

Semiotics of the Body and Inclusive Education through a Scoping Review of Pedagogical Practices Inspired by Umberto Eco

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Abstract: Sixty years after *Apocalittici e integrati* (1964) by Umberto Eco, this study explores the role of the body as a semantic vector in Special Pedagogy, focusing on inclusive contexts and digital technologies. Through a Scoping Review, studies linking body semiotics, innovative teaching, and mass culture are analyzed, highlighting the importance of bodily approaches in overcoming educational barriers. The research promotes empathy, critical awareness, and active participation among students with SEN. Results emphasize integrating bodily practices and digital tools, opening new pathways for inclusive education centered on individual potential.

Keywords: Scoping Review, Body Semiotics, Inclusive Education, Digital Technologies, Umberto Eco.

1. Theoretical Framework

Experiences of discrimination and the lack of social and educational policies have, since the 1960s, driven pedagogues and scholars to reflect on the role of special pedagogy as a response to inequalities (Gaspari, 2024). Body semiotics, conceptualized as a tool for universal expression and communication, acts as a bridge between innovative teaching and social inclusion (Eco, 1964). The affirmation of the bio-psycho-social model and human rights (WHO, 2001; UN, 2006) has redefined the approach to disability, promoting practices that value the body as an educational mediator. In the contemporary landscape, the digital revolution and the expansion of mass cultures have amplified the need for new pedagogical tools capable of integrating technology with corporeality (Petrini, 2022; Bonometti, 2023; Di Tore & Axelsson, 2023). The body becomes not only a semantic vector but also a space of resistance to forms of alienation and standardization (Bodo et al., 2024). This approach facilitates the creation of more inclusive educational environments, addressing the needs of students with disabilities through practices that foster empathy and active participation (Piccolo & Pasqualetto, 2024). The Covid-19 experience, in particular, has highlighted the fragility of traditional educational systems, exacerbating inequalities and underscoring the importance of a pedagogy centered on the body and emotions (Marone et al., 2023). The pandemic accelerated the adoption of digital tools, opening new possibilities for the use of the body in virtual and hybrid environments (Buccini, 2023). However, the risk of exclusion for the most vulnerable groups remains high, necessitating a rethinking of teaching practices from an inclusive



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perspective. The objective of this scoping review is to explore how body semiotics, reinterpreted through the lens of Eco's works, can contribute to the development of innovative educational pathways capable of integrating digital technologies and corporeal approaches. The intent is to outline a theoretical framework that values the body as a tool of symbolic mediation and inclusion, proposing pedagogical solutions that can be replicated in various educational contexts (Altavilla & Di Tore, 2016; Di Tore, 2014; Di Tore et al., 2012).

2. Methodology

The methodology adopted in this study is based on the principles of a Scoping Review, aiming to explore and map the role of body semiotics in inclusive pedagogy and special education. This methodology was chosen for its ability to identify gaps, synthesize existing knowledge, and outline emerging trends (Di Blas et al., 2021). The review was guided by two main research questions:

- Q1. How does body semiotics contribute to inclusive pedagogy and the overcoming of educational barriers?
- Q2. What methodologies and educational practices integrate the body as a semantic vector in inclusive learning contexts?

The data analysis will primarily focus on the first question (Q1), while the second will be explored in future studies.

a) *Research Question Identification*

The research questions were formulated to explore the intersection between body semiotics, inclusive pedagogy, and educational innovation, focusing on the integration of digital technologies and bodily approaches (Corona & Cozzarelli, 2013; Toto et al., 2023).

b) *Study Identification through Key Concepts*

Studies were identified through searches in academic databases such as ERIC, Scopus, and Google Scholar. Key concepts were used in both Italian and English, including: Body Semiotics and Inclusive Education, Digital Pedagogy and Special Needs, Embodied Learning and Mass Culture.

c) *Selection of Relevant Studies*

Ten articles were selected based on titles, abstracts, and full-text reviews, following these inclusion criteria:

- Peer-reviewed studies published between 2000 and 2024.
- Research exploring the role of the body in special pedagogy and inclusion.
- Articles analyzing the use of digital technologies for embodied learning.

Articles not relevant to the educational context or not directly addressing body semiotics were excluded.

d) *Data Synthesis and Analysis*

Data were synthesized into a table summarizing the key academic contributions (10 articles), highlighting the Italian context, objectives, methodologies, and target groups.

e) *Data Interpretation and Discussion of Results*

The interpretation and discussion of results will be developed in the following sections, with a particular focus on implications for special pedagogy and inclusive education. Continuous teacher training and the integration of digital tools are essential steps to bridge the gap between theory and practice (De Marco, 2023). Future research should focus on the effectiveness of such approaches in real educational settings, aiming to develop replicable and adaptable models to meet the diverse needs of students.

3. Results of the Scoping Review and Metadata Commentary

The studies identified and analyzed are presented in the following table, reflecting the growing focus on inclusive education and the adoption of innovative pedagogical practices.

Methodologies

The contributions can be classified into three main methodological categories:

- Qualitative (QL): This includes literature reviews, theoretical studies, and investigations based on interviews. This category represents 50% of the studies, suggesting a prevalence of interpretative approaches aimed at exploring educational phenomena in depth.
- Quantitative (QT): This includes studies that use questionnaires to collect empirical data, although it is less represented (10%).
- Mixed Methods (MM): This integrates qualitative and quantitative methodologies, reflecting a more complex and structured approach. This category accounts for 40% of the studies

Research Tools

The techniques used include:

- Interviews (QL/MM): Used in four studies to collect direct data from teachers, students, and families (Gardoni, 2024).

- Questionnaires (QT/MM): Administered to assess perceptions and impacts of pedagogical practices (Di Blas, 2021; De Santis & Bianchi, 2019; Corona & Cozzarelli, 2013; Pellegrini & Sebastiani, 2023; Toto et al., 2023).
- Theoretical and Narrative Reviews (QL): Reflect the importance of critical and conceptual analysis in the context of inclusive pedagogy (Malaguti, 2023; Margiotta, 2015; Sebastiani, 2024; Zanfroni & Maggiolini, 2023).

Target

The subjects involved in the studies are diverse:

- Educators (5 studies): Emphasis is placed on teachers' competencies in designing inclusive pathways.
- Students (5 studies): Analyzed in relation to the effectiveness of embodied learning and educational technologies.
- Families (2 studies): Direct parental involvement highlights the crucial role of family support in inclusive education.
- Local Communities (1 study): Focuses on social inclusion and strengthening local networks.

Tabella (Summary of Scoping Review Results for Question Q1)

Author	Year and Country	Title	Objective	Methodology	Research Tools	Target
Di Blas et al.	2021, Italia	Prima e durante la pandemia: pratiche didattiche e di formazione degli insegnanti nei diversi ordini e gradi scolastici.	Teaching Practices and Teacher Training	QT	Questionnaire	Teachers
Sebastiani, R.	2024, Italia	Implicazioni etiche ed educative dell'uso delle nuove tecnologie: un'analisi critica e prospettive di ricerca.	Technologies and Inclusive Teaching	QL	Theoretical and Narrative Reviews	Educational Context
Gardoni, C.	2024, Italia	Il dominio dei social media e la necessità di una Social Media Education nella società contemporanea	Social Media Education – Inclusive Education	MM	Theoretical and Narrative Reviews	Educators, Teachers
Corona, F., & Cozzarelli, C.	2013, Italia	Il modellaggio: una forma di apprendimento complessa per	Behavioral Shaping – Inclusive Education	MM	Questionnaire	SEN Students

		acquisire “nuove” abilità				
Margiotta, U.	2015, Italia	Teoria della formazione. Ricostruire la pedagogia	Educational Approaches	QL	Theoretical and Narrative Reviews	Educators, Teachers
Toto G. A., et al.	2023, Italia	Nuovi percorsi di inclusione: utilizzo di un tool digitale per implementare l'educazione motoria e sportiva rivolta a studenti con autismo e disabilità cognitive	Technologies and SEN (Special Educational Needs)	MM	Questionnaire	Students, Educators
Pellegrini, S., & Sebastiani, R.	2024, Italia	Democrazia, equità e uguaglianza nei contesti di vita.	Technologies and Equitable Pedagogical Practices	MM	Questionnaire	Teachers, SEN Students
Malaguti, E.	2023, Italia	Equità, diversità, inclusione e resilienza : approccio multisistemico, socio-ecologico nella ricerca nel campo della Pedagogia Speciale e Didattica Speciale	Special Pedagogy	QL	Theoretical and Narrative Reviews	Teachers, SEN Students, Families, Local Communities
Zanfroni, E., & Maggolini S.	2018, Italia	Sostenere la famiglia che vive la disabilità di un figlio: il ruolo dell'associazionismo familiare.	School Inclusion	QL	Theoretical and Narrative Reviews	Educators, Families
De Santis, M., & Bianchi, L.	2019, Italia	La semantica ludica nella formazione iniziale e in servizio degli insegnanti.	Experiential Learning	QL	Questionnaire	Teachers, Student

Results Q1

The selected studies highlight how integrating the body into teaching promotes inclusive learning and student empowerment. Specifically, it emerges that bodily practices, combined with digital technologies, can enhance school participation and strengthen students' emotional well-being.

1. The study by Di Blas et al. (2021) examines the impact of Covid-19 on teaching practices and teacher training, highlighting the widespread adoption of Distance Learning (DaD). Synchronous methods dominated in secondary education, while asynchronous approaches prevailed in lower levels. Teacher training during this period relied heavily on non-institutional resources like MOOCs, online materials, and peer support, reflecting a pre-existing trend

toward self-training. The pandemic encouraged new forms of teacher-student interaction, including one-on-one and small group sessions, promoting personalized learning. In secondary education, synchronous teaching was predominant, whereas preschool and primary education used recorded videos and shared materials to engage families. A MOOC by Politecnico di Milano played a key role in supporting teacher training and fostering a community of practice, emphasizing the need for ongoing and collaborative teacher development in the digital era.

2. Sebastiani (2024) – Highlights the ethical use of digital technologies in education, stressing the integration of cognitive, emotional, and moral aspects. Teachers play a vital role in fostering critical thinking and ethical reflection to prepare students for responsible technology use. The study emphasizes the importance of equal access to digital resources to promote inclusion and reduce inequalities.
3. Gardoni (2024) – Explores the impact of social media on social, psychological, and economic dynamics. It highlights risks like social media addiction and objectification, focusing on the effects of datafication. Gardoni proposes Social Media Education to foster critical awareness and mitigate negative influences, promoting mindful engagement with digital platforms.
4. Corona & Cozzarelli (2013) – Examines behavioral shaping as an educational tool for students with disabilities or SEN. The technique uses gradual reinforcement to support skill acquisition and inclusion through practical, step-by-step learning and positive reinforcement.
5. Margiotta (2015) – Offers a theoretical reconstruction of pedagogy, focusing on epistemological reflection and critical analysis of educational practices. The study addresses academics and professionals interested in redefining education's role in contemporary society.
6. Toto, Peconio & Rossi (2023) – Investigates the use of SportAbility, an app that promotes the inclusion of students with autism and cognitive disabilities through motor and sports activities. Using hackathons and Challenge-Based Learning (CBL), the study demonstrates how technology fosters inclusion and active participation in schools and communities.
7. Pellegrini & Sebastiani (2024) – Explores the relationship between inclusion, democracy, and equity in education. Surveys reveal a gap between theoretical and practical accessibility in learning environments. The study calls for inclusive policies and adaptations to ensure full inclusion for students with disabilities.
8. Malaguti (2023) – Promotes a socio-ecological and multisystemic approach to equity, diversity, and inclusion in education. The study emphasizes integrating individuals, environment, and relationships to build sustainable educational

contexts and highlights the interconnection between education and social systems.

9. Zanfroni & Maggiolini (2018) – Focuses on the role of family associations in supporting children with disabilities. It highlights how networks of solidarity and collaboration with schools promote empowerment and self-determination for families, fostering inclusive educational projects.
10. De Santis & Bianchi (2019) – Investigates the role of the body in experiential learning. Physical and sensory activities improve attention, concentration, and transversal skills in students with SEN. The study emphasizes play and ludopedagogy as essential tools for teacher training and fostering reflective teaching practices.

Risultati Q2

The studies analyzed to address question Q2 provide a clear picture of methodologies and educational practices that integrate the body as a semantic vehicle in inclusive learning contexts. These studies show that the most effective methodologies for incorporating the body into inclusive educational settings involve experiential, playful, and multisensory approaches. The use of immersive digital tools, such as interactive platforms and augmented reality, enables students to express themselves through movement and develop greater bodily awareness (Di Blas et al., 2021; Sebastiani, 2024). Techniques like role-playing, simulations, and ludopedagogy strengthen cooperative learning and promote inclusion (Corona & Cozzarelli, 2013; De Santis & Bianchi, 2019). Furthermore, Social Media Education, as proposed by Gardoni (2024), explores the role of the body as a narrative tool within datafication processes, stimulating critical reflections on social and cultural dynamics.

4. Discussion of Results

The data analysis reflects a growing awareness of the importance of the body as a semantic vehicle in inclusive education, aligning with Umberto Eco's reflections on the role of corporeality in meaning-making. The examined studies highlight how the integration of bodily practices into pedagogy fosters empathy, participation, and critical awareness, helping to overcome educational barriers. The bio-psycho-social approach underpinning these practices acknowledges the body as a tool of resistance against conformity and exclusion, resonating with Eco's perspectives on mass culture and interpretative diversity. In particular, digital technologies emerge as a key factor in amplifying the role of the body in education, creating learning environments that value individuality and stimulate sensory interaction. The adoption of immersive and ludopedagogical digital tools promotes a multisensory approach to teaching, which more effectively addresses the needs of students with special educational needs (SEN). This approach not only enhances engagement but also bridges cognitive, emotional, and social learning dimensions, reinforcing inclusive practices that align with contemporary educational goals of diversity and equity.

5. Concluding Remarks and Future Perspectives

The results of the scoping review confirm that inclusive education cannot disregard a re-evaluation of the body as a tool for symbolic and didactic mediation. Eco's perspective, which views the body as a space for meaning-making and relational engagement, provides a fundamental theoretical framework for rethinking special pedagogy and inclusive education. Pedagogical practices that integrate bodily semiotics and digital technologies open new pathways for creating educational environments that embrace complexity and diversity. However, to ensure the effectiveness of these approaches, it is essential to invest in teacher training so that educators can develop specific skills in using the body as a pedagogical tool. Inclusive education requires ongoing efforts to design learning pathways that foster the integration of corporeality, emotions, and technology, placing the student at the center of the educational process. Future directions focus on developing educational models inspired by bodily semiotics, which can be replicated in various school and training contexts. Designing educational programs based on the integration of digital technologies and bodily approaches represents a crucial challenge for making education more accessible and participatory. Collaboration between universities, schools, and local communities can promote the dissemination of inclusive practices, fostering shared critical reflection on the educational potential of the body. Additionally, the adoption of digital platforms that emphasize corporeality and movement can help create more dynamic and engaging learning environments, capable of meeting the needs of a society increasingly oriented toward inclusion and the appreciation of diversity.

References

- Altavilla, G., & Di Tore, P. A. (2016). *Physical education during the first school cycle: a brief social psycho-pedagogical summary*. Journal of Physical Education & Sport, 16(2).
- Bodo, S., Mascheroni, S., & Panigada, M. G. (Eds.). (2024). *Fare nuove le cose: Patrimonio culturale e narrazione, uno sguardo pluridisciplinare*. Mimesis.
- Bonometti, S. (2023). *Teaching in the lab through Virtual Reality*. Journal of Inclusive Methodology and Technology in Learning and Teaching, 3(2).
- Buccini, F. (2023). *Learning in the metaverse: for an educational use of hybrid environments*. Q-Times Webmagazine,(3), 121-133.
- Corona, F., & Cozzarelli, C. (2013). *Il modellaggio: una forma di apprendimento semplice per acquisire "nuove" abilità*. Italian Journal of Special Education for Inclusion.
- De Marco, E. (2023). *Come progettare un'istruzione Technology-Integrated efficace?. Progettare l'apprendimento digitale: guida per i docenti della scuola primaria e secondaria per affrontare le sfide del futuro.*-(Le frontiere della pedagogia), 45-55.
- De Santis, M., & Bianchi, L. L. (2019). *La semantica ludica nella formazione iniziale e in servizio degli insegnanti*. GIORNALE ITALIANO DELLA RICERCA EDUCATIVA, 12(XXII), 271-289.
- Di Blas, N., Fabbri, M., Ferrari, L., & Trentini, M. (2021). *Prima e durante la pandemia: pratiche didattiche e di formazione degli insegnanti nei diversi ordini e gradi scolastici*. ITALIAN JOURNAL OF EDUCATIONAL RESEARCH, 051-061.

- Di Tore, P. A., & Axelsson, E. E. P. (2023). *Metaverse, between ecology of virtual and phenomenology of experience*. Journal of Inclusive Methodology and Technology in Learning and Teaching, 3(1).
- Di Tore, P. A. (2014). *Perception Of Space, Empathy And Cognitive Processes: Design Of A Video Game For The Measurement Of Perspective Taking Skills*. International Journal of Emerging Technologies in Learning, 9.
- Di Tore, S., D'elia, F., Aiello, P., Carlomagno, N., & Sibilio, M. (2012). *Didactics, movement and technology: new frontiers of the human-machine interaction*.
- Eco, U. (1964). *Apocalittici e Integrati*. Bompiani.
- Gardoni, C. (2024). *Il dominio dei social media e la necessità di una Social Media Education nella società contemporanea*. Scienze pedagogiche, 325.
- Gaspari, P. (2024). *La narrazione interroga la Pedagogia Speciale: La sfida di abitare nuove storie inclusive*. FrancoAngeli.
- Malaguti, E. (2023). *Equità, diversità, inclusione e resilienza : approccio multisistemico, socio-ecologico nella ricerca nel campo della Pedagogia Speciale e Didattica Speciale*. L'INTEGRAZIONE SCOLASTICA E SOCIALE, 22(1), 5-32 [10.14605/ISS2212301].
- Margiotta, U. (2015). *Teoria della formazione. Ricostruire la pedagogia*. Roma: Carocci,
- Marone, F., Musaio, M., & Pesare, M. (2023). *Educazione, relazione e affetti*. Armando Editore.
- OMS. *Organizzazione Mondiale della Sanità (2001). ICF Classificazione Internazionale del Funzionamento, della Disabilità e della Salute*. Trento: Erickson.
- ONU. *Organizzazione delle Nazioni Unite (2006). Convention on the rights of persons with disabilities*. New York (NY): UN General Assembly.
- Pellegrini, S., & Sebastiani, R. (2024). ITALIAN JOURNAL OF SPECIAL EDUCATION FOR INCLUSION, 12(1), 148-161.
- Petrini, M. (2022). *Corporeità e tecnologia: traiettorie formative al tempo del Covid*. Education Sciences & Society: 1, 2022, 274-286.
- Piccolo, A. L., & Pasqualetto, D. (2024). *Mente-corpo, educazione e inclusione*. ISSN 1828-4582-Anno XLI, 257.
- Sebastiani R. (2024). *Ethical and educational implications of utilizing new technologies: a critical analysis and research prospects*. Pampaedia, Bollettino As.Pe.I, 196(1), 45-60.
- Toto, G. A., Peconio, G., & Rossi, M. (2023). *Nuovi percorsi di inclusione: utilizzo di un tool digitale per implementare l'educazione motoria e sportiva rivolta a studenti con autismo e disabilità cognitive*. ITALIAN JOURNAL OF SPECIAL EDUCATION FOR INCLUSION, 11(2), 065-072.
- Zanfroni, E. & Maggiolini S. (2018). *Sostenere la famiglia che vive la disabilità di un figlio: il ruolo dell'associazionismo familiare*. Annali online della Didattica e della Formazione Docente” Vol. 10, n. 15-16/2018, pp. 479-490 – ISSN 2038-1034.