



4

Ottobre 2025

**Material and Play for All: Educators' Perceptions of Inclusion involving
Analogical and Digital Solutions in Early Childhood services**

**Materiali e giochi per tutti: le percezioni degli insegnanti sull'inclusione tra
soluzioni analogiche e digitali nei servizi per la prima infanzia**

Vanessa Macchia¹, Stefania Torri

Libera Università di Bolzano

vanessa.macchia@unibz.it
stefania.torri@unibz.it

Doi: https://doi.org/10.14668/QTimes_17416

ABSTRACT

This article explores inclusive play in early childhood, placing particular emphasis on the integration of analogic and digital solutions. It is based on key regulatory documents such as the UN Convention

¹ This contribution is the result of extensive work and was conceived jointly by the two authors. Vanessa Macchia wrote paragraphs 1, 2, 3 and 4, while Stefania Torri wrote paragraphs 5, 6 and 7. The conclusions 8 was written jointly.

on the Rights of the Child and ICF-CY (WHO), as well as on the latest research on play as a practice requiring innovative strategies and alternative communication techniques. The empirical analysis examines preliminary data from the play materials section of the 'Pensare IN Grande/ThinkINg Big' inter-university research project questionnaire. This section explores Italian educators' perceptions of using and adapting play materials to foster inclusion. The results reveal widespread awareness of the importance of accessible and diverse materials, alongside practical challenges in adapting resources to different needs and inadequacies in staff training. The discussion highlights the need for innovative training courses that promote the harmonious integration of analogue and digital elements in play.

Keywords: inclusive play, analogue play materials, early childhood educator training, digital play in early childhood.

RIASSUNTO

L'articolo esplora il gioco inclusivo nella prima infanzia, dando particolare rilievo all'integrazione di soluzioni analogiche e digitali. Si fonda sia su importanti documenti normativi quali la Convenzione ONU sui Diritti dell'infanzia e ICF-CY (OMS), sia sulle ricerche più recenti sul gioco come pratica che richiede strategie innovative e strumenti di comunicazione alternativa. L'analisi empirica esamina dati preliminari della sezione sui materiali di gioco nel questionario del progetto di ricerca interateneo Pensare IN Grande/ThinkINg Big. Questa sezione esplora le percezioni degli educatori italiani sull'uso e l'adattamento dei materiali ludici per l'inclusione. I risultati mostrano una diffusa consapevolezza dell'importanza di materiali accessibili e diversificati, ma anche difficoltà pratiche nell'adattare le risorse alle diverse esigenze, nonché lacune nella formazione del personale. La discussione evidenzia la necessità di percorsi formativi innovativi che promuovano un'integrazione armonica tra analogico e digitale nel gioco.

Parole chiave: gioco inclusivo, materiali analogici per il gioco, formazione del personale nella prima infanzia gioco digitale nella prima infanzia.

1. INTRODUCTION

Play is a central theme in classic and contemporary perspectives on childhood. For example, Huizinga (2016) describes it as a fundamental aspect of human culture: a freely chosen yet meaningful activity that predates social rules and laws (Huizinga, 2016). Loris Malaguzzi (1996), founder of the Reggio

Emilia approach, viewed play as a vital process of exploration and self-expression and as children's 'work', through which relationships are fostered and knowledge constructed (Malaguzzi, 1996). From a socio-constructivist perspective, Vygotsky (1978/1933) defined play as a voluntary, rule-governed, imaginative activity through which children attribute meaning to objects, regulate their behaviour, and negotiate shared rules when interacting with their peers. (Vygotsky, 1978/1933). The *United Nations Convention on the Rights of the Child* (1989) supports this view, recognising play as a fundamental right that is essential for rest, leisure, and full participation in cultural life (United Nations, 1989). However, Besio (2017) and Blanquin (2017) have highlighted how ensuring the effective realisation of this right is particularly challenging for children with disabilities and special needs. (Besio *et al.* 2017; Blanquin, 2017, p. 21).

Italian early childhood education and care policy reflects these diverse perspectives by consistently framing play as expressive, cognitive, social, inclusive and preventive across successive frameworks. Since the *Orientamenti (Educational Guidelines)* of 1991 (MPI, 1991)², play has been celebrated as a language of childhood, a context for learning and identity-building, and a vehicle for integration. Later policies, from the *Nuove Indicazioni (New Curriculum Guidelines)* of 2012 (MIUR, 2012) to the *Linee Guida Pedagogiche (Pedagogical Guidelines)* of 2021 (MI 2021), have expanded its role to include narrative, multicultural and civic dimensions, while also acknowledging digital forms of expression. The most recent *Nuove Indicazioni 2025 (MIM, 2025)* consolidate these developments by affirming the equal value of analogue and digital play and the active role of educators in facilitating inclusive and meaningful experiences.

Bearing in mind this kaleidoscope of perspectives on play, this article explores the topic as it applies to all children, considering both analogue and digital modalities and their potential to foster inclusive educational experiences.

2. PLAY IN INTERNATIONAL DOCUMENTS

This section presents an inclusive understanding of play, incorporating recent documents that explicitly address digital play and have, in large part, served as reference points for Italian policy. Beyond the previously cited *Convention on the Rights of the Child* (United Nations, 1989), play is recognised in several key international frameworks. The *Convention on the Rights of Persons with Disabilities* (2009) explicitly acknowledges the right to play. It also highlights associated risks and devotes Article 7 to the expression and protection of the rights of children with disabilities, emphasising the need to ensure access to tailored educational processes within an inclusive, life-long learning system. Article 30 further recognises the right to participate in recreational, sporting, and entertainment activities, including those provided in schools (United Nations, 2009).

Central to this discourse is the *International Classification of Functioning, Disability and Health*, revised by the World Health Organization (2021), which frames functioning in relation to activity

² *Terminological clarification:* The Italian Ministry of Education has changed its official name over the years. The main denominations and their abbreviations are as follows: *Ministero della Pubblica Istruzione, MPI* (Ministry of Public Education); *Ministero dell'Istruzione, MI* (Ministry of Education); *Ministero dell'Istruzione, dell'Università e della Ricerca, MIUR* (Ministry of Education, University and Research); *Ministero dell'Istruzione e del Merito, MI* (Ministry of Education and Merit).

and participation, taking into account contextual aspects of daily life, particularly environmental and personal factors. Similarly, the *ICF Children and Youth Version (ICF-CY)*, (WHO, 2009) tailors this for children and youth populations. In this document, play falls within the 'Activities and Participation' category, which encompasses all forms and modes of play, as well as social involvement. Conversely, the tools and contexts of play are classified under the rubric of 'Environmental Factors'. These include available technologies, as well as accessibility and usability criteria, and family, social, rehabilitative and educational relationships and environments (World Health Organization, 2009).

In international documents focused on the 0–6 age group, digital play receives careful attention. However, its presence remains limited and is often embedded within broader discussions on the balanced integration of technologies in early childhood. The *Digital Education Action Plan 2021–2027* of the European Commission (2021), the main policy initiative for adapting educational systems to the digital era, does not specifically address digital play for children aged 0–6, focusing instead on primary and secondary education (European Commission, 2021). This publication responded to the growing need to digitalise education in Europe, particularly in light of the COVID-19 pandemic, and thus early childhood was not a primary focus.

By contrast, the Eurydice report *Key Data on Early Childhood Education and Care in Europe* (2025) provides structural data on early childhood services. Regarding digital competencies for the 0–6 age group, most EU countries incorporate these skills into ECEC educational guidelines. The most frequently referenced competencies include information and data literacy, digital content creation, communication and collaboration, safety, and problem-solving. The prevailing approach is cautious: several educational systems have established limits on the introduction of digital technologies in ECEC, promoting moderate, mindful use and prioritising unplugged activities and social interactions as foundational for developing digital skills. Denmark and Sweden are revising legislation to further restrict technology use in early childhood education. (European Commission, EACEA & Eurydice, 2025)

The OECD report *Empowering Young Children in the Digital Age* (2023) provides a comprehensive overview of the challenges of digitalisation in ECEC. It highlights both opportunities and concerns regarding digital play. Educational digital games can enrich learning activities, offering interactive features that support expressive development through audio, visual, and multimedia channels. Digital play is presented as an augmented learning environment, enabling the creation of playful contexts that enhance educational effectiveness.

At the same time, potential risks are acknowledged, including excessive screen time, reduced interpersonal interactions, exposure to inappropriate content, and misuse of personal data. Recommendations stress focusing on quality digital engagement under adult guidance, promoting slow-paced, educational, and age-appropriate activities, and integrating digital tools within a broader set of learning experiences (OECD, 2023). Documents such as *Better Internet for Kids* (2022) and OECD's *How's Life for Children in the Digital Age* (2024–2025) aim, respectively, to improve children's online well-being and to advise multi-sector preventive measures against excessive digital gaming among adolescents, though they do not specifically address the 0–6 age range (OECD, 2022; OECD, 2024-25).

Overall, international frameworks tend to adopt a more cautious approach toward digital play compared to the Italian attitude, particularly for children aged 0–6. The focus is primarily on risks: excessive screen time, inappropriate content, and reduced social interactions. However, the potential

of digital education as a tool for inclusion is increasingly recognised. The attention to the interactive and collaborative dimension, as well as that to multimedia resources, are recognised as advantages. Multimedial resources can serve as technical aids for diverse needs and enhance expressive opportunities for all children, engaging multiple sensory channels to accommodate varying developmental requirements.

3. RESEARCH ON PLAY MATERIALS

Research also focused on play materials for children aged 0-6. Over recent decades, this field has become increasingly important, with significant contributions exploring the relationship between types of materials, cognitive development, and educational practices.

One prominent area of investigation is the role of 'loose parts' — open-ended, interactive and unstructured materials such as acorns, cardboard and fabrics — that children can incorporate into their play in creative ways. A recent systematic review by Cankaya (2025) identified 25 studies up to 2024 that link playing with loose parts with positive outcomes in problem solving, creativity, and academic skills, including reading and mathematics. The review highlights those different types of materials support both convergent and divergent thinking, although there is a terminological gap, with only one study explicitly using the term 'loose parts' (Cankaya, 2025).

Further emphasising the didactic value of play materials, Clavio and Fajardo (2008) investigated the effectiveness of toys as instructional tools for fostering problem solving in preschool children. Drawing on Guilford's (1967) theoretical framework (Guilford, 1967), they distinguish between convergent materials, such as puzzles and card games that guide children towards singular solutions, and divergent materials, such as blocks and construction sets that encourage multiple uses and lateral thinking. Effective materials typically possess qualities such as safety, durability, developmental appropriateness, versatility, and the capacity to stimulate exploration, original thinking, and simple cause-and-effect relationships, while providing open-ended opportunities for choice and decision-making (Clavio & Fajardo, 2008).

Güven's (2025) research on ancient, traditional natural toys emphasises the educational value of natural materials such as wood, clay, and stone, which encourage sensory exploration, cultural connection, cooperative play, leadership development, imagination, and creative thinking. This aligns with the growing recognition of the cultural and ecological significance of materiality in early childhood pedagogy (Güven *et al.*, 2025).

Additionally, recent studies have documented the efficacy of simple STEM materials for early childhood education. For example, Revák (2024) highlights sensory experiments such as water play and ice activity to stimulate curiosity in young children. (Revák *et al.*, 2024). Movahedazarhouligh (2023) reports that natural materials such as sand, stones, and leaves can foster scientific-like inquiry and cause-and-effect learning in preschool settings (Movahedazarhouligh *et al.*, 2023). These studies recommend that these sensory and exploratory experiences start from age three, progressing toward more complex scientific exploration by ages five or six.

In summary, recent literature confirms that a variety of play materials, both natural and structured, have an educational value and support cognitive, social and scientific development in early childhood.

4. ANALOGIC AND DIGITAL PLAY: A PLEA FOR HARMONISATION

As the review of key early childhood policy documents revealed, digital play has begun to feature in more recent frameworks, not always as a standalone topic, but as an integral part of the broader digital ecosystem. On the other hand, strands of international research on play materials emphasise the importance of carefully selecting and integrating a variety of “analogue“ play materials to promote all-round cognitive and social development in early childhood education. The two types of play evolved in isolation from each other for a long time. However, over the years, they have begun to converge.

The term 'analogue *versus* digital play' as separate entities gradually emerged. Atari's Pong, released in 1972, marked the beginning of the commercial video game era, and the distinction between 'electronic' and traditional games emerged in the 1970s. Between the 1990s and 2000s, this distinction became more firmly established. The 1990s saw the emergence of MMORPGs *Massively Multiplayer Online Role-Playing Games*, (Francalanci, 2018) and the distinction between analogue and digital became more established in design and the media in the 2000s.

A proper pedagogical distinction between analogue and digital play solidified around 2015-2016, when academic research, driven by the widespread availability of touchscreen devices, produced specific theoretical frameworks to define each mode of play and their developmental effects (Fleer, 2016; Chu *et al.*, 2024). Since then, digital play has shifted from being studied as isolated screen-based activities to being understood as interwoven, culturally situated practices that co-construct hybrid plays experiences alongside traditional toys and spaces.

In particular, the systematic review conducted by Chu *et al.* (2024) revealed that, since 2010, research into digital play has used familiar pedagogical lenses (such as learning, social context and enjoyment) more frequently than digital-specific theories. This suggests a gradual integration of digital play into existing play frameworks (Chu *et al.*, 2024).

What stands out is that the starting point remains play as a unified phenomenon. One of the analogue play definitions that best bridges to digital play is that of Vygotsky, which sees play as the creation of an imaginary situation wherein children assign new meanings to physical objects and actions. As he writes in *Mind in society*:

In play, thought is separated from objects and action arises from ideas rather than from things: a piece of wood begins to be a doll, and a stick becomes a horse. Action according to rules begins to be determined by ideas, not by objects. This is such a reversal of the child's relationship to the real, immediate, concrete situation that it is hard to evaluate its full significance [...] in play the child operates with meanings detached from the objects and actions with which they are usually associated. However, this emancipation of meaning from object is achieved only gradually” (Vygotsky, 1978/1933, p. 97).

As Fleer (2016) proposes, digital play simply extends this unit of analysis by introducing the concept of an 'imaginary digital solution': content created or mediated by apps and other special devices, in which children temporarily suspend visible reality and engage in virtual pretend play. (Fleer, 2016, see a synoptic view of possibilities at p. 79)

Evidence of interaction between analogue and digital play in the Italian educational landscape is already present, with practices that constitute an authentic dialogue between the two forms. To

illustrate this, the idea of the digital workshop (*atelier digitale*) adopted by the Alberto Manzi Centre can be described briefly as a paradigm. It is a project funded by the European Union and the Emilia-Romagna Region, grounded in *DIGCOMP, A Framework for Developing and Understanding Digital Competence in Europe*, (2013 and 2022) a document supporting abilities in the area of problem solving as well as fostering creativity and imagination (Vuorikari *et al.*, 2022). These workshops are conducted in nurseries and pre-schools within the Bologna area, in collaboration with educators and families. In a classroom set-up that accommodates both manual and digital activities, these hybrid workshops represent concrete examples of inclusive educational practices. The integration of analogue and digital tools allows children with diverse abilities and background to participate actively, offering multiple entry points for engagement and expression. For instance, children create drawings on paper, which are then animated through apps, or build wooden constructions that are transformed into digital prototypes. These activities are alternated with digital games and storytelling, all designed to foster creativity, collaboration, and accessibility. By blending tactile and digital experiences, the workshops ensure that every child can find a meaningful way to contribute, learn, and express themselves, thus promoting inclusion in early childhood settings. Thanks to the 'do and undo' method, children can continuously experiment, reflect on and reinvent their projects, making mistakes and trying again without fear. This approach encourages flexibility and resilience, as well as collaborative learning, since educators and parents co-design paths. In this way, technology extends the creativity and collaboration of traditional play into new, hybrid dimensions, allowing children to explore, express and connect in ways that are both familiar and innovative. This pedagogical approach goes beyond a simple juxtaposition of 'analogue and digital' activities. Instead, it unfolds as a seamless dialogue between the tactile world of hands-on discovery and the creative affordances of technology, offering a model of integration that enriches both domains.

5. AN EMPIRICAL APPROACH TO PLAY IN EARLY CHILDHOOD EDUCATION: EXCERPTS FROM THE 'PENSARE IN GRANDE/THINKING BIG' PROJECT

To gain a concrete understanding of the impact that debates on analogue and digital play can have on everyday educational practices, it is necessary to analyse empirical data derived from real-life educational contexts. The 'Pensare In Grande/ThinkING Big' project,³ which aims to understand educators' 'perceptions of inclusion' (Amatori & Maggiolini, 2021; Amatori *et al.*, 2022) is a valuable research initiative for this purpose. The study uses an adapted version of the IECE Environment Self-Reflection Tool (Björk-Akersson *et al.*, 2017) to evaluate eight dimensions of inclusivity. Data are gathered on the platform Qualtrics via a Likert-scale survey to provide measurable insights and via open ended questions to capture educators' detailed experiences. The survey, which has thus far been completed by 215 education and teaching professionals working with children aged 0–6 across different Italian regions, provides a significant insight into the current state of early childhood education services.

³ The project is a cooperation among four Italian universities: The Free University of Bozen-Bolzano/Principal Investigator, the Catholic University of Milan, the University of Perugia and the European University of Rome).

5.1. Preliminary findings

This section mainly focuses on area 5, 'Materials for all children', which is dedicated to play.

5.1.1 Features of the sample

Preliminary findings indicate that the sample is representative of Italian early childhood education. The significant data are as follows:

Gender distribution: 96% female, 3.21% male.

Age: balanced distribution with a prevalence of respondents aged 41–44 (16.56%), 45–50 (19.11%), and over 55 (19.11%).

Study title: 44.87% have a high school diploma, 39.74% hold a university degree (at various levels), and 10% have gained postgraduate qualifications.

Professional roles: 38% are kindergarten or preschool educators, 26.75% are nursery or mini-nursery educators, and 20.38% are pedagogical coordinators.

Geographic distribution: The survey mainly involved facilities in northern Italy, particularly in Trentino-Alto Adige (the provinces of Trento and Bolzano/Bozen), followed by Piedmont, Tuscany, Liguria and Friuli-Venezia Giulia.

Number of children: Participating facilities welcome between 20 and 120 children, with a significant proportion having a certified disability (53% of facilities) and children awaiting certification (46.7% of facilities).

5.1.2 General overview of the areas

The other seven areas analysed are: overall welcoming atmosphere, inclusive social environment, child-centred approach, child-centred physical environment, communication opportunities for all, educational support and family-friendly environment.

Preliminary findings in these areas reveal that, overall, the early years settings provide a welcoming and inclusive atmosphere, with staff fostering positive relationships and ground participation. The social and physical environments are generally accessible, safe, and supportive of all children. However, there are significant gaps in personalised and external educational support, as well as limited facilitation of multilingual communication. Finally, while parents are welcomed, family involvement in educational planning remains limited. The areas most in need of improvement are educational support and collaboration with families.

5.1.3 Area 5: materials for all children

Björk-Akersson (2017) adopts a Self-Reflection Tool that places strong emphasis on play. The tool explicitly states that engagement is an especially relevant indicator of inclusion in an educational setting, a fact that is particularly evident in play situations. Engagement means being actively involved in the setting's everyday activities, and play is certainly one of these. Examples of engagement that are explicitly mentioned include: 'Children play together with a common focus and take turns', and 'Children are immersed in play' (Björk-Akersson *et. al.*, 2017).

In area 5, which focuses on materials for all children, six statements are proposed for evaluation on a Likert scale from 1 (not true) to 4 (completely true). These statements are as follows:

- 5.1 Toys and materials are interesting, easily accessible and engaging for all children
- 5.2 Toys and materials are used to challenge children’s own initiation, independence, exploration and creativity
- 5.3 Materials are used to promote communication, language, literacy, mathematics and science
- 5.4 Materials are adapted to facilitate play and learning for all children
- 5.5 Toys and materials reflect cultural diversity
- 5.6. The teacher encourages children to play and share toys and materials with peers

5.2 Focused Analysis

This paragraph presents the full set of quantitative and qualitative results for Area 5. A graph and a table summarise the quantitative results, while an overview provides an analysis of responses to open questions about play materials.

5.2.1 Quantitative results

Quantitative data were exported directly from the Qualtrics software and analysed by calculating frequencies and means for each indicator. Distribution of Likert scale responses for Area 5 “Materials for all children” of the ‘Pensare IN Grande’ project are reported in Figure 1, which shows the percentages of responses for each indicator (5.1-5.6) across the four levels of the Likert scale.

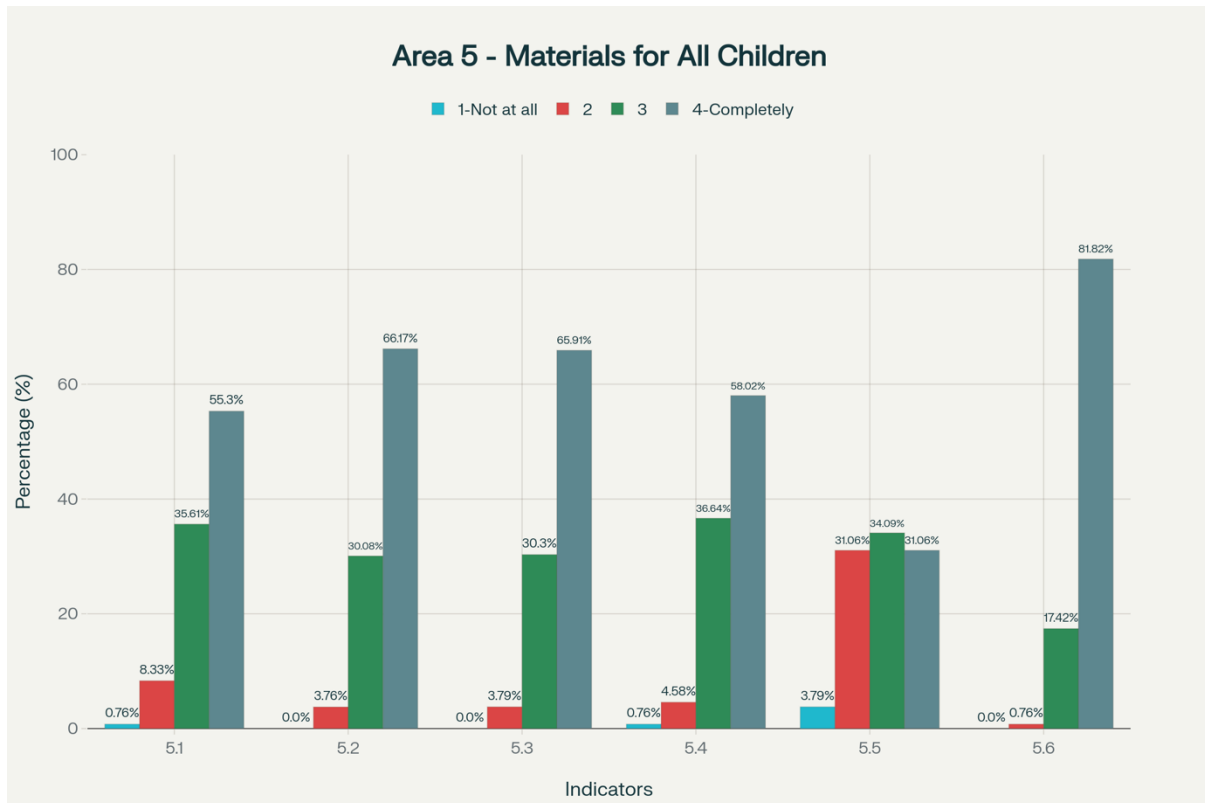


Fig. 1: Summary of results across all indicators

For further information, see figure 2 below, which shows the average responses and the percentage of ratings at the highest level of the Likert scale, along with key comments.

Indicator	Average	Completely true %	Comments
5.1 Accessibility of materials	3.45/4	55.30	Good but could be improved
5.2 Promotion of creativity	3.62/4	66.17	Strong point
5.3 Skill development	3.62/4	65.91	Adequate
5.4 Adaptation of materials	3.52/4	58.02	Needs improvement
5.5 Cultural diversity	2.92/4	31.06	Critical area
5.6 Peer sharing	3.81/4	81.82	Excellent

Fig. 2: Average responses and percentage of ratings

The table clearly shows the strengths, such as creativity, skills development and peer sharing, as well as areas where improvement is needed, particularly about accessibility, adaptation and, above all, the cultural diversity of the materials.

5.2.2 Analysis of open responses on play materials

The thematic categories emerging from the open-ended responses in Area 5 of the 'Pensare IN Grande' questionnaire were defined as follows: Resource and Organisational Constraints, Preference for Accessible and Flexible Materials, Need for Cultural and Linguistic Inclusion, Request for Inclusive Practice Training. Each category was identified by systematically selecting and analysing the most significant and representative voices from the original responses, ensuring that the categories directly reflect educators' perceptions as expressed in the data. Below are the results:

1. Resource and Organisational Constraints

'Many materials are second-hand and are provided by staff due to a lack of funds.'
'I would like more financial resources to provide a wider variety of toys/games for the children.'
It takes a very long time to purchase new equipment.

2. Preference for Accessible and Flexible Materials

'Moving towards an unstructured environment with natural materials eliminates the issue of cultural differences'
'We prefer outdoor education'
'More wooden toys and materials'
'There is too much plastic for my liking'

3. Need for Cultural and Linguistic Inclusion

'Purchase multicultural games and materials'
'Introduce materials and games from other cultures/countries'
'Purchase multicultural books'

4. Request for Inclusive Practice Training

'There is a lack of specific materials for sensory impairments. Adequate staff training is needed'
'Training on alternative materials is needed'
'Provide materials to facilitate play and learning for all children'

Each category represents a fundamental aspect of inclusion: economic and organisational limitations highlight the challenges in ensuring equal access opportunities; the preference for accessible and flexible materials reflects the search for environments that foster the participation of all children; cultural and linguistic inclusion values diversity and promotes a sense of belonging; the request for training on inclusive practice indicates an awareness that effective practices require specific competences.

6. DISCUSSION

The analysis of the area *Materials for All Children* emerges as paradigmatic in illustrating possible strategies to enrich inclusive play through the systematic integration of analogue and digital resources.

A major strength of play concerns its potential to foster socialisation among children (indicator 5.6: 81.82% “completely true”), thereby confirming the pedagogical value of materials that support collaborative play and the negotiation of social norms. These findings are consistent with ministerial documents and with research on play-based learning, and resonate with Vygotsky’s conceptualisation of play as a collaborative construction of imaginary situations. (Vygotsky, 1978/1933, 102).

Further positive outcomes relate to the promotion of creativity (Indicator 5.2: 66.17% “completely true”) and skill development (Indicator 5.3: 65.91% “completely true”). These results demonstrate the effectiveness of open-ended resources, such as *loose parts* (Cankaya, 2025), and align with policy guidelines emphasising the pedagogical value of unstructured activities and natural materials

Nonetheless, some limitations remain. Accessibility (Indicator 5.1: 55.30% “completely true”) and the adaptation of materials (Indicator 5.4: 58.02% “completely true”) continue to be critical areas, confirming what has already been emphasised in policy documents: the need for more equitable and systematic investment to guarantee the right to play for all children, including those with disabilities (MI, 2021). Even more problematic is the cultural diversity of materials (Indicator 5.5: 31.06% “completely true”), which points to the lack of resources capable of representing the multiplicity of identities present in local communities, as recommended by the *New Guidelines 2025* for linguistic and cultural inclusion (MIM, 2025).

The open-ended responses highlight a strong preference for natural, multicultural, and economically sustainable materials. Many educators reported introducing “everyday objects” or “second-hand materials” into the classroom to provide children with opportunities for sensory exploration. At the same time, the demand for “materials specific to sensory impairments” and for “training on alternative materials” reflects an implicit need for the integration of inclusive digital tools, such as augmentative communication apps. This suggests that the absence of explicit references to digital resources is not due to disinterest but may instead reflect limited technological literacy and a lack of clear guidelines. The issue of teacher training acquires even greater significance when considered in relation to the principle, repeatedly emphasised in policy documents, that adults are expected to accompany and support children in the use of digital materials.

7. IMPLICATION FOR RESEARCH AND TRAINING

The findings suggest a need to move beyond a dichotomous view of analogue versus digital play. In line with the ‘Pensare IN Grande/*Think Big*’ project and significant literature (Fleer, 2016), a hybrid approach should be promoted, recognising the continuity of the play process. Unstructured resources, such as blocks or *loose parts*, can be combined with creative applications, while tablet-based activities can stimulate subsequent hands-on exploration. Such integrated practices are already visible in *digital*

atelier contexts inspired by Manzi and Munari and should be systematically incorporated into both training programmes and procurement policies, to ensure environments that reflect the complexities of contemporary childhood.

From this perspective, several implications for research and training in different domains emerge:

- *Professional training:* In this field, targeted courses for educators on the selection and use of analogue and digital materials are necessary. These courses should be supported by toolkits and case studies of integrated ateliers.
- *Applied research:* University institutions should conduct empirical investigations into the effectiveness of hybrid practices with the 0-6 age group, with a particular focus on sensory and cultural inclusion.
- *Design of inclusive spaces:* It is crucial to design indoor and outdoor play spaces that are accessible and inclusive, recognising that spatial barriers significantly limit the capacity of children with special educational needs to exercise their right to play.
- *Funding policies:* Policies to ensure equitable access to innovative and diverse resources should be strengthened, while encouraging cost-effective solutions (e.g., low-cost or recycled materials) to balance more expensive investment.
- *Community Co-Design:* In a spirit of collaboration, participatory processes involving families and local communities should be promoted to expand the availability of multicultural and technologically inclusive resources, in compliance with national and European frameworks.

8. CONCLUSION

In conclusion, this article has shown how, through the analysis of international documents on play over time, digital play has come to assume the role of counterpart to what was once considered “traditional” play. Recent research points to a convergence of these two domains, made possible by the imaginative and transformative potential of play itself and by the last studies on analogue play materials. This convergence suggests that digital and traditional play can be harmonised rather than treated as opposing entities, allowing them to enter into a dialectical relationship.

Furthermore, in order to assess the potential impact of such an approach on educational practice, it was observed that within the ‘Pensare IN Grande/ThinkINg Big’ project, the idea of hybridisation can transform the needs and gaps identified by educators regarding play materials into opportunities. It can also integrate into possible pathways of training, research and dialogue with the entire educational community.

Overall, while integration of digital play remains an area requiring further exploration and clear guidelines, the findings suggest that its potential for enhancing inclusive educational practices is increasingly recognised by educators, particularly when combined with traditional materials and tailored to diverse needs. Embracing this hybrid approach opens the way to new possibilities in educational practice, where creativity, play and collaboration converge to shape the future of learning.

REFERENCES

- Amatori, G., & Maggiolini, S. (2021). *Pedagogia speciale per la prima infanzia: Politiche, famiglie, servizi*. Milano: Pearson.
- Amatori, G., Maggiolini, S., & Macchia, V. (eds.). (2022). *Pensare IN Grande. L'educazione inclusiva per l'infanzia di oggi e di domani*. Lecce: Pensa Multimedia.
- Besio, S., Bulgarelli, D., Stancheva-Popkostadinova, V. (2017). *Play Development in Children with Disabilities*. Poland: De Gruiter.
- Björck-Åkesson, M., Bartolo, P. E., Kyriazopoulou, M., & Giné, C. (2017). *Inclusive early childhood education environment self-reflection tool*. European Agency for Special Needs and Inclusive Education. <https://www.european-agency.org/resources/publications/inclusive-early-childhood-education-environment-self-reflection-tool>
- Blanquin, N. (2017). LUDI – Play for Children with Disabilities: l'interdisciplinarietà a supporto di un nuovo modello di intervento. *Italian Journal of Special Education for Inclusion*, 5(1), 15-31.
- Cankaya, O., Martin, M., & Haugen, D. (2025). The relationship between children's indoor loose parts play and cognitive development: A systematic review. *Journal of Intelligence*, 13(5), 52. <https://doi.org/10.3390/jintelligence13050052>
- Centro Alberto Manzi. (2019). *App Your School: Un toolkit per progettare e realizzare atelier digitali*. Centro Alberto Manzi.
- Chu, C., Paatsch, L., Kervin, L., & Edwards, S. (2024). Digital play in the early years: A systematic review. *International Journal of Child-Computer Interaction*, 40, 100652. <https://doi.org/10.1016/j.ijcci.2024.100652>
- Clavio, S., & Fajardo, M. (2008). The effectiveness of toys as instructional tools for problem-solving in preschool children. *Early Childhood Research & Practice*, 10(1), Article 4.
- European Commission. (2021). *Digital Education Action Plan (2021–2027): Resetting education and training for the digital age*. Retrieved from <https://education.ec.europa.eu/document/digital-education-action-plan-2021-2027>
- European Commission, EACEA, & Eurydice. (2025). *Key data on early childhood education and care in Europe*. Publications Office of the European Union. Retrieved from https://eacea.ec.europa.eu/national-policies/eurydice/content/key-data-early-childhood-education-and-care-europe-2025_en
- Ferrari, A. (2013). *DIGCOMP: A framework for developing and understanding digital competence in Europe* (EUR 26035 EN). Publications Office of the European Union. <https://doi.org/10.2788/52966>
- Fleer, M. (2016). Theorising digital play: A cultural-historical conceptualisation of children's engagement in imaginary digital situations. *International Research in Early Childhood Education*, 7(2), 75-90.
- Francalanci, L. (2018). *Il vocabolario del gioco digitale* [Digital game vocabulary]. Accademia della Crusca. Retrieved from <https://www.accademiadellacrusca.it/it/lingua-italiana/lessico-italiano/il-vocabolario-del-gioco-digitale>
- Guilford, J. P. (1967). *The nature of human intelligence*. McGraw-Hill.

- Güven, M., Yılmaz, S., & Kaya, E. (2025). Effects of convergent and divergent play materials on preschoolers' creative thinking. *Journal of Early Childhood Creativity*, 4(2), 45–60. <https://doi.org/10.1080/JECC.2025.012345>
- Huizinga, J. (2016). *Homo ludens. A study of the Play-Element in Culture*, Ranchos de Taos, NM: Angelico Press.
- Macchia, V., Torri, S., Amatori, G., Maggiolini, S. & Sannipoli, M. (2025). The Pensare IN Grande/ThinkINg Big Project: A Paradigm for Democratic Education. In. Scuola democratica (Ed.). *Proceedings of the Third International Conference of the journal Scuola Democratica. Education and/or Social Justice. Vol. 1: Inequality, Inclusion, and Governance.* (1263-1270). Associazione “Per Scuola Democratica.
- Malaguzzi, L. (1996). *I cento linguaggi dei bambini: l'approccio di Reggio Emilia all'educazione dell'infanzia.* (A cura di C. Edwards, L. Gandini e G. Forman). Reggio Emilia: Reggio Children.
- Ministero della Pubblica Istruzione. (1991). *Orientamenti dell'attività educativa nelle scuole materne statali* (DM 3 giugno 1991). Gazzetta Ufficiale. MPI.
- Ministero dell'Istruzione, dell'Università e della Ricerca. (2012). *Indicazioni nazionali per il curriculum della scuola dell'infanzia e del primo ciclo di istruzione* (DM n. 254 del 16 novembre 2012). MIUR.
- Ministero dell'Istruzione. (2017). *Linee guida per il sistema integrato di educazione e istruzione 0-6 anni* (D.Lgs. 13 aprile 2017, n. 65). MI.
- Ministero dell'istruzione. (2021). *Linee pedagogiche per il sistema integrato zero-sei. Decreto ministeriale 22 novembre 2021, n. 334.* MI.
- Ministero dell'Istruzione e del Merito. (2025). *Nuove Indicazioni 2025: Scuola dell'infanzia e Primo ciclo di istruzione – Materiali per il dibattito pubblico.* MIM.
- Movahedazarhouli, S., Kermani, H., & Aldemir, J. (2023). STEM integrated curriculums in early childhood education: An exploration of teachers' pedagogical beliefs and practices. *International Journal of Modern Education Studies*, 7(1), 106–127. <https://doi.org/10.51383/ijonmes.2022.266>
- OECD. (2022). *Better Internet for Kids.* OECD Publishing. Retrieved from <https://www.oecd.org/sti/better-internet-for-kids.htm>
- OECD. (2023). *Empowering young children in the digital age.* OECD Publishing. Retrieved from <https://www.oecd.org/education/empowering-young-children-digital-age.htm>
- OECD. (2024–2025). *How's life for children in the digital age?* OECD Publishing. Retrieved from <https://www.oecd.org/els/family/How-s-Life-for-Children-in-the-Digital-Age.pdf>
- United Nations. (1989). *Convention on the Rights of the Child.* Treaty Series, 1577, 3. <https://www.ohchr.org/en/instruments-mechanisms/instruments/convention-rights-child>
- United Nations. (2009). *Convention on the Rights of Persons with Disabilities (CRS/CRPD).* Retrieved from <https://www.un.org/disabilities/documents/convention/convoptprot-e.pdf>
- Revák, I. M., Csernoch, M., Czímre Szilágyi K., Dávid, A., Kosztin Tóth, B. (2024). A systematic review of STEM teaching-learning methods and activities in early childhood. *EURASIA Journal of Mathematics, Science and Technology Education*, 20(8), 1-22. <https://doi.org/10.29333/ejmste/14779>
- Vuorikari, R., Kluzer, S., & Punie, Y. (2022). *DigComp 2.2: The digital competence framework for citizens - With new examples of knowledge, skills and attitudes* (EUR 31006 EN). Publications Office of the European Union. <https://doi.org/10.2760/115376>

- Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes* (M. Cole, V. John-Steiner, S. Scribner, & E. Souberman, Eds. & Trans.). Harvard University Press. (Original work published 1933 as Воображаемая игра [“Imaginative Play”])
- World Health Organization. (2007). *International Classification of Functioning, Disability and Health: Children and Youth Version (ICF-CY)*. Geneva: World Health Organization.

Copyright (©) Vanessa Macchia, Stefania Torri



This work is licensed under a Creative Commons Attribution NonCommercial-NoDerivatives 4.0 International License.

How to cite this paper: Macchia, V., Torri, S. (2025). Materiali e giochi per tutti: le percezioni degli insegnanti sull’inclusione tra soluzioni analogiche e digitali nei servizi per la prima infanzia [Material and Play for All: Educators’ Perceptions of Inclusion involving Analogical and Digital Solutions in Early Childhood services]. *QTimes webmagazine*, anno XVII, n. 4, 222-237.
Doi: https://doi.org/10.14668/QTimes_17416