International Journal of Science and Research Archive
eISSN: 2582-8185
Cross Ref DOI: 10.30574/ijsra
Journal homepage: https://ijsra.net/

(REVIEW ARTICLE)

Nonverbal communication as an embodied language of faith and social action: An interdisciplinary approach to religious, educational, and professional experience

Georgios Fountoulakis [1] and Christos Simos [2,*]

[1] *Faculty of Social Theology and Religious Studies, National and Kapodistrian University of Athens.*
[2] *Department of Greek Philology, Democritus University of Thrace, Greece.*

International Journal of Science and Research Archive, 2026, 21(01), 084–094

Publication history: Received on 27May 2026; revised on 01 July 2026; accepted on 03 July 2026

Article DOI: https://doi.org/10.30574/ijsra.2026.20.1.1442

Abstract

Nonverbal communication is a fundamental dimension of human experience, influencing religious practice and social, educational, and professional life. This study examines body language in Orthodox Christian worship and analyzes its function in modern daily life. Through an interdisciplinary approach combining theology, psychology, sociology, and pedagogy, the study highlights the role of the body as a vehicle for meaning, emotional regulation, and social interaction. The findings demonstrate that nonverbal communication functions as a unified interpretive framework for human action, bridging religious experience with social reality.

Keywords: Nonverbal Communication; Body Language; Embodied Knowledge; Orthodox Worship; Education; Workplace

1. Introduction

Human communication is a complex, multidimensional, and dynamic phenomenon that cannot be limited exclusively to the use of speech. Rather, it encompasses a wide range of nonverbal expressions, such as body posture, gestures, eye contact, proximity, the rhythm of movement, and silence. These elements do not merely serve as accompaniments to speech but often transcend it, conveying deeper and more immediate emotional and social meanings (Argyle, 1988; Goffman, 1959; Hall, 1966; Bailenson, 2021; Bergmann & Kopp, 2020).

Nonverbal communication is a fundamental mechanism for understanding human behavior, as it is directly linked to the expression of emotions, the formation of impressions, and the regulation of interpersonal relationships (Mehrabian, 1972; Knapp et al., 2013). Its importance is particularly evident in situations where speech is limited or insufficient, such as during intense emotional experiences, ritual contexts, or moments of silence (Goman, 2008).

In contemporary scientific literature, nonverbal communication has been extensively studied within the fields of social psychology, communication studies, and organizational behavior (Burgoon et al., 2016). However, its relationship to religious experience remains relatively underexamined, particularly within the context of the Orthodox Christian tradition, where the body occupies a central place in the act of worship Pan & Hamilton, 2020).

Orthodox worship is not merely verbal or doctrinal but deeply embodied (Shapiro, 2019). The faithful do not simply "think" about faith; rather, they experience it through their bodies. Participation in worship requires total bodily engagement, transforming theology into lived experience (Bell, 1992; Merleau-Ponty, 1962; Berger & Luckmann, 1966).

In this context, the present study attempts to bridge the gap between the theory of nonverbal communication and theological anthropology by proposing an integrative approach. It is argued that nonverbal communication is not

*Corresponding author: Christos Simos.

merely a tool of social interaction but a fundamental dimension of human existence that shapes both religious and everyday experience.

At the same time, the study examines the role of nonverbal communication in three key areas: education, the workplace, and social life. In these contexts, body language functions as a mechanism for transmitting knowledge, forming relationships, and exerting influence.

2. Research Methodology

This study falls within the framework of qualitative research and adopts an interpretive, interdisciplinary, and synthetic approach (Creswell, 2014). Rather than relying on empirically collected primary data, it seeks theoretical depth through the synthesis of different scientific traditions (Creswell, 2014; Braun & Clarke, 2006; Peirce, 1931–1958).

The research design is based on three main pillars:

- Thematic analysis (Braun & Clarke, 2006), which is used to identify and organize the key thematic patterns that emerge throughout the literature and theoretical material.
- Semiotic interpretation (Peirce, 1931–1958), through which nonverbal expressions are approached as signs that acquire meaning within specific cultural and social contexts.
- Embodied cognition theory (Lakoff & Johnson, 1999; Wilson, 2002), according to which the body is understood as an active agent of knowledge rather than a passive means of expression.

The methodology is further enriched by elements drawn from phenomenology (Merleau-Ponty), social psychology (Ekman, Goleman), and organizational theory. Although the absence of empirical research is acknowledged as a limitation, it also enables the development of a broader theoretical framework that may serve as a foundation for future empirical studies. Furthermore, the interdisciplinary approach strengthens the validity of the analysis by allowing the phenomenon to be examined from multiple perspectives.

3. Theoretical Approaches to Nonverbal Communication

Nonverbal communication is one of the most established fields within social psychology, making a substantial contribution to the understanding of human behavior. Mehrabian (1972) demonstrated that a significant portion of emotional communication is conveyed through nonverbal cues, while Ekman and Friesen (1969) argued for the universality of basic facial expressions.

This perspective is reinforced by more recent research showing that individuals are capable of recognizing emotions within fractions of a second, even in the absence of verbal information. Peirce's semiotic theory offers a deeper interpretive framework by treating nonverbal expressions as signs embedded within broader systems of meaning. These signs do not possess fixed meanings; rather, they are interpreted within specific cultural and social contexts.

At the same time, the sociological approach developed by Goffman (1959) emphasizes that nonverbal communication is closely linked to "self-presentation," namely the ways in which individuals construct and project their social image (Ekman & Friesen, 1969; Kahneman, 2011; Scherer, 2005).

The theory of embodied cognition developed by Lakoff and Johnson (1999) introduces a more radical perspective by arguing that cognition is not abstract but deeply grounded in bodily experience. The concepts people use are shaped by bodily schemas and lived experiences. This approach is directly connected to the phenomenology of Merleau-Ponty, who argued that the body constitutes the primary means through which human beings relate to the world.

Finally, the theory of the social construction of reality proposed by Berger and Luckmann (1966) highlights that meanings are formed through social interaction, within which nonverbal communication plays a decisive role Pantic & Rothkrantz, 2003).

3.1. The Embodied Dimension of Orthodox Worship

In Orthodox theology, the body is not regarded as a secondary or passive element of human existence but as an integral medium of spiritual life and communion with the Divine. Orthodox anthropological thought is founded upon the unity of body and soul, a principle that grants corporeality both theological and soteriological significance (Merleau-Ponty, 1962; Bell, 1992; Lakoff & Johnson, 1999).

The doctrine of the Incarnation of Christ constitutes the central theological foundation of this perspective. The fact that God assumes human nature affirms the positive value of the body and highlights humanity's capacity to experience divine grace not only intellectually but also physically. Within this framework, worship is understood not merely as a verbal or intellectual act, but as a profoundly embodied experience.

Liturgical gestures such as the sign of the cross, genuflection, and prostration function as embodied expressions of theological meaning. These practices are not merely symbolic actions but experiential acts that activate and reinforce spiritual experience. Through the repetition of these movements, the body "learns" the faith, internalizing theological meanings at a level that transcends purely verbal understanding.

The phenomenology of the body, as developed by Merleau-Ponty (1962), provides a particularly valuable interpretive framework for understanding liturgical experience. In this view, the body is not treated as an object but as a subject of perception. During worship, the believer does not merely observe but participates fully through bodily presence and physical engagement.

Furthermore, the repetitive character of ritual acts contributes to the formation of collective identity (Bell, 1992). Shared bodily practices create a common "vocabulary of movement," reinforcing the sense of communal belonging. Worship, therefore, constitutes not only an individual spiritual experience but also a profoundly social event Ahn & Jung, 2021).

Finally, the nonverbal dimension of worship functions as a bridge between the visible and the invisible. Bodily movements render internal spiritual states externally perceptible, transforming faith into a lived and tangible experience.

3.2. Psychological and Neuroscientific Analysis

Nonverbal communication is directly linked to fundamental psychological and neurobiological processes that shape the way individuals perceive, express, and regulate emotions (Freud, 1961; Jung, 1964; Kahneman, 2011). Freud (1961) emphasized the role of the body as a means of expressing the unconscious, arguing that many bodily manifestations function as symbolic expressions of internal conflicts. Similarly, Jung (1964) approached bodily movements as carriers of archetypal symbols connected to the collective unconscious.

Within the framework of modern neuroscience, the discovery of mirror neurons (Rizzolatti & Craighero, 2004) provides a biological explanation for nonverbal communication. These neurons are activated both when a person performs an action and when they observe the same action performed by another individual. This mechanism enables the immediate understanding of others' emotions and intentions without the need for conscious verbal processing.

The theory of emotional contagion (Hatfield et al., 1994) explains how emotions spread through nonverbal cues, creating forms of emotional convergence among individuals. In the context of worship, this phenomenon may help explain the collective experience of emotion, reverence, and spiritual participation.

Cognitive psychology, particularly through the work of Kahneman (2011), adds another important dimension by arguing that nonverbal cues function as "cognitive shortcuts" (heuristics) that facilitate the rapid evaluation of social situations. At the same time, the theory of embodied cognition maintains that thought is not independent of the body but is fundamentally shaped through bodily experience.

This perspective suggests that ritual movements do not merely express faith but actively contribute to its formation and internalization (Burgoon et al., 2016; Knapp et al., 2013; Argyle, 1988).

4. Nonverbal Communication in Everyday Social Life

In everyday social life, nonverbal communication is a fundamental mechanism through which people form relationships, assess situations, and understand the intentions of others. It functions not merely as an accompaniment to speech but as a primary system for interpreting social reality, often operating before conscious verbal processing (Burgoon et al., 2016; Knapp et al., 2013).

People rely on nonverbal cues, such as body posture, facial expressions, and eye contact, to evaluate the trustworthiness, sincerity, and emotional state of others (Argyle, 1988). These cues function as direct indicators of emotional states and

intentions, often with greater reliability than speech, particularly in cases of incongruence between verbal and nonverbal messages (Ekman & Friesen, 1969).

Furthermore, the rapid decoding of nonverbal signals enables the immediate formation of impressions and social judgments (Kahneman, 2011). Hall's (1966) theory of proxemics emphasizes that the use of space constitutes a crucial element of communication. The physical distance between individuals reflects levels of intimacy, power, and social relationship, while violations of these "invisible boundaries" may generate discomfort or tension. The management of space, therefore, functions as a form of nonverbal negotiation within social relationships.

At the same time, Goffman's (1959) concept of "self-presentation" highlights that individuals consciously and unconsciously employ nonverbal communication to shape their social image. The body functions as a medium of social performance through which individuals "perform roles" depending on the social context. Posture, movement, and expressiveness contribute significantly to impression management and identity construction.

Furthermore, nonverbal communication plays a significant role in the regulation of social norms and the avoidance of conflict. Through subtle physical cues, such as avoiding eye contact, altering posture, or displaying microexpressions, individuals adjust their behavior according to the demands of the social environment (Goffman, 1959). This process contributes to the maintenance of social order and interactional balance.

From a social-psychological perspective, nonverbal communication also contributes to the formation of power relations and social hierarchies. Signals such as dominant body posture, vocal intensity, and sustained eye contact convey information about status and influence the dynamics of interaction (Burgoon et al., 2016). Individuals often interpret these signals unconsciously and adapt their behavior accordingly.

Additionally, the theory of emotional contagion suggests that emotions are transmitted through nonverbal expressions, creating emotional convergence among individuals (Hatfield et al., 1994). This phenomenon explains how social interactions can collectively influence the emotional climate and behavior of groups.

Finally, within the framework of embodied cognition, social understanding is not viewed exclusively as a cognitive process but as one grounded in bodily experiences and sensory perception (Lakoff & Johnson, 1999; Wilson, 2002). The perception of others does not occur solely through logical analysis but through a direct embodied understanding, which renders nonverbal communication fundamental to human sociality.

5. Nonverbal Communication in the Workplace

In the workplace, nonverbal communication constitutes a critical factor in effective leadership, collaboration, and organizational functioning. The concept of emotional intelligence (Goleman, 1995) includes the ability to recognize, interpret, and manage nonverbal cues, thereby enhancing communicative effectiveness and decision-making processes (Bass & Riggio, 2006; Keyton, 2011).

Body posture, eye contact, facial expressions, and tone of voice significantly influence perceptions of authority, competence, and credibility. Leaders who consciously employ these nonverbal elements are often able to strengthen their influence and enhance interpersonal trust within organizational settings (Glikson, & Woolley, 2020).

The theory of transformational leadership (Bass & Riggio, 2006) relies heavily on nonverbal practices that foster employee motivation, inspiration, and organizational commitment. Charismatic presence, expressive gestures, and emotionally engaging communication contribute to the development of stronger leader–employee relationships.

Furthermore, organizational culture is shaped not only through formal structures and institutional regulations but also through informal nonverbal practices, including attitudes toward workspace organization, time management, interpersonal distance, and everyday interactions among employees.

6. Pedagogical and Learning Dimensions

Nonverbal communication is a fundamental tool in the learning process, significantly influencing both teaching and learning (Marzano, 2007; Pianta et al., 2008; Simos, 2025; Simos &Katsiampoura, 2025). It functions not merely as a supplement to speech but as an autonomous system of meaning-making that shapes the learning environment and

influences students' cognitive and emotional engagement (Burgoon et al., 2016; Knapp et al., 2013; Drigas & Theodorou, 2016; Chaidi et al., 2021; Moraiti et al., 2022).

Teachers use nonverbal cues, such as body posture, gestures, eye contact, and tone of voice**,** to enhance understanding, direct attention, and create a positive and supportive learning climate (Richmond & McCroskey, 2004). The effective use of these elements helps clarify instructional messages and reduce cognitive load, thereby facilitating information processing among students (Marzano, 2007).

The theory of sociocultural learning emphasizes that learning is primarily a social process that takes place through interaction between teacher and students (Vygotsky, 1978). In this context, nonverbal communication serves as a critical mediating mechanism that supports the transmission of knowledge and the formation of the "zone of proximal development." Through nonverbal cues, teachers provide guidance, encouragement, and feedback, thereby enhancing learning progress (Pianta et al., 2008).

At the same time, the teacher's physical presence functions as a powerful vehicle of pedagogical influence. Mobility within the classroom, proximity to students, and the dynamic use of the body contribute to maintaining attention and fostering participation (Hall, 1966; Drigas et al, 2023). The use of space (proxemics) and movement is not neutral but conveys messages of authority, intimacy, and availability that influence the learning experience (Goffman, 1959).

Furthermore, nonverbal communication plays a decisive role in the emotional dimension of learning. The establishment of a relationship of trust between teacher and students relies heavily on nonverbal cues, such as eye contact, smiling, and emotional expressiveness (Goleman, 1995). This emotional connection constitutes a fundamental prerequisite for active participation and deeper understanding.

From the perspective of embodied cognition, learning is not limited to abstract mental processes but is directly connected to bodily experience. Movements, gestures, and physical interaction with the environment contribute to the construction of knowledge, making the learning process more experiential and effective (Lakoff & Johnson, 1999; Wilson, 2002).

Finally, the conscious use of nonverbal communication by the teacher may function as a strategic pedagogical tool. The development of such skills enhances not only teaching effectiveness but also the quality of the educational relationship, contributing to the creation of a learning environment that promotes collaboration, trust, and creativity (Keyton, 2011).

7. A Comparative and Interdisciplinary Approach to Nonverbal Communication

Nonverbal communication, as an embodied form of expression and meaning-making, is not unique to a single cultural or religious tradition but appears as a universal anthropological phenomenon. A comparative study of different religious traditions reveals that the body functions universally as a primary vehicle of spiritual experience, albeit through different interpretive approaches and theological premises (Berger &Luckmann, 1966; Goffman, 1959; Lakoff & Johnson, 1999).

In Hinduism, mudras constitute a complex system of bodily symbols through which spiritual states are expressed and specific forms of concentration are activated. These movements are not merely technical practices but also embody philosophical and cosmological concepts. Similarly, in Buddhism, bodily posture during meditation is of decisive importance for the achievement of mindfulness. Physical stillness and regulated breathing are not merely auxiliary means but essential components of spiritual practice that shape consciousness itself.

This comparative perspective demonstrates that the embodied dimension of religious experience is both cross-cultural and timeless. However, within the Orthodox Christian tradition, corporeality acquires a distinctive theological depth through the theology of the Incarnation. Unlike other traditions in which the body may be perceived as an obstacle that must be transcended, Orthodoxy regards the body as a means of sanctification and communion with the Divine.

From an interdisciplinary perspective, nonverbal communication constitutes a point of convergence among different scientific fields:

- Biology and neuroscience: examine the neural mechanisms that underpin embodied experience (e.g., mirror neurons).
- Psychology: analyzes the emotional and cognitive functions of nonverbal signals.

- Sociology: focuses on the cultural and social norms that shape bodily expression and interaction.
- Theology: attributes existential and soteriological significance to corporeality.

The convergence of these disciplines demonstrates that nonverbal communication cannot be understood in a one-dimensional manner. Instead, it requires a holistic approach that takes into account the multidimensional nature of human existence.

8. Nonverbal Communication in the Digital Age and Artificial Intelligence

The modern era is characterized by a radical transformation of communication practices, primarily driven by the development of digital technologies and artificial intelligence (Cowan & Branigan, 2021; Deng & Poole, 2020). In this context, nonverbal communication is not disappearing but undergoing transformation, taking on new forms that expand and redefine its function. The traditional physicality of communication is being replaced or supplemented by symbolic and technological media, creating a new hybrid field of interaction in which the body, the medium, and speech coexist dynamically. Understanding this transition is critical for interpreting contemporary social, educational, and professional experiences (Hjarvard, 2013; Sundar, 2020; Baym, 2015; Huang, & Rust, 2021).

8.1. Digital Embodied Communication and the Transformation of Body Language

The transition from direct face-to-face communication to digitally mediated interaction has brought about a substantial transformation of nonverbal communication, redefining the relationship between body and meaning (Walther, 1996; Burgoon et al., 2016; Krämer et al., 2015; Kress, 2010). In environments where the physical body is absent, individuals do not cease to express themselves nonverbally; rather, they develop alternative forms of expression that function as substitutes for physical presence.

The use of emojis, GIFs, reaction icons, and other digital symbols constitutes a new semiotic system that enables the communication of emotions and social messages in a direct and comprehensible manner (Derks et al., 2008; Kaye et al., 2017). These elements function as digital "facial expressions," allowing users to convey irony, joy, embarrassment, or disapproval even in environments where voice and bodily presence are absent (Walther, 1996; Burgoon et al., 2016).

The concept of digital embodiment describes the process through which the body is transformed into a set of symbolic and technologically mediated forms. In this context, communication is no longer based exclusively on physical presence but on a "performative identity" constructed through digital media (Hjarvard, 2013; Sundar, 2020). Users shape their presence through the selection of images, response speed, and the use of capital letters or punctuation marks—elements that function as indicators of emotional intensity and social intention (Baym, 2015). In this way, nonverbal communication assumes a new form that is no less authentic, but differently structured.

At the same time, the theory of mediated communication emphasizes that the medium is not neutral but decisively shapes the ways in which messages are produced and interpreted. The absence of direct physical presence leads to a process of "compensation" for nonverbal elements through symbolic means that acquire increased significance within communication processes (Walther, 2011). The interpretation of digital signals requires new communicative skills, since meanings are not always explicit and may depend heavily on cultural and contextual factors (Baym, 2015; Sundar, 2020).

Furthermore, the speed of digital communication significantly influences the nonverbal dimension of interaction. Response time, for example, functions as an important indicator of interest, priority, or emotional engagement, partially replacing elements such as eye contact or physical proximity (Kalman &Rafaeli, 2011; Walther, 2011). A delayed or immediate response may therefore be interpreted as a sign of detachment, intimacy, or emotional involvement, demonstrating that nonverbal communication remains active even in environments where the body itself is not physically visible.

Finally, digital embodied communication highlights the adaptive and dynamic nature of human interaction under technological conditions. The body does not disappear; rather, it is transformed and reconfigured through new forms of digital presence. Understanding this transition is essential for interpreting contemporary social experience, as it demonstrates that nonverbal communication remains a fundamental dimension of human interaction even within seemingly "disembodied" environments (Burgoon et al., 2016; Kaye et al., 2017).

8.2. Nonverbal Communication, Artificial Intelligence, and Educational Experience

The development of artificial intelligence introduces a new dimension to the study of nonverbal communication, as it creates forms of interaction in which physicality is absent but simulated through technological means (Dautenhahn, 2007; Følstad&Brandtzæg, 2017; Reeves & Nass, 1996; Kefalis et al, 2025). Artificial intelligence systems, such as chatbots and digital assistants, do not possess a physical body; however, they employ linguistic and interactive strategies that mimic nonverbal elements, including tone, emotional responsiveness, and the temporal flow of communication (Følstad&Brandtzæg, 2017; Dautenhahn, 2007; Pergantis et al, 2025).

Through these mechanisms, the impression of an "embodied presence" is created, enhancing user engagement and communicative effectiveness (Hirschberg & Manning, 2020; McStay, 2020; Müller, 2020; Simos et al., 2026a; Simos et al., 2026b; Simos et al., 2026).

The concept of anthropomorphism constitutes a key element of this process, since users tend to attribute human characteristics to artificial systems, particularly when such systems display behaviors associated with nonverbal communication (Reeves & Nass, 1996; Nass & Moon, 2000; Ratan et al., 2020). The use of expressive language, personalized responses, and adaptation to the user's communicative style functions as a "digital equivalent" of nonverbal communication, thereby strengthening the sense of social presence (Følstad & Brandtzæg, 2017).

Within educational contexts, the integration of artificial intelligence and digital technologies substantially transforms the learning experience, influencing both teaching and learning processes. The absence of direct nonverbal communication may limit the emotional connection between teacher and student, reducing the sense of trust, immediacy, and interactivity (Borup et al., 2015; Garrison et al., 2000). Eye contact, body posture, and microexpressions—elements that play a crucial role in learning—are often absent or technologically distorted within digital environments.

Particularly significant are the implications for students with special educational needs, such as ADHD, for whom nonverbal communication constitutes a central mechanism for understanding and regulating behavior (Simos &Karabatzaki, 2025; Simos, 2025). Limited access to nonverbal cues may hinder attention, the interpretation of social signals, and active participation in the learning process (DuPaul & Stoner, 2014; Barkley, 2015). The absence of immediate feedback may also contribute to increased cognitive load and reduced levels of engagement (Drigas & Sideraki, 2021; Mitsea et al., 2022).

However, artificial intelligence also offers significant opportunities for enhancing the nonverbal dimension of learning. The use of multimodal environments that combine visual, auditory, and interactive elements may partially compensate for the absence of physical presence, thereby creating richer and more engaging educational experiences (Mayer, 2009; Moreno & Mayer, 2007). Furthermore, adaptive learning systems are capable of identifying behavioral patterns and tailoring instruction to the individual needs of students, functioning as "digital mediators" of communication.

Overall, the relationship between nonverbal communication and artificial intelligence highlights a new form of embodied experience that is not based exclusively on the physical body but on hybrid forms of interaction. Understanding this relationship is essential for the development of effective educational practices and for the utilization of technology in ways that enhance, rather than restrict, human communication (Dautenhahn, 2007; Mayer, 2009).

Limitations

Despite the theoretical comprehensiveness of this study, it is important to acknowledge certain limitations primarily related to its methodological approach (Creswell, 2014; Braun & Clarke, 2006; Garrison et al., 2000).

First, the absence of primary empirical research limits the possibility of verifying the theoretical conclusions through observational or experimental data. The study is based primarily on literature review and theoretical synthesis, which, although enabling the development of a coherent interpretive framework, does not provide direct empirical evidence (Borup et al., 2020; Borenstein & Howard, 2021; Calvo & D'Mello, 2010).

Secondly, the interdisciplinary approach, while constituting a significant strength of the study, also carries the risk of relatively broad or selective coverage of individual disciplines. The synthesis of diverse theoretical traditions requires careful interpretive balance in order to avoid oversimplifications or conceptual ambiguities.

Additionally, the emphasis on the Orthodox Christian tradition limits the generalizability of the conclusions to other religious and cultural contexts, although the comparative dimension of the study attempts to partially address this limitation.

Nevertheless, these limitations open important directions for future research. In particular, empirical studies—such as observational research on worship practices or interviews with believers—could enrich the understanding of embodied religious experience. Furthermore, the use of neuroscientific methods, including neuroimaging techniques such as fMRI, could further explore the relationship between bodily movement, emotion, and brain activity.

In addition, cross-cultural comparative studies could highlight similarities and differences in the use and interpretation of nonverbal communication across religious and social traditions. Finally, the application of these findings to practical domains such as education, leadership, and digital communication represents a particularly promising direction for future development.

9. Conclusion

This study has demonstrated, through a systematic and interdisciplinary approach, that nonverbal communication is not merely a supplementary aspect of human interaction but a fundamental dimension of human existence (Lakoff & Johnson, 1999; Wilson, 2002; Burgoon et al., 2016).

The body emerges as a primary medium of meaning through which human beings perceive, interpret, and experience reality. The embodied nature of knowledge confirms that understanding is not exclusively a cognitive process but is inseparably connected to bodily experience.

Within a religious context, nonverbal communication enables the transition from theological theory to lived spiritual practice. Liturgical movements transform theology into embodied experience, creating forms of understanding that cannot be attained through verbal expression alone. In this respect, Orthodox worship emerges as a paradigmatic expression of embodied theology.

At the social level, nonverbal communication functions as a mechanism for regulating interpersonal relationships and shaping perceptions of trust, authority, intimacy, and social belonging. Individuals rely extensively on nonverbal cues in order to interpret and navigate the social world.

Within educational settings, nonverbal communication enhances the learning process by strengthening engagement, emotional connection, and pedagogical effectiveness, while in professional environments it contributes to effective leadership, collaboration, and organizational cohesion.

Overall, nonverbal communication functions as a unifying thread connecting different dimensions of human activity and experience. The interdisciplinary approach adopted in this study affirms the holistic character of human existence, within which body, mind, emotion, society, and spirituality coexist in a dynamic and interconnected relationship.

Understanding nonverbal communication as an embodied language of belief, interaction, and social action opens new perspectives for both scientific research and practical application across multiple fields of human life.

Compliance with ethical standards

Acknowledgments

The Authors would like to thank the Department of Pedagogy and Primary Education, School of Education, University of Athens, Greece. Team, for their support.

Disclosure of conflict of interest

The Authors proclaim no conflict of interest.

References

[1] Ahn, J., & Jung, Y. (2021). The common sense of dependence on AI. *Computers in Human Behavior, 114*, 106562.

[2] Argyle, M. (1988). *Bodily Communication (2nd ed.).* London: Routledge.

[3] Bailenson, J. N. (2021). Nonverbal overload: A theoretical argument for the causes of Zoom fatigue. *Technology, Mind, and Behavior, 2*(1). https://doi.org/10.1037/

[4] Barkley, R. A. (2015). *Attention-deficit hyperactivity disorder: A handbook for diagnosis and treatment* (4th ed.). Guilford Press.

[5] Bass, B. M., & Riggio, R. E. (2006). *Transformational Leadership (2nd ed.).* Mahwah, NJ: Lawrence Erlbaum Associates.

[6] Baym, N. K. (2015). *Personal Connections in the Digital Age (2nd ed.).* Cambridge: Polity Press.

[7] Bell, C. (1992). *Ritual Theory, Ritual Practice*. New York: Oxford University Press.

[8] Berger, P. L., & Luckmann, T. (1966). *The social construction of reality: A treatise in the sociology of knowledge*. Anchor Books.

[9] Bergmann, K., & Kopp, S. (2020). *Gaze and Gesture in Human-Agent Interaction. Frontiers in Robotics and AI*, 7, Article 97.

[10] Borenstein, J., & Howard, A. (2021). Emerging challenges in AI and the need for AI ethics education. AI and Ethics, 1(1), 61–65.

[11] Borup, J., Graham, C. R., & Velasquez, A. (2020). The use of video in online learning. *Online Learning Journal, 24*(2), 82–102.)

[12] Borup, J., West, R. E., & Graham, C. R. (2015). Improving online social presence through asynchronous video. *Distance Education, 36*(1), 48–63. https://doi.org/10.1080/01587919.2015.1019967

[13] Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*(2), 77–101.

[14] Burgoon, J. K., Guerrero, L. K., & Floyd, K. (2016). *Nonverbal communication*. Routledge.

[15] Calvo, R. A., & D'Mello, S. (2010). Affect detection: An interdisciplinary review of models, methods, and their applications. IEEE Transactions on Affective Computing, 1(1), 18–37.

[16] Chaidi I, Drigas A, Karagiannidis C. (2021). ICT in special education Technium Soc. Sci. J. 23, 187 DOI: 10.47577/tssj.v23i1.4277.

[17] Cowan, B. R., & Branigan, H. P. (2021). Artificial intelligence and language interaction. *Topics in Cognitive Science, 13*, 25–40.

[18] Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches* (4th ed.). Sage.

[19] Dautenhahn, K. (2007). Socially intelligent robots: Dimensions of human–robot interaction. *Philosophical Transactions of the Royal Society B, 362*(1480), 679–704. https://doi.org/10.1098/rstb.2006.2004

[20] Deng, X., & Poole, M. S. (2020). Affect in digital communication. *MIS Quarterly, 44*(2), 1001–1024

[21] Derks, D., Bos, A. E. R., & von Grumbkow, J. (2008). Emoticons and online message interpretation. *Social Science Computer Review, 26*(3), 379–388. https://doi.org/10.1177/0894439307311611

[22] Drigas A, Papanastasiou G, Skianis C, 2023, The school of the future: The role of digital technologies, metacognition and emotional intelligence. International Journal of Emerging Technologies in Learning 18 (9), 65

[23] Drigas A, Sideraki A. 2021 Emotional Intelligence in Autism.*Technium Social Sciences Journal 26*(1), 80-92, https://doi.org/10.47577/tssj.v26i1.5178.

[24] Drigas A, Theodorou P (2016) ICTs and music in special learning disabilities, *International Journal of Recent Contributions from Engineering, Science & IT, (IJES), 4*(3), 9-14.

[25] DuPaul, G. J., & Stoner, G. (2014). *ADHD in the schools: Assessment and intervention strategies* (3rd ed.). Guilford Press.

[26] Ekman, P., & Friesen, W. V. (1969). The repertoire of nonverbal behavior: Categories, origins, usage, and coding. *Semiotica, 1*, 49–98.

[27] Følstad, A., & Brandtzæg, P. B. (2017). Chatbots and the new world of HCI. *Interactions, 24*(4), 38–42. https://doi.org/10.1145/3085558

[28] Freud, S. (1961). *The Ego and the Id. Translated and edited by James Strachey*. New York: W. W. Norton & Company. (Original work published 1923).

[29] Garrison, D. R., Anderson, T., & Archer, W. (2000). Critical inquiry in a text-based environment. *The Internet and Higher Education, 2*(2–3), 87–105. https://doi.org/10.1016/S1096-7516(00)00016-6

[30] Glikson, E., & Woolley, A. W. (2020). Human trust in AI. *Academy of Management Review, 45*(4), 627–660.

[31] Goffman, E. (1959). *The presentation of self in everyday life*. Doubleday Anchor Books.

[32] Goleman, D. (1995). *Emotional intelligence: Why it can matter more than IQ*. Bantam Books.

[33] Goman, C. K. (2008). *The nonverbal advantage: Secrets and science of body language at work*. Berrett-Koehler.

[34] Hall, E. T. (1966). *The Hidden Dimension.* Garden City, NY: Doubleday.

[35] Hatfield, E., Cacioppo, J. T., & Rapson, R. L. (1994). *Emotional contagion*. Cambridge University Press

[36] Hirschberg, J., & Manning, C. (2020). Advances in NLP. *Science, 349*(6245), 261–266.

[37] Hjarvard, S. (2013). *The mediatization of culture and society*. Routledge. (used in paper: pp. 30–60)

[38] Huang, M.-H., & Rust, R. T. (2021). Artificial intelligence in service. *Journal of Service Research, 24*(1), 3–23

[39] Jung, C. G. (1964). *Man and his symbols*. Aldus Books.

[40] Kahneman, D. (2011). *Thinking, fast and slow*. Farrar, Straus and Giroux.

[41] Kalman, Y. M., & Rafaeli, S. (2011). Online pauses and silence. Communication Research, 38(1), 54–69. https://doi.org/10.1177/0093650210378229

[42] Kaye, L. K., Wall, H. J., & Malone, S. A. (2017). Emoticon usage. *Computers in Human Behavior, 60*, 463–467. https://doi.org/10.1016/j.chb.2016.02.088

[43] Kefalis C, Skordoulis C, Drigas A, 2025, Digital Simulations in STEM Education: Insights from Recent Empirical Studies, a Systematic Review, Encyclopedia MDPI 5 (1), 10

[44] Keyton, J. (2011). *Communication and organizational culture* (2nd ed.). Sage.

[45] Knapp, M. L., Hall, J. A., & Horgan, T. G. (2013). *Nonverbal communication in human interaction* (8th ed.). Cengage Learning.

[46] Krämer, N. C., von der Pütten, A. M., & Hoffmann, L. (2015). *Social effects of virtual and robotic agents. In The Handbook of the Psychology of Communication Technology*. Wiley.

[47] Kress, G. (2010). Multimodality: A *Social Semiotic Approach to Contemporary Communication*. London: Routledge.

[48] Lakoff, G., & Johnson, M. (1999*). Philosophy in the Flesh: The Embodied Mind and Its Challenge to Western Thought.* New York: Basic Books.

[49] Marzano, R. J. (2007). *The Art and Science of Teaching: A Comprehensive Framework for Effective Instruction.* Alexandria, VA: ASCD.

[50] Mayer, R. E. (2009). *Multimedia Learning (2nd ed.).* New York: Cambridge University Press.

[51] McStay, A. (2020). Emotional AI, soft biometrics and the surveillance of emotional life: An unusual consensus on privacy. *Big Data & Society, 7*(1).

[52] Mehrabian, A. (1972). *Nonverbal Communication*. Chicago: Aldine-Atherton.

[53] Merleau-Ponty, M. (1962). *Phenomenology of Perception*. London: Routledge & Kegan Paul.

[54] Mitsea E , Drigas A, Skianis C, 2022 Metacognition in autism spectrum disorder: digital technologies in metacognitive skills training, *Technium Soc. Sci. J*. 31, 153.

[55] Moraiti I , Fotoglou A, Drigas A 2022 Coding with Block Programming Languages in Educational Robotics and Mobiles, Improve Problem Solving, Creativity & Critical Thinking Skills. *International Journal of Interactive Mobile Technologies 16* (20).

[56] Moreno, R., & Mayer, R. E. (2007). Interactive multimodal learning. *Educational Psychology Review, 19*(3), 309–326. https://doi.org/10.1007/s10648-007-9047-2

[57] Müller, V. C. (2020). *Ethics of Artificial Intelligence. In M. D. Dubber, F. Pasquale, & S. Das (Eds.),* The Oxford Handbook of Ethics of AI. Oxford University Press.

[58] Nass, C., & Moon, Y. (2000). Machines and mindlessness. *Journal of Social Issues, 56*(1), 81–103. https://doi.org/10.1111/0022-4537.00153

[59] Pan, X., & Hamilton, A. F. de C. (2020). Why and how to use virtual reality to study human social interaction: The challenges of exploring a new research landscape. *Nature Reviews Neuroscience, 21*(2), 71–87.

[60] Pantic, M., & Rothkrantz, L. J. M. (2003). Toward an affect-sensitive multimodal human–computer interaction. Proceedings of the IEEE, 91(9), 1370–1390.

[61] Peirce, C. S. (1931–1958). *Collected Papers of Charles Sanders Peirce (Vols. 1–8).* Harvard University Press.

[62] Pergantis, P., Bamicha, V., Skianis, C., & Drigas, A. (2025). AI Chatbots and Cognitive Control: Enhancing Executive Functions Through Chatbot Interactions: A Systematic Review. Brain Sciences, 15(1), 47. https://doi.org/10.3390/brainsci15010047

[63] Pianta, R. C., La Paro, K. M., & Hamre, B. K. (2008). *CLASS: Classroom Assessment Scoring System Manual: K–3.* Paul H. Brookes Publishing.

[64] Ratan, R., Beyea, D., Li, B. J., & Graciano, L. (2020). Avatar characteristics induce users' behavioral conformity with small-to-medium effect sizes: A meta-analysis. *Computers in Human Behavior*, 103, 1–17.

[65] Reeves, B., & Nass, C. (1996). *The media equation*. Cambridge University Press.

[66] Rizzolatti, G., & Craighero, L. (2004). The mirror-neuron system. *Annual Review of Neuroscience*, 27, 169–192.

[67] Scherer, K. R. (2005). What are emotions? And how can they be measured? *Social Science Information, 44*(4), 695–729.

[68] Shapiro, L. (2019). *Embodied Cognition (2nd ed.).* Routledge.

[69] Simos, C. (2025). *Evaluation of the neuropsychological tests CPT, Stroop and WCST in detecting ADHD: Potential for integrating ICT in diagnostic practice*. Global Journal of Engineering and Technology Advances, 24(2), 131–140. https://doi.org/10.30574/gjeta.2025.24.2.0241

[70] Simos, C. (2025). *From theory to collaborative practice: Information and communication technologies as catalysts of unity, empathy and inclusion in schools*. GSC Advanced Research and Reviews, 25(2), 135–154. https://doi.org/10.30574/gscarr.2025.25.2.0343

[71] Simos, C., & Karabatzaki, Z. (2025). *Modern tools for ADHD detection and diagnosis: Psychometric analysis and improvement perspectives*. Global Journal of Engineering and Technology Advances, 24(2), 153–160. https://doi.org/10.30574/gjeta.2025.24.2.0243

[72] Simos, C., &Katsiampoura, I. (2025). *The use of digital tools to enhance inclusion in the classroom*. World Journal of Advanced Engineering Technology and Sciences, 17(1), 465–477. https://doi.org/10.30574/wjaets.2025.17.1.1446

[73] Simos, C., Tzagkourni, E., Bardis, N., & Doukas, N. (2026a). *STEM learning supported by educational chatbots: Cognitive and pedagogical dimensions*. Global Journal of Engineering and Technology Advances, 26(3), 195–209. https://doi.org/10.30574/gjeta.2026.26.3.0068

[74] Simos, C., Tzagkourni, E., Bardis, N., & Doukas, N. (2026b). *The transformation of STEM education through educational chatbots and digital technologies*. Global Journal of Engineering and Technology Advances, 26(3), 181–194. https://doi.org/10.30574/gjeta.2026.26.3.0067

[75] Simos, C., Tzianakopoulou, T., Papachristou, A., Nestoratou, S., Galiotou, A., &Xyloparkioti, E. (2026). *AI literacy and critical digital literacy in school practice: Collaborative digital writing as a cognitive and instructional model for 21st century learning*. Global Journal of Engineering and Technology Advances, 26(3), 63–80. https://doi.org/10.30574/gjeta.2026.26.3.0051

[76] Sundar, S. S. (2020). Machine agency. *Journal of Computer-Mediated Communication, 25*(1), 74–88. https://doi.org/10.1093/jcmc/zmz026

[77] Walther, J. B. (1996). Computer-mediated communication. *Communication Research, 23*(1), 3–43. https://doi.org/10.1177/009365096023001001

[78] Walther, J. B. (2011). Theories of computer-mediated communication. In *The SAGE handbook* (pp. 443–479). Sage.

[79] Wilson, M. (2002). Six views of embodied cognition. *Psychonomic Bulletin & Review, 9*(4), 625–636.