson, D. A. 2018. "Apophatic Spirituality in Contemporary Christian Practice: A Mindfulness Approach."
29. Jung, In-Taek, ChungHa Lee, In-Chang Baek, Dongik Oh, Youjin Choi, KyungJoong Kim, Duk-Jo Kong, and Jin-Hyuk Hong. 2026. "GPTalk: LLM-based virtual companions for metacognitive growth in self-regulated e-learning." *International Journal of Human-Computer Studies*: 103754. <https://doi.org/10.1016/j.ijhcs.2026.103754>
30. Kaplan, Joanna O. 1981. "Amazonian Anthropology." *Journal of Latin American Studies* 13 (1): 151–64. <https://doi.org/10.1017/s0022216x00006209>.
31. Kasturiratna, KTA Sandeeshwara, and Andree Hartanto. 2025. "Attachment to Artificial Intelligence: Development of the AI Attachment Scale, Construct Validation, and the Psychological Mechanisms of Human–AI Attachment." *Computers in Human Behavior Reports*: 100912. <https://doi.org/10.1016/j.chbr.2025.100912>
32. Kim, Ryan SangBaek. 2026. "Interrupting resonant amplification: A mechanistic and design framework for human–AI interaction." *Computers in Human Behavior Reports* 21: 100975. <https://doi.org/10.1016/j.chbr.2026.100975>
33. Knabb, Joshua J. 2012. "Centering Prayer as an Alternative to Mindfulness-Based Cognitive Therapy for Depression Relapse Prevention." *Journal of Religion & Health* 51 (3): 908–24. <https://pubmed.ncbi.nlm.nih.gov/20924682/>.
34. Kochan, Jeff. 2024. "Animism and science in European perspective." *Studies in History and Philosophy of Science* 103: 46-57. <https://doi.org/10.1016/j.shpsa.2023.11.001>
35. Kouzalis, Alexios. 2023. "A Group Level Analysis of Self-Evaluations Associated with Cognitive Load." *RUDN Journal of Psychology & Pedagogics* 20 (3): 578–87. <https://doi.org/10.22363/2313-1683-2023-20-3-578-587>.
36. Kouzalis, Alexios, Ksenia Konopkina, and Marie Arsalidou. 2021. "Functional Neuroimaging of Self-Ratings Associated with Cognitive Effort." In *Advances in Cognitive Research, Artificial Intelligence and Neuroinformatics*, edited by Boris M. Velichkovsky, Pavel M. Balaban and Vadim L. Ushakov, 413–20. Springer International Publishing. [https://doi.org/10.1007/978-3-030-71637-0\\_47](https://doi.org/10.1007/978-3-030-71637-0_47).

37. Kouzalis, Alexios, and Regina V. Ershova. 2024. "A region of interest analysis focusing on the insular and cingulate cortices." *Вестник Российского университета дружбы народов. Серия: Психология и педагогика* 21, no. 1: 328-339. <https://doi.org/10.22363/2313-1683-2024-21-1-328-339>
38. Kudesia, Ravi S. 2019. "Mindfulness as Metacognitive Practice." *Academy of Management Review* 44 (2): 405–23. <https://doi.org/10.5465/amr.2015.0333>.
39. Kudesia, Ravi S., and Ven. T. Nyima. 2015. "Mindfulness Contextualized: An Integration of Buddhist and Neuropsychological Approaches to Cognition." *Mindfulness* 6 (4): 910–25. <https://doi.org/10.1007/s12671-014-0337-8>.
40. Kunz, Werner H., Laszlo Sajtos, and Carlos Flavián. 2025. "Beyond replacement: human-machine collaboration in the age of AI." *Journal of Service Management* 36, no. 4: 477-494. <https://doi.org/10.1108/JOSM-04-2025-0194>
41. Löffler, Diana, Jörn Hurtienne, and Ilona Nord. 2021. "Blessing Robot BlessU2: A Discursive Design Study to Understand the Implications of Social Robots in Religious Contexts." *International Journal of Social Robotics* 13 (4): 569–86. <https://doi.org/10.1007/s12369-019-00558-3>.
42. Londoño Sulkin, Carlos D. 2006. "Instrumental Speeches, Morality, and Masculine Agency among Muinane People (Colombian Amazon)." *Tipiti* 4 (1). <https://doi.org/10.70845/2572-3626.1031>.
43. Marenko, Betti. 2014. "Neo-animism and Design: A New Paradigm in Object Theory." *Design & Culture* 6 (2): 219–41. <https://doi.org/10.2752/175470814X14031924627185>.
44. Mitropoulou, V. 2023. "Integrating Byzantine Icons in Religious Education." *Teol. Ortodoxă* 28 (2): 5–16. <https://doi.org/10.47743/ASTO.2023.28.2.1>
45. Mortlock, Jutta Tobias, Neil Turner, Anke C. Plagnol, Anya Beaumont, and Mike Bourne. 2026. "From complexity responses to enacted practice: Mindfulness as a multi-level metacognitive capability in project leadership." *International Journal of Project Management*: 102830. <https://doi.org/10.1016/j.ijproman.2026.102830>
46. Newman, L. 1997. *Descartes' Epistemology*.
47. Norman, Elisabeth. 2017. "Metacognition and Mindfulness: The Role of Fringe Consciousness." *Mindfulness* 8 (1): 95–100. <https://pubmed.ncbi.nlm.nih.gov/28163796/>.
48. Okanda, Mako, Kosuke Taniguchi, Ying Wang, and Shoji Itakura. 2021. "Preschoolers' and adults' animism tendencies toward a humanoid robot." *Computers in Human Behavior* 118: 106688. <https://doi.org/10.1016/j.chb.2021.106688>
49. Overing, Joanna. 2003. "Today I shall call him 'Mummy': multiple worlds and classificatory confusion 1." In *Reason and morality*, pp. 150-178. Routledge
50. Overing, Joanna. 1996. "The conquistadors of the jungle: images of the spanish soldier in piaroa cosmology." *INDIANA-Estudios Antropológicos sobre América Latina y el Caribe* 14: 179-200.
51. Overing, J., and A. Passes. 2000. "Introduction: Conviviality and the Opening up of Amazonian Anthropology." In *The Anthropology of Love & Anger: The Aesthetics of Conviviality in Native Amazônia*.
52. Pasch, Stefan, and Min Chul Cha. 2026. "Do ethical AI principles matter to users? A large-scale analysis of user sentiment and satisfaction." *Telematics and Informatics*: 102381. <https://doi.org/10.1016/j.tele.2026.102381>
53. Pauketat, Janet VT, Ali Ladak, and Jacy Reese Anthis. 2023.. "Artificial intelligence, morality, and sentience (AIMS) survey: 2023 update." <https://doi.org/10.31234/osf.io/9xsav>
54. Polydorou, D., K. Zhu, and A. Karkotis. 2017. "Digital Humanities and Techno-Animism in Wearables: A Case-Study-Based Collaborative Design Framework for Digitally-Ensouled Jewellery." *Lecture Notes in Computer Science (Including Subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)* 10289 LNCS. [https://doi.org/10.1007/978-3-319-58637-3\\_55](https://doi.org/10.1007/978-3-319-58637-3_55).
55. Rashevsk, Natalya V., and Serhiy O. Semerikov. 2026. "From philosophical immersion to digital reality: A unified theoretical framework for understanding and classifying immersive technologies in education." *Computers & Education: X Reality* 8: 100147. <https://doi.org/10.1016/j.cexr.2026.100147>
56. Robertson, Jennifer. 2022. "TECHNOLOGIES OF KOKORO." *Icon* 27, no. 1 (2022): 53-80.
57. Roselli, Cecilia, Leonardo Lapomarda, and Edoardo Datteri. 2025. "How culture modulates anthropomorphism in Human-Robot Interaction: A review." *Acta Psychologica* 255: 104871. <https://doi.org/10.1016/j.actpsy.2025.104871>
58. Schille-Hudson, E. B., T. M. Luhrmann, and D. Landy. 2024. "Prayer as Collaborative Problem Solving." *Religion, Brain & Behavior* 15 (3): 287–311. <https://doi.org/10.1080/2153599X.2024.2349778>.
59. Schleiger, Emma, Claire Mason, Claire Naughtin, Andrew Reeson, and Cecile Paris. 2024. "Collaborative Intelligence: A Scoping Review of Current Applications." *Applied Artificial Intelligence* 38 (1). <https://doi.org/10.1080/08839514.2024.2327890>.
60. Schoenherr, J. R. 2022. "Ethical Artificial Intelligence from Popular to Cognitive Science: Trust in the Age of Entanglement." In *Ethical Artificial Intelligence from Popular to Cognitive Science: Trust in the Age of Entanglement*. <https://doi.org/10.4324/9781003143284>.

61. Singh, Swaran P. 2022. "Self and Suffering in Indian Thought: Implications for Clinicians." *BJPsych Advances* 28 (5): 286–96. <https://doi.org/10.1192/bja.2022.1>.
62. Singh. 2023. "Sakshi and Dhyana: The Origin of Mindfulness-Based Therapies." *BJPsych Bulletin* 47 (2): 94–7. <https://doi.org/10.1192/bjb.2022.39>, <https://pubmed.ncbi.nlm.nih.gov/35796539/>.
63. Srinivasan, T. M. 2013. "From Meditation to Dhyana." *International Journal of Yoga* 6 (1): 1–3. <https://doi.org/10.4103/0973-6131.105934>, <https://pubmed.ncbi.nlm.nih.gov/23436967/>.
64. Stofiana, Tofan, Dadang Sunendar, Yeti Mulyati, and Andoyo Sastromiharjo. 2025. "Writing with AI, thinking with Toulmin: metacognitive gaps and the rhetorical limits of argumentation." *Ampersand*: 100242. <https://doi.org/10.1016/j.amper.2025.100242>
65. Tang, Yi-Yuan, Yinghua Ma, Yaxin Fan, Hongbo Feng, Junhong Wang, Shigang Feng, Qilin Lu, Bing Hu, Yao Lin, Jian Li, Y. Zhang, Yan Wang, L. Zhou, and Ming Fan. 2009. "Central and Autonomic Nervous System Interaction Is Altered by Short-Term Meditation." *Proceedings of the National Academy of Sciences of the United States of America* 106 (22): 8865–70. <https://doi.org/10.1073/pnas.0904031106>, <https://pubmed.ncbi.nlm.nih.gov/19451642/>.
66. Trammel, Regina C. 2017. "Tracing the Roots of Mindfulness: Transcendence in Buddhism and Christianity." *Journal of Religion & Spirituality in Social Work: Social Thought* 36 (3): 367–83. <https://doi.org/10.1080/15426432.2017.1295822>.
67. Tylor, Edward Burnett. 1958. "Religion in primitive culture."
68. Vignaud, Philippe, Clement Donde, Thouraya Sadki, Emmanuel Poulet, and Jerome Brunelin. 2018. "Neural effects of mindfulness-based interventions on patients with major depressive disorder: A systematic review." *Neuroscience & Biobehavioral Reviews* 88: 98-105. <https://doi.org/10.1016/j.neubiorev.2018.03.004>
69. White, Daniel, and Hirofumi Katsuno. 2021. "Toward an Affective Sense of Life: Artificial Intelligence, Animacy, and Amusement at a Robot Pet Memorial Service in Japan." *Cultural Anthropology* 36 (2). <https://doi.org/10.14506/ca36.2.03>.
70. Yıldız, Ümit, Berker Kurt, and Hüseyin Kafes. 2026. "Technology-assisted consciousness-raising for L2 prosody: Effects on oral performance and the underlying cognitive-metacognitive mechanisms of thought-group chunking." *Acta Psychologica* 263: 106198. <https://doi.org/10.1016/j.actpsy.2025.106198>
71. Zhang, Yaoyao, Xin Liu, Huimin Wu, Mingxin Shi, and Cheng Guo. 2025. "Awareness as a key component of mindfulness reduces psychological stress in adolescents: Evidence from multi-method studies. " *Behaviour Research and Therapy*: 104877. <https://doi.org/10.1016/j.brat.2025.104877>