



EARLI Play, Learning and Development SIG 28

2026 Conference Programme

Playful Worlds: Play, Creativity, and Learning Across Analogue and Digital Spaces

8th – 10th July 2026, University of Modena and Reggio Emilia, at Reggio Emilia, Italy

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Programme Overview

Day	Time	Room	Session
July 8th	14:00-14:30	Room L0.5 (Aula Artigianelli)	Opening Session (p.3)
	14:30-16:00	Room L0.1a+b	1.1: Art & Music Play (p.3)
	14:30-16:00	Room L0.2a+b	1.2: Design for play and creativity I (p.6)
	14:30-16:00	Room L0.4	1.3: Play and Self-regulation (p.8)
	16:00-16:30	Break	
	16:30-18:00	Room L0.1a+b	2.1: Design for play and creativity II (p.10)
	16:30-18:00	Room L0.2a+b	2.2: Play and Language Development (p.13)
	16:30-18:00	Central Atrium	2.3: Poster Session I (p.16)
	18:00-19:00	Aperitivo (Social with drinks and nibbles) at Central Atrium	
	19:00+	Board Games evening at Centro Sociale Catomes (it includes 1 free drink) Via Guido Panciroli, 12, 42121 Reggio nell'Emilia RE	

July 9th	9:30- 11:00	Keynote 1: Neurodiversity and Play; Prof. Jenny Gibson, University of Cambridge. <i>At Fondazione Reggio Children - Centro Loris Malaguzzi¹</i>	
	11:00-13:00	Introduction to Fondazione Reggio Children – Visit to Centro Malaguzzi (<i>location as above</i>)	
	13:00-14:00	Lunch	
	14:00-15:30	Room L0.1a+b	3.1: Teacher Professional Development for Play-Based Learning (p.21)
	14:00-15:30	Room L0.2a+b	3.2: Families, Relationships and Early Learning (p.24)
	14:00-15:30	Room L0.4	3.3: STEM Play-Based Learning I (p.26)
	15:30-16:00	Coffee Break	
	16:00-17:30	Room L0.1a+b	4.1: STEM Play-Based Learning II (p.28)
	16:00-17:30	Room L0.2a+b	4.2: Contextual conditions for Creative and Play-Based Learning (p.30)
	16:00-17:30	Central Atrium	4.3: Poster Session II (p.33)
	17:30-18:30	Room L0.1a+b	SIG Business Meeting – all invited
	20:00+	Conference dinner – Cadauno Ristorante Via Squadroni, 12, 42121 Reggio nell'Emilia RE	

¹ Fondazione Reggio Children - Centro Loris Malaguzzi
Address: ex-Caffarri - Via Gioia, 4 - Reggio nell'Emilia



July 10 th	9:30-11:00	Keynote 2: Harnessing Creativity Research in Education: From Theory to Practice and Back Again; Prof. Paul Sowden, University of Winchester <i>at Main Conference Building, Room L0.5 (Aula Artigianelli)</i>	
	11:30-13:00	Room L0.1a+b	5.1: Playful Promotion of Creativity I (p.37)
	11:30-13:00	Room L0.2a+b	5.2: <i>Symposium I</i> - Play Under Pressure: Playful Pedagogies and Schoolification in the Transition to School (p.39)
	11:30-13:00	Room L0.4	5.3: Game-Based Learning, Gaming, and Artificial Intelligence (p.41)
	14:00-15:30	Room L0.1a+b	6.1: Play, Social and Emotional Dimensions - Young Children (p.44)
	14:00-15:30	Room L0.2a+b	6.2: Equity, Inclusion and Playful Education (p.46)
	14:00-15:30	Room L0.4	6.3: <i>Symposium II</i> - Cultivating Creative Thinking in a Creativity Collaborative of Schools (p.49)
	15:30-16:00	Coffee Break	
	16:00-17:30	Room L0.1a+b	7.1: Play, Social and Emotional Dimensions (p.51)
	16:00-17:30	Room L0.2a+b	7.2: Playful Promotion of Creativity II (p.52)
	17:40-18:00	Room L0.5 (Aula Artigianelli)	Closing Session (p.54)
	List of presenting authors, contact and affiliations		(p.55)

Conference Venue:

University of Modena and Reggio Emilia, Department of Education and Humanities
Viale Timavo, 93 - Reggio Emilia

July 8th, board games evening:

Centro Sociale Catomes (Via Guido Panciroli, 12, 42121 Reggio nell'Emilia RE)

July 9th, morning sessions will take place at:

Fondazione Reggio Children - Centro Loris Malaguzzi (ex-Caffarri - Via Gioia, 4 - Reggio nell'Emilia)

July 9th, Conference dinner venue (Only for pre-paid ticket holders):

Cadauno Ristorante (Via Squadroni, 12, 42121 Reggio nell'Emilia RE, Italia)

Internet Access at University:



<https://acrobat.adobe.com/id/urn:aaid:sc:EU:3185c845-a428-4109-b0b1-424acf4b65d4>



Wednesday, July 8th

Opening Session: Welcoming words

14:00–14:25; Room L0.5 (Aula Artigianelli)

Session 1.1: Art & Music Play

14:30–16:00; Room L0.1a+b

Chair: Panagiotis Kosmas

Archiving the Play of Painting: Pia Burei Bozzini's Closlieu Archive (1984-2024)

Alessia Trivigno

This work-in-progress paper outlines the development of a prospective postdoctoral project on the heritagization of children's paintings produced within the Closlieu opened in 1984 by Pia Burei Bozzini, inspired by the pedagogy of Arno Stern. Conceived as a protected and carefully structured environment for the "Play of Painting", the Closlieu enables spontaneous, non-judgmental expression through a stable methodological framework: blank 50×70 cm sheets, a fixed palette of 18 colors, no assigned themes, and the discreet presence of a praticien who safeguards order without interpretative intervention. Between 1984 and 2024, Burei Bozzini systematically preserved thousands of paintings created in this setting. Currently housed in a primary school in Cinisello Balsamo (Milan) and intended to be transferred to Fondazione PInAC – an international museum dedicated to children's drawings – the archive comprises individually dated works organized by school year, together with extensive pedagogical writings documenting forty years of continuous practice. The study approaches this corpus as a site where playful, process-oriented activity acquires heritage status. It examines how the preservation of non-evaluative expression transforms ephemeral play into cultural memory, and how analogue materiality, institutional care and potential digital mediation reshape its meaning. Never previously studied, the archive offers an exceptional longitudinal perspective on children's free creativity across four decades.

Listening to Data: A Music-Mediated Approach to Teaching Statistics in Secondary Schools

Libby Azaryahu, Rita De Castris, Ilaria Veronesi, Francesco Saverio Tortoriello, Shai Cohen, Talli Nachlieli, Esther Adi-Japha



This work-in-progress study presents an international research project conducted collaboratively in Italy and Israel that explores the integration of music into the teaching of statistics in lower secondary school. The project conceptualises music as a structured language and cognitive mediator capable of supporting the construction of meaning in statistical concepts such as frequency, distribution and variability. Grounded in the theory of structural parallelism, the study assumes that musical listening, when designed as an analytic and pattern-oriented activity, can activate cognitive processes central to statistical reasoning, including grouping, repetition recognition and perception of variation. A bilingual digital learning environment (Italian and Hebrew) was developed to ensure comparable implementation across contexts. In experimental conditions, students engage in structured listening tasks that are progressively translated into counting, graphical representation and calculation of statistical measures. A parallel control version of the software supports traditional statistics learning without musical mediation. The study adopts an experimental design with control groups in both countries. Data collection is scheduled for February 2026; therefore, the present contribution focuses on the theoretical framework and research design. The conference discussion will support further refinement of the methodology and analytical approach prior to full implementation.

Can Creative Musical and Mathematical Thinking be Developed Among First and Second Graders?

Esther Adi-Japha, Libby Azaryahu

Background: Multidisciplinary education and creative thinking are significant components of 21st-century skills. However, limited research exists on the impact of multidisciplinary STEAM initiatives on creativity in primary schools, particularly in the first and second grades. **Aims:** This study investigates the development of creative thinking in math and music among first- and second-grade students through an integrated study program. **Sample:** The study involved 206 students. **Methods:** Four classes (two first-grade and second-grade classes) participated in the intervention group (MusiMath, $n=106$) and four peer classes served as a control group ($n=100$). All students received 3 MusiMath lessons and were assessed for baseline; the intervention groups had an additional 7 MusiMath lessons, and all students were assessed at lessons 6 and 9. The MusiMath program integrates music and mathematics with a focus on creative thinking. All students engaged in open-ended tasks linking musical properties to mathematical patterns and symmetry, which were analyzed for fluency, flexibility, and originality. **Results:** The study's three assessments revealed that students in the intervention group demonstrated a significant increase in flexibility in their musical creative thinking, although originality declined over time in both groups—possibly due to increased familiarity with the task structure. In mathematics, second graders in the intervention group showed the most notable gains in both fluency and flexibility. While their level of originality remained stable, the control group exhibited a consistent decline in



originality across timepoints. Conclusions: The study demonstrates the possibility of employing a multidisciplinary approach to develop creative thinking within both subject areas of the elementary school curriculum.

Creating Inclusive Worlds: The Role of Play and Arts in Kindergarten and Primary School

Maria Sakellariou, Panagiota Strati; Polyxeni Mitsi; Rodoklia Anagnostopoulou

This study explores the pivotal role of educational play and the arts in shaping inclusive classrooms within kindergarten and primary school settings. The research aims to highlight how these practices promote active learning, social integration, and the holistic development of children with diverse abilities and needs. Using a mixed-methods approach that included data from a sample of preschool and primary school teachers, the study examined how these activities are integrated into the daily curriculum. The findings demonstrate that educators systematically utilize play and the arts—such as music and visual arts—as means of self-expression and collaboration that transcend traditional cognitive boundaries. While play remains the primary teaching method in kindergarten, it is more frequently identified in structured activities, such as skills labs, within primary schools. The research underscores that play serves as a bridge for communication among students; however, it also reveals significant obstacles, including a lack of resources and the need for specialized professional development. In conclusion, the study emphasizes that successful inclusion depends not only on methodology but primarily on the open pedagogical stance of the educator and the provision of continuous support for implementing innovative inclusive practices. Keywords: Inclusion, Educational Play, Arts in Education, Early Childhood Education, Primary Education



Session 1.2: Design for play and creativity I

14:30–16:00; Room L0.2a+b

Chair: Laura Landi

Making creative visible: a repertoire for teacher training

Antonio Gariboldi, Antonella Pugnaghi

The progressive overcoming of the romantic notion that confined creativity to the artistic domain has led to its recognition as a fundamental human capacity present across cultural practices and everyday life. Within this perspective, creativity is considered a potential characteristic of all individuals, raising the issue of its educability and the importance of fostering its development from early childhood within educational settings. In early childhood education services, promoting creativity therefore entails not only supporting the development of a key competence for present and future life, but also recognising and valuing children's subjectivity by giving space to their ideas, interpretations, and original ways of acting and expressing themselves. Drawing on the concept of distributed creativity (Glaveanu, 2014), which emphasises how creative processes emerge through interactions among individuals, artefacts, and contexts, this contribution interprets children's creativity in preschool settings as a situated and evolving phenomenon. Creative expression is therefore analysed within the social, material, and temporal dynamics that shape its development. The paper presents an ongoing research project aimed at identifying and describing creative processes promoted in Italian preschools. The study is based on the analysis of educational documentation produced by teachers and collected during previous research projects conducted for different purposes. Through the examination of concrete cases and in dialogue with the existing literature, the research seeks to outline analytical categories for interpreting creative processes in relation to the material and social characteristics of educational contexts. The ultimate goal is to develop a repertoire of "creative situations" that can support both pre-service and in-service teacher education, helping educators identify strategies to foster children's creativity and contributing to the development of an educational culture for creativity in early childhood education.

Pedagogical Pivots at the Zoo: How Preservice Teachers Translate Educational Theory into Practice

Jui-Hung Chu

This work-in-progress study looks at how preservice teachers change their teaching approach when they leave the university classroom for a field-based setting. As part of a "Learning Guidance" course, I supervised three teams of undergraduates as they developed and ran playful learning activities for elementary students at the Taipei Zoo. These activities



focused on three areas: Learning Strategies, Time Management, and Individual Differences. As both the teaching assistant (TA) and a participant observer, I used a qualitative lens to track how these future teachers developed. Data includes (1) a completed document analysis of their lesson plans and reports, and (2) ongoing semi-structured interviews about their professional shifts. Early findings show clear "pedagogical pivots." For example, one group moved away from dry lecturing toward using animal relocation stories to explain problem-solving. While many students initially tried to "over-teach," my role as a TA involved scaffolding their transition toward more hands-on, game-based strategies. This study frames the zoo as a "pedagogical laboratory" where the theory of educational psychology meets the reality of the field. Keywords: Preservice Teachers, Instructional Design, Place-Based Learning, Zoo Education, Theory-Practice Gap

Symbolic Play in Montessori Early Childhood Education: A National Mixed-Methods Study

Andrea Lupi, Cristina Gaggioli

The role of symbolic and pretend play within Montessori ECEC remains contested in both research and practice. Classical interpretations of Montessori pedagogy have often marginalised symbolic play in favour of functional and reality-oriented activity (Lillard, 2013; Lillard & Taggart, 2019), generating an enduring debate on the compatibility between imagination and Montessori principles (Lupi, 2022). At the same time, emerging empirical evidence suggests that contemporary Montessori settings increasingly integrate symbolic and socio-dramatic play into daily practice, particularly in culturally hybridised contexts (Gaggioli, Lupi, & Lafranconi, 2025). However, little systematic research has documented how these practices are currently interpreted and implemented across institutions. This paper presents an ongoing national mixed-methods study examining the place of symbolic play in Italian Montessori early childhood settings (0–6). Adopting a sequential exploratory design, the study combines in-depth interviews with pedagogical coordinators and a national survey investigating how symbolic play is conceptualised, legitimised, and enacted in daily practice. The research explores differences across service types, geographical areas, and institutional profiles, and examines the opportunities and constraints coordinators identify when negotiating Montessori principles within contemporary playful cultures. Preliminary qualitative findings indicate substantial variability, ranging from strictly traditional interpretations to hybrid pedagogical configurations integrating imaginative play into Montessori environments. This variability has significant implications for interpreting research on Montessori outcomes, particularly in relation to creativity and imaginative development (Randolph et al., 2023; Demangeon et al., 2023; Ciptaningrum et al., 2023), suggesting that evaluations of Montessori effectiveness must be interpreted in relation to the symbolic affordances actually present in observed settings.



Session 1.3: Play and Self-regulation

14:30–16:00; Room L0.4

Chair: Antonia Zachariou

Brain Magnet: A Board Game Study in Vocational Education

Michela Bettinelli, Alessandro Rizzi

Brain Magnet is an abstract, competitive, rule-based placement game designed for two or three players, with the option of individual timed play. The game is played on a fixed grid where players draw cards and strategically place them to maximise points while adhering to specific rule dimensions and directional constraints. Adjustable pacing balances planning and rapid decision-making, supporting engagement in a playful, competitive context. The project explores structured play as a meaningful educational activity within learning environments. Rather than focusing on performance assessment, it examines how gameplay engages planning, regulation, and adaptive strategy use, and how these processes may extend beyond the play situation into educational and everyday contexts. The study investigates how competitive structured play functions across diverse educational settings and how participants interact with challenges, constraints, and strategic decision-making. Initial exploratory sessions with primary and lower secondary school students verified accessibility, materials, and pacing options, and helped identify relevant gameplay behaviours. Observations included spontaneous verbalisation of strategies and perceived difficulties arising during play. A structured observational phase will begin in March 2026 in a vocational secondary school context involving students with diverse learning profiles. Gameplay sessions will be mediated by educational staff and analysed using a systematic observation grid applied longitudinally to monitor changes in engagement and problem-solving approaches. The project aims to understand how structured analogue play can foster transferable strategies and support connections between gameplay experiences and real-life challenges across educational contexts.

The relation between playfulness, self-regulation and executive functions in 5-7-year-olds

Antonia Zachariou

Play during early childhood is thought to be linked to improved self-regulation and executive functions (e.g., Slot, et al., 2017). A major part of the play, self-regulation (SR) and executive functions (EF) literature focuses on studying specific types of play, rather than the disposition of children to be playful. This project addresses this gap and describes the relationship between playfulness, executive functions and self-regulation in children aged 5-7 years old. In total, 122 children aged 5 to 7 were recruited for the purposes of this study.



(51% female). Children's executive function skills were assessed through brief, engaging, game-like assessments on an iPad (EYT, Howard and Melhuish, 2017). Their self-regulation was assessed through The Child Self-Regulation & Behaviour Questionnaire (CSBQ) completed by their teachers. Children's playfulness was assessed by their teachers using the Children's Playfulness Scale (Barnett, 1991). Results for the whole sample showed that playfulness was significantly and positively related to children's self-regulation scores, but not to any EF elements. When focusing on the different age groups, for the 5-year-olds there are no significant correlations between playfulness, SR and EF, whereas for the 6- and 7-year-olds playfulness was related to SR but not to EF. The results of a linear regression showed that playfulness is the only significant predictor of self-regulation, with the model providing an $R = .51$, and explaining 26% of the variability in self-regulation. These results can inform theory and have significant implications on practice since they indicate the importance of supporting playfulness for the development of self-regulation.

Do creativity, play, and playfulness predict mental health and self-regulation in middle childhood?

Carolina Araya Ramírez, Valeska Grau Cardenas, Magdalena Fuenzalida, Mayer Soto, Benjamin Carmona, David Preiss

In contexts of heightened uncertainty and change, there is renewed interest in children's internal resources that may support their mental health, including creative abilities and a playful disposition. While evidence linking creativity and play-related variables to well-being has grown in early childhood, substantially less is known about these associations in middle childhood (6–12 years). This cross-sectional descriptive study examined whether synthetic creativity (SC), playfulness, and daily play predict mental health and self-regulation (SR) in fourth-grade students. Participants were 220 Chilean children aged 9–10 years from eight urban public schools (51% girls). SC was assessed through a digital adaptation of the Creative Intelligence Test; playfulness via the Child Playfulness Scale; mental health via teacher-reported SDQ subscales; and Self-regulation through digital tasks assessing inhibitory control and delayed gratification as a proxy of SR. Receptive vocabulary was also measured as a control variable, and daily play was captured through a two-week experience-sampling procedure mediated by parents ($n = 91$ with ≥ 5 reporting days). Two path analysis models demonstrated excellent fit. SC emerged as the most consistent predictor of better mental health, showing small but significant associations with fewer internalising and externalising symptoms, higher prosocial behaviour, and greater inhibitory control. Playfulness was less consistently related to outcomes, with only the social-physical playfulness dimension predicting fewer emotional problems. Daily physical/sport play predicted both indicators of SR. Findings highlight SC and physical/sport play as promising intervention targets to support mental health and self-regulation in middle childhood, but further longitudinal and causal research is required.



Co-Constructing Digital Environments Through a Playful Learning Approach: A Mixed Systematic Review

Elsa Manzini, Liliana Silva

In recent years, the spread of digital technology has transformed access to knowledge, making it necessary to consider it not only as a tool, but also as an educational environment to be inhabited (Macauda, 2018). In this context, this study investigates whether the co-construction of a digital environment by children within playful learning contexts can promote the development of digital literacy and metacognitive awareness in early childhood education settings. Playful learning is not understood here as the simple introduction of playful elements, but rather as an educational approach that recognises play as a space for interaction, negotiation and participation (Li & Kangas, 2024). In particular, the study explores the integration between the analogue and digital dimensions through stop motion production activities, adopting a multimodal perspective focused on shared meaning-making. From a methodological standpoint, the study adopts an action research approach aimed not only at analysing children's learning processes but also at supporting teachers' professional development (Pozzo, 2005; Dodman, 2025). In the initial phase, a mixed systematic review (Heyvaert, Maes & Onghena, 2013) was conducted to examine studies on playful learning, digital literacy and metacognitive awareness in early childhood. The results of the review highlight the effectiveness of playful learning in promoting meaningful learning, but also a limited explicit focus on the metacognitive dimension in digital contexts for children. Based on this evidence, the study contributes to pedagogical reflection on learning environments integrating analogue materials and digital tools within a multimodal, participatory and situated framework (Yelland, 2018).

Session 2.1: Design for play and creativity II

16:30–18:00; Room L0.1a+b

Chair: Soizic Le Courtois

Designing Playful and Sensory Game-Based Learning with Plants in Teacher Education

Beate Weyland

Play is widely recognised as a foundational driver of creativity, learning, and innovation across the lifespan. This contribution explores how playful, design-oriented educational practices can support meaningful learning experiences in teacher education while fostering an active reconnection with the natural world. The paper presents a series of General Didactics laboratories addressed to first- and second-year students enrolled in Primary Teacher Education programmes, conducted within EDENLAB (edenlab.unibz.it), a



university-based educational laboratory oriented toward sustainability and human–nature relationships. Within the laboratories, students were invited to design and construct analogue educational materials and board games aimed at promoting playful and sensory interactions with potted plants. Grounded in an interdisciplinary framework combining play theory, creativity studies, sensory pedagogy, and sustainability education, the activities sought to cultivate curiosity, autonomy, and ecological awareness. Principles of Didattica Sensoriale and human-centred design were integrated with pedagogical criteria to guide the creation of educational artefacts that support embodied engagement, playfulness, and meaningful interaction with living systems. By foregrounding analogue, material-based play and sensory experience, the contribution highlights the pedagogical potential of games as tools for fostering creativity, self-regulation, and sustainability-related competences in future teachers. The paper aligns with the conference theme Playful Worlds by demonstrating how playful learning can bridge educational theory and practice across analogue and digital cultures, while reaffirming the educational value of embodied, relational, and nature-based experiences.

From Display to Play: Reimagining the Preschool Science Center

Netta Perry, Esther Adi-Japha, Ornit Spektor-Levy

This mixed-methods study addresses the misalignment between pedagogical intentions and children's engagement and play in preschool Science and Nature Centers. Grounded in a design-for-action perspective, the research examined whether redesigning the Science and Nature Center into a Lab Center influences preschoolers' play preferences and inquiry activity during free play time, specifically without adult mediation. Modifications focused exclusively on environmental changes: eye-level material accessibility, multi-use scientific tools (e.g., syringes, droppers), and spatial reorganization for collaboration. Research occurred during daily free-play routines, where teachers provided no guidance, allowing the physical environment to function as the primary pedagogical agent. Using a quasi-experimental pre–post design with 130 children (ages 5–6), data were triangulated via photograph-based interviews, observations, and a coded scientific exploration task. Results showed a profound shift in preferences; 81.8% of children preferred the Lab Center over the previous configuration. Selection as a preferred play area rose from 25.8% to 57.6% ($p < .001$), while status as a favorite center increased from 12.1% to 27.3% ($p = .021$). Quantitative analysis revealed significant interaction effects for hypothesizing ($F(1, 128) = 4.48$, $p < .05$) and competent use of scientific tools ($F(1, 128) = 8.20$, $p < .01$), with the intervention group demonstrating substantial gains despite the unguided context. Observations confirmed a transition from passive viewing to sustained inquiry play, positioning environmental design as a core component of early childhood pedagogy.



Using Activity Theory to Understand Stakeholder Insights on Game-Based Learning in Higher Education

Shermain Puah, Oran Devilly

Digital game-based learning (DGBL) can make learning programming more active and hands-on, but universities often struggle to scale it. This study used Cultural-Historical Activity Theory (CHAT) to understand how three stakeholders, students, teaching staff, and game designers, work toward a shared goal of building programming knowledge and skills using a commercial sandbox game, while holding different priorities. We conducted 51 online interviews (25 students, 23 faculty, 3 designers) and analysed transcripts to first inductively identify themes, then analysed using CHAT to map each stakeholder's activity system and their interactions, both areas of contradictions and complementarity. Within each activity system, the tensions and contradictions are clustered around three patterns: (1) efficiency and structure vs. exploration and freedom (students), (2) innovation vs. tradition (teaching staff), and (3) engagement-first vs. curriculum-first (game designers). Across the three activity systems, our analysis identified both complements and contradictions that shape how DGBL is perceived. A key complement was guidance: designers expected the game to guide learning, while staff saw their role as facilitating reflection after play, which students also valued. Key contradictions concerned 'engagement-first' vs. 'curriculum-first' logic, and breadth vs. depth in content. From our findings, actionable 'pressure points' includes explicitly outlining the coordinated division of labour in the role of guidance, reconciling coverage-oriented teaching and depth-oriented learning, and building structures to account for variability in students' reception to games.

Playful Ecologies for Inclusive Equitable Literacy: CARE-KNOW-DO in Analog and Digital Spaces

Hannah Payne, Viviane Marques, Alexandra Okada, Melisa Porter, Marcia Bernardes

Achieving foundational literacy remains a global challenge, particularly for children experiencing adversity. While playful pedagogies and digital technologies—including generative AI—are increasingly present in early education, they are often implemented without coherent frameworks integrating social-emotional learning, cognition, and agency. Responding to EARLI SIG 28 2026's Playful Worlds: Play, Creativity and Learning in Analog and Digital Spaces, this study examines how foundational literacy can be supported within hybrid learning ecologies grounded in children's lived realities. The study is theoretically framed by the CARE-KNOW-DO framework, underpinning the Resilient Learning Ecology model. This conceptualises learning as dynamic interplay: emotional safety (CARE), embodied/dialogic meaning-making (KNOW), and gradual learner agency (DO). Using a qualitative multiple-case study design complemented by narrative scoping review, it analyses playful literacy practices across analog/digital contexts in Africa—including



GenAI-supported teacher inquiries—in Latin America and Europe. Findings indicate that CARE–KNOW–DO-structured playful activities enable low- and high-tech resources to support emotional safety, language development, and growing agency. The study contributes a theoretically grounded, empirically informed model for designing inclusive, equitable literacy pedagogies fostering meaningful fun learning in hybrid ecologies.

Session 2.2: Play and Language Development

16:30–18:00; Room L0.2a+b

Chair: Mariangela Scarpini

Second Language Teaching and Reggio Emilia Approach in Dialogue: a work in progress

Davide Perrotta

Second Language Teaching and Reggio Emilia Approach in Dialogue: a work in progress This exploratory paper examines a developing dialogue between Second Language Teaching (SLT) and the Reggio Emilia Approach (REA), grounded in two professional experiences: a workshop conducted in Vietnam during the Play, Explore, Research (PER) Conference, and an Italian L2 teacher training course in South Africa. Although these initiatives were not conceived as a systematic theoretical project, they generated practical and conceptual questions about the role of play, materiality, and symbolic meaning-making in SLT. Drawing on the Vietnam workshop, the study considers how selected principles associated with REA, such as attention to materiality and multimodal expression, may inform language learning practices without displacing linguistic aims. In the subsequent teacher training context, REA principles remained the primary reference point. However, later reflection led to a more explicit consideration of Task-Based Language Teaching (TBLT) as a structured pedagogical lens for examining how playful configurations can sustain expressive exploration while maintaining clarity of objectives and linguistic progression. Rather than proposing a synthesis, the contribution explores retrospectively how a dialogue between REA and TBLT may be articulated at the level of pedagogical design. This dialogue does not rest on theoretical equivalence, but on a shared concern for how learning experiences are structured. Focusing on design, particularly on the organization of experience, objectives, and participation, makes it possible to relate expressive exploration to language-specific aims in a deliberate and pedagogically accountable way.



Does symbolic play improve language development? A quasi-experimental study with 3-years-old

Laura Jiménez-López, Inés Rodríguez

The development of symbolic play and language skills characterizes the early childhood. Symbolic play contributes to the acquisition of symbolic function, which is also involved in language development. Under this premise, an intervention program based on symbolic play was devised with the aim of analysing its impact on the development of the semantic and morphosyntactic components of language in early childhood education students (3 years old) at a public school in Spain. The intervention program was conducted over five months through weekly sessions aligned with the curricular content addressed in the classroom. A quasi-experimental mixed methodology design was used, analysing the evolution of symbolic play development and language skills. The results clearly show that symbolic play has improved, becoming more social and cooperative, enriching its complexity, plot, and capacity for symbolization. For its part, the impact generated by the proposal on the development of the language skills under study has been notable in the comprehension aspect of both components (semantic and morphosyntactic), but not in the expressive aspect, where no immediate changes have been recorded. This discrepancy suggests that the symbolic scaffolding of the game primarily strengthens comprehension, with a latency in verbal production. Consequently, the results point to the importance of implementing programs based on symbolic play in early childhood education as a strategy for promoting language development.

The Effects of a Tailored Home Intervention on Playful Parent–Child Interactions

Martine van der Pluijm, Mariska Okkinga, Amos Van Gelderen

The home language environment plays a crucial role in young children’s language and early literacy development, particularly through playful parent–child interactions. However, inequalities in these environments persist, often disadvantaging children from families with lower levels of parental education and diverse home languages. In urban contexts, pedagogical professionals frequently encounter mismatches between children’s home language experiences and school expectations, highlighting the need for approaches that strengthen continuity between home and school. This study reports on “Maatwerk”, a design-based research project aimed at co-designing and evaluating an adaptive home intervention that supports playful parent–child interactions. The central research question was whether this tailored approach improves the quality of parent–child interaction and children’s language production. Participants were 51 parent–child dyads with children aged 2–4 years. A pretest–posttest design was used, with half of the families on a waiting list, serving as a control condition. Parent–child play interactions were video-recorded and



analysed for children's engagement and parents' sensitive and responsive behaviour. Productive and receptive vocabulary measures and interviews with parents and professionals were also conducted. Results showed improvements in parents' sensitive and responsive behaviour and higher child engagement in the intervention group. Parents and professionals reported increased child language production. No significant differences were found on standardized vocabulary measures, possibly due to challenges in assessing vocabulary in very young, linguistically diverse children. Overall, the findings highlight the importance of supportive, play-based home interactions and demonstrate how collaboration between professionals and parents can promote educational equity.

Movement and Play for Language Learning: An Embodied Learning Approach in Early Childhood Education

Panagiotis Kosmas

As a pedagogical approach, the embodiment of language emphasises the role of the body in cognitive processes, highlighting that language acquisition arises from sensory and motor experiences. Movement-based methods and strategies, especially in Early Childhood Education, are crucial for constructing knowledge and understanding new concepts. This understanding and language acquisition emerge as dynamic processes influenced by the child's bodily interactions and active engagement with the physical world. Movement and embodied learning strategies play a vital role not only in supporting language development but also in motivating preschool students to participate in the classroom learning routine. Teachers can use these approaches to develop multimodal, meaningful learning experiences for their students, increasing engagement and motivation. This study presents a pilot intervention in early childhood classrooms, using immersive embodied learning games that require movement and bodily interactions to explore students' experiences and motivation in the real classroom contexts. The collected quantitative dataset from 56 preschool students draws essential considerations and conclusions regarding the use of embodied learning games with technology in preschool educational settings.



Session 2.3: Poster Session I

16:30–18:00; Central Atrium

Chair: Pablo Torres

A Window into Creativity Growth in Childhood: Longitudinal Assessment with the TCT-DP Drawing Test

Dorota Maria Jankowska

Creativity is often described as a core outcome of playful learning, yet its development in early childhood is rarely examined with fine-grained longitudinal models. This study traced the developmental dynamics of children's creative potential across preschool and early school years using the Test for Creative Thinking–Drawing Production (TCT-DP), a drawing-based task that invites open-ended completion of figural stimuli. Two cohorts participated: preschool children (N=100; approx. 4 years at baseline) and early school-aged children (N=182; 6–7 years at baseline). Creativity was assessed at four waves across two years at six-month intervals, and component-level change was modelled using latent growth models. Across both cohorts, results revealed two broad developmental patterns. Structured, integrative components (e.g., continuations, completions, new elements, speed) showed relatively systematic growth over time, consistent with increasing cognitive maturation and experience with formal learning contexts. In contrast, originality-related components (e.g., thematic integration, boundary breaking, humor, unconventional use) began at low levels and followed more heterogeneous trajectories with pronounced individual differences. The findings emphasize the dual nature of creative potential—comprising both structured (synthetic) and original (divergent) abilities—and underscore the importance of recognizing individual differences in creative development during childhood.

Developing Executive Functions Through Play: Playworld Pedagogical Approach in Early Education

Annamaria Mattioni, Caterina Bembich, Anne Suryani

Play is a fundamental driver of children's cognitive, emotional, and social development and represents a privileged context for the emergence of higher-order skills such as reflection, reasoning, problem solving, and self-regulation. Within early childhood education and care (ECEC), play-based experiences enable children to actively engage with their environment, co-construct meanings, and adapt to novel situations. From a cultural-historical perspective, executive functions (EFs), working memory, inhibitory control, cognitive flexibility, and sustained attention, are understood as processes that develop through meaningful activity and social interaction. Research consistently shows that executive functions develop rapidly during the preschool years and are strongly influenced by the



quality of children's everyday experiences, particularly those involving imaginative, rule-based, and collaborative play. In this framework, ECEC settings are increasingly recognized as key environments for intentionally fostering executive functions through guided play. This doctoral project investigates how executive functions and self-regulation can be promoted in ECEC centres through the implementation of the Playworld approach. Grounded in Vygotskian cultural-historical theory, the Playworld model positions collective imaginative play as a leading activity for development, creating conditions in which children can operate within their zone of proximal development. Through sustained shared imaginary narratives co-constructed by children and educators, Playworld engage core executive functions in naturalistic and meaningful ways. Using a mixed-methods research design, the project aims to contribute both theoretically and practically to early childhood education by demonstrating how guided collective play can serve as an inclusive, preventive, and pedagogically sustainable strategy for supporting executive functions, self-regulation, and long-term learning trajectories.

Preparing Future Physical Education Teachers for Playful and Inclusive Teaching and Learning

Belen Fierro

Interest in play and playful learning has grown considerably due to its documented contributions to children's cognitive, social, emotional, and physical development. However, formal education systems worldwide increasingly prioritize academic performance, often reducing opportunities for playful, embodied, and socially meaningful learning experiences. While research has examined play-based pedagogies in school contexts, far less attention has been paid to how future teachers are prepared to understand and implement playful and inclusive approaches, particularly in Physical Education (PE) and in underrepresented regions such as Latin America. This study explores how pre-service Physical Education teachers experience and make sense of playful and inclusive learning during their initial teacher education. Drawing on a qualitative design, data were collected through focus groups and in-depth interviews with student teachers engaged in school practicum experiences. The analysis focuses on how participants conceptualize play, embodied learning, and inclusion, as well as the tensions they perceive between curricular demands, assessment pressures, and the use of playful pedagogies. Preliminary findings indicate that future PE teachers often see play as a motivational tool rather than a core pedagogical approach, and understand inclusion mainly as adaptation rather than transformation of learning environments. These tensions reveal challenges in moving beyond competition and performance sport, and in designing learning experiences that foster well-being, creativity, cooperation, meaningful participation, and holistic engagement. Leveraging PE's flexible spaces and diverse materials, play-centered approaches can support inclusive, embodied, and developmentally rich movement experiences for all students.



#Design4Learning: play, creativity and professional prefigurations

Dominga Gugliotti, Caterina Garofano, Mario Giampaolo

The contribution describes the #Unisi&Beleduc training and research project conducted in the Bachelor Degree Program in Educational Sciences at the University of Siena. The project, designed in partnership with the toy company Beleduc Lernspielwaren, is set in the field of studies of professional prefigurations. The project aims to describe if and how female students, experts in facilitating learning processes, can develop design, making and other professional skills to work for the creative industry. To support female students' access in this field of work, #Unisi4Beleduc adopts creative project based learning approaches to allow the design and development of educational toys for children aged 3 to 6. The concepts and prototypes resulting from the project testify female students' ability to integrate learning processes within playful materials.

Leveraging Digital Play to Support Vocabulary Acquisition in Deaf and Hard of Hearing Students

Faist Alqraini

Vocabulary deficits represent a persistent barrier to academic achievement for Deaf and Hard of Hearing (DHH) students, often affecting reading comprehension and communication. This study evaluated the efficacy of a digital game-based intervention on the acquisition and maintenance of expressive vocabulary in elementary-aged DHH students. Using a single-case experimental design specifically a multiple-baseline design across participants the study measured the functional relationship between the digital intervention and vocabulary mastery. Three students with sensorineural hearing loss attending a special education program in Saudi Arabia participated in the study. The intervention consisted of a gamified application incorporating visual feedback, sign language prompts, and immediate reinforcement. Visual analysis of the data indicated a strong functional relationship; all participants demonstrated stable baselines followed by immediate and significant level changes upon the introduction of the independent variable. Furthermore, data from maintenance probes conducted two weeks post-intervention indicated high retention rates of the acquired vocabulary. These findings suggest that digital play interventions can serve as an effective, evidence-based practice for narrowing the vocabulary gap in DHH learners.



Unlocking Potential: Personalized Escape Boxes as Playful Learning Worlds for Students with DID

Ilanit Cohen, Orly Ido, Michal Nissim, Lili Wertheimer

This study employs a design-based research approach to develop personalized escape boxes for teaching reading to students with developmental intellectual disabilities (DID). By integrating gamification into specialized education, the boxes created inclusive "playful worlds" that enhanced motivation and fostered cognitive autonomy. Findings demonstrate that tailored ludic environments significantly improve engagement and reading practice.

Designing a Creativity Educational Program Implementing Physical Movement and Allegory Structure

Misato Shimizu, Yuko Nakano, Takeshi

Educational programs for creative thinking have traditionally employed methodologies such as brainstorming and lateral thinking, emphasizing metaphors and analogies to transfer knowledge across domains. However, existing programs often conceptualize thinking as purely mental operations, lacking an embodied perspective. Research in embodied cognition reveals that thinking proceeds in close connection with physical action, and recent studies demonstrate that altering physical actions during creation can transform frameworks and generate novel concepts. These findings suggest that incorporating complex metaphors, such as allegory with physical action, could facilitate the development of creative thinking. This study designed and implemented a creativity educational program integrating allegorical structure with embodied action, comprising two components: "Playful Body" as a warm-up and "Creative Body" as the main component. Playful Body conducted four works aimed at deactivating automated body schema and evoking exploratory attitudes through unusual movements, collaborative embodiment, and object interaction. Creative Body is centered on the reconstruction of meaning through constrained physical action. Participants wrote cards specifying body parts, environments, and movements, then randomly drew combinations to create situations requiring movement under inconsistent constraints. Finally, participants retrospectively assigned backstories to their actions, encouraging the reconstruction of their actions into coherent narratives. This process provided an experience in allegorical thinking, facilitating novel idea generation through the action→narrative→concept cycle. The program was conducted with seven adult participants for three hours. This presentation reports the first step of our Design-Based Research project, examining the educational effectiveness of combining allegorical structure with physical action in developing creativity.



Designing an educational program that leads non-dance majors to create dance expression naturally

Yuko Nakano, Misato Shimizu, Takeshi Okada

As generative AI becomes ubiquitous, fostering creativity through embodied engagement remains crucial for human flourishing. The purpose of this study is to propose design principles for educational programs empowering non-dance majors to naturally create their own creative dance expressions. Two primary obstacles impede creative participation: 1) cognitive constraints, including creative myths (Weisberg, 1986) and fixed creative mindsets (Karwowski & Brzeski, 2017); and 2) insufficient hands-on exploration (Nakano & Okada, 2022). Effective programs must therefore incorporate mechanisms that naturally dissolve cognitive constraints while enabling participants to discover creative joy through active exploration. This case study investigated an acclaimed choreographer Ryohei Kondo's dance-creation course through participant observation and semi-structured interviews at the University of Tokyo. Data analysis employed two approaches: Analysis 1 examined program elements using an extended Five A's model of creativity (Glaveanu, 2013), tracking their chronological progression; Analysis 2 classified items from the "Todai Instruction-book work," where participants randomly drew instructional cards and created expressions, to elucidate strategies for facilitating exploration. Results revealed a sequential pedagogical structure: early sessions emphasized physically mediated interactions and games; middle sessions provided experiential engagement with expert creative processes; and final sessions facilitated individual and group exploration. Analysis 2 demonstrated that Kondo manipulated participants' perceptions and emotions, stimulating imagination and interpretation to elicit unique expressions. Four sequential design principles emerged: (1) center on interpersonal interaction to realize inadvertent bodily movement; (2) experientially share the instructor's exploratory strategies to challenge preconceptions; (3) cultivate bodily consciousness; (4) manipulate perception and emotion to promote imaginative development.

Aperitivo (Social):

18.00 -19:00 at Central Atrium.

Board Games evening:

19:00+ at Centro Sociale Catomes.



Thursday, July 9th

Keynote I:

Neurodiversity and Play

Prof. Jenny Gibson, *University of Cambridge*

9:30 -11:00 at Fondazione Reggio Children - Centro Loris Malaguzzi

Introduction to Fondazione Reggio Children: Visit to Centro Loris Malaguzzi

11.00 -13:00 at Fondazione Reggio Children - Centro Loris Malaguzzi

Session 3.1: Teacher Professional Development for Play-Based Learning

14:00–15:30; Room L0.1a+b

Chair: Pablo Torres

JUGAAR project: How to promote playful pedagogies in adult-centred ECE

Pablo E. Torres, María Viviani, César Amador, Catalina P. Valdés Pizarro

Early childhood education (ECE) in Chile's Pre-K and Kinder transition levels (focusing on 4- to 6-year-olds) is dominated by adult-directed, schoolified instruction, despite national curriculum mandates since 2018 that place play at the centre of learning. While Chilean early childhood educators report valuing play-based pedagogy, observational research consistently shows that playful learning remains nearly absent from their classrooms. This work-in-progress paper presents the methodology to be used in the JUGAAR (or "PLAAY") project (*Juego Guiado o Aprendizaje Autorregulado*), a feasibility study that aims to examine if and how playful learning could be facilitated to be effectively and autonomously implemented by Chilean ECE educators. Two possible pathways to achieve this will be explored in the project: guided play and playful self-regulated learning (P-SRL). At the conference, we will present the methodology to be applied. To study educators and institutional readiness for change (objective 1), semi-structured interviews are proposed to surface institutional facilitators and barriers to playful pedagogy, as well as competency-focused interviews and videotaped classroom observation sessions of 20-30 educators. To design intervention materials that promote appropriate playful learning in adult-centred ECE contexts (objective 2), we will present an iterative co-design methodology through which eight educator key-users will help prototype, pilot, and refine feasible guided play and



P-SRL activity sets. Together, these methodological approaches aim to produce contextually grounded, educator-validated intervention materials, contributing to advance knowledge on playful learning implementation in adult-centred ECE contexts.

Perceived Barriers to GBL Implementation: A Systematic Analysis of Teacher Perspectives

Massimiliano Andreoletti

Despite growing evidence supporting the pedagogical efficacy of Game-Based Learning (GBL), its integration into formal educational settings remains limited. This study examines the multidimensional barriers perceived by in-service and pre-service teachers that impede systematic GBL implementation in K-12 contexts. Drawing on contemporary research in educational psychology and technology-enhanced learning, we investigate five primary barrier categories: financial resource constraints and budgetary limitations, insufficient ICT training and digital pedagogical competence gaps, technological infrastructure deficits, epistemic preferences for traditional didactic methods, policy and curriculum misalignment. Our analysis synthesizes recent empirical findings (2020-2026) employing mixed-methods approaches, including large-scale surveys, phenomenological interviews, and competency-based needs analyses. Results indicate that teachers consistently report inadequate professional development targeting GBL pedagogical integration, limited access to curriculum-aligned digital games, and institutional constraints including rigid assessment frameworks and time scarcity. Pre-service teachers demonstrate openness to GBL adoption but lack structured competency development during initial teacher education. The findings underscore the necessity for systemic interventions: competency-based teacher education models, targeted professional development emphasizing pedagogical content knowledge for GBL, increased infrastructure investment, and policy frameworks that legitimize game-based pedagogies within standardized curricula. This research contributes to understanding the socio-technical and pedagogical dimensions of educational innovation adoption and offers evidence-based recommendations for teacher educators, policymakers, and instructional designers seeking to facilitate sustainable GBL integration.

Teachers disengaging from Game-based Learning Professional Development: A scoping review

Pier Daniel Cornacchia

Game based Learning (GBL) in the last two decades has been studied as an approach to foster student engagement and motivation (Plass et al., 2020). Most recently Professional Development (PD) programmes have focused on fostering teachers' competencies (Nousiainen et al., 2018) to facilitate game integration in their didactics. Some studies have



also looked into teachers' barriers, but focusing on the implementation of GBL in their classes (Kaimara et al., 2021). However, especially in the last 10 years, some scholars have looked into how some of these training programmes take place and teacher PD disengagement and abandonment dynamics (Ryan, 2019) are mentioned, but never thoroughly explored when the focus is on GBL. This scoping review (Cooke et al., 2012) looks into 25 selected works from 3 databases, which were analyzed and coded to conduct a content analysis. In conclusion, most of the works mention issues of disengagement more often than abandonment. The most recurrent reasons for partial or total PD withdrawal are that these training programmes are ineffectively designed, also due to the contextual limitations in which teachers get training. Moreover, the lack of previous training opportunities make these specific GBL PD programmes not engaging for teachers, as these educators don't have the preliminary competencies to learn effectively.

Playful Learning Experiences in Pre-service Teachers Education: Collaborative Experiences

Stefania Bettuzzi, Maria Barbara Donnici, Elena Sofia Paoli

This contribution examines the professional reflections and emerging awareness related to play and creativity developed by a group of 35 students enrolled in the fifth year of the Scienze della Formazione Primaria Primary Education degree program at the University of Modena and Reggio Emilia. The study was conducted within a 12-hour group work methodology laboratory, held in a regenerated space of Fondazione Reggio Children. Building on an exploratory experience carried out in the previous academic year, the educational impact of the laboratory was investigated through a qualitative research design, including ex ante- and ex post-experience questionnaires, pedagogical documentation of the learning process and a final group interview. Starting from children's experiences within the Scuola Diffusa project, in which children explored and interpreted the space, the proposal invited students to design games, creative workshops, or learning environments inspired by the context. These proposals were developed in small groups and subsequently tested by peers, who evaluated their educational potential. This process reflects an understanding of learning as situated, relational, and co-constructed. The expected outcomes concern an increased perception of the pleasure associated with discovery-based learning through play, a stronger motivation to use play as an educational tool, and a deeper reflection on the pedagogical value of the environment. Particular attention is given to the use of unstructured materials for their sensory and expressive qualities, as well as to the recognition of collaboration and teamwork as essential dimensions of teaching professionalism.



Session 3.2: Families, Relationships and Early Learning

14:00–15:30; Room L0.2a+b

Chair: Laura Landi

Maternal Verbal Scaffolding in Digital and Non-Digital Parent–Child Play

Khadija Alhashmi Ameena AlMazrouei, Hala Sukkar, Antje von Suchodoletz, Bruce D. Homer, Jan L. Plass

Parent–child play provides a valuable context for exploring how learning unfolds through social interaction. Drawing on guided participation (Rogoff, 2014), this study explores how maternal verbal scaffolding and children’s immediate responses vary across play context (digital vs non-digital). Guided participation views development as emerging through children’s involvement in shared activities with more experienced partners, where participation, responsibility, and control are negotiated in interaction, building on Vygotsky’s (1978) sociocultural theory. Within this framework, scaffolding is understood as contingent, context-sensitive support embedded in everyday activity (Mermelshtine, 2017). Notably, digital play may reorganize participation structures, as children are often more skilled than their parents in digital games, altering roles and opportunities for scaffolding (Alon Tirosh & Ben Chitrit, 2025). Participants were 33 mother–child dyads ($M_{\text{child}} = 5.97$ years, 57.58% female) drawn from a larger cohort of parents residing in Abu Dhabi, United Arab Emirates. The study employed an observational design comparing parent–child interaction across digital and non-digital play contexts. Dyads completed two 10-minute play activities (digital tablet-based and non-digital with magnetic tiles) with interactions video-recorded. Maternal verbal scaffolding was coded using an event-based approach with categories adapted from the Dyadic Parent–Child Interaction Coding System (Eyberg et al., 2009). Children’s responses were coded sequentially following each scaffolding event, allowing examination of moment-to-moment contingency in interaction. Coding and full analyses will be completed prior to the conference. Planned analyses compare the distribution and sequencing of scaffolding and child engagement across contexts, highlighting digital play as a prevalent yet understudied interactional environment.

Attunement, Misattunement, and Repair in Mother-Child Dyads: Digital vs. Non-Digital Play

Hala Sukkar, Khadija Alhashmi, Antje Von Suchodoletz, Bruce D. Homer, Jan L. Plass

Caregiver-child attunement serves as a mechanism through which children’s emotional coordination, social understanding, and self-regulatory abilities emerge (Tronick, 1989). Prior research highlights the importance of attunement during co-play; however, there remains a gap in understanding whether and how caregiver-child dyads repair attunement



following moments of misattunement (Christie & Roskos, 2013). This gap is particularly evident in digital play contexts, where attunement tends to be reduced (Hiniker et al., 2018; Carr & Dempster, 2021). To address this limitation, this study applies the Mutual Regulation Model (Tronick, 1989) to identify the frequency and duration of the three dyadic states: match (attunement), mismatch (misattunement), and repair across digital and non-digital play. The sample consisted of 47 parent-child dyads. Children were between 4 and 8 years of age ($M = 6.25$, $SD = 1.37$; 38% boys), and mothers had a mean age of 37.19 years ($SD = 5.43$). All mothers were of Arabic background, representing 12 nationalities, primarily Emirati (31.9%), Sudanese (29.8%), and Egyptian (10.6%). Parental consent and child assent were obtained. Dyads were video-recorded in both contexts. Behavioral coding is currently underway and conducted using Mangold INTERACT with a micro-analytic, second-by-second coding approach. State Space Grids (SSG) will be used to identify the instances of the three dyadic states, and statistical comparisons between the three dyadic states across digital and non-digital play will be performed using SPSS. Findings are expected to inform strategies to enhance caregiver-child attunement and optimize engagement in digital co-play contexts, where attunement and repair may be reduced.

How do characteristics of families, parents, and children themselves shape their creativity?

Honghong Bai, Angela Faiella, Stella Christie, Evelyn Kroesbergen, Giovanni E. Corazza

Abstract Introduction. This study proposed to measure mini-c—creativity as tied to the learning process—through coding a subject’s process of cognitive perspective taking. Based on this framework, we examined how characteristics of families, parents, and children themselves influence 4-6 years old Chinese children’s mini-c. **Method.** Mini-c was measured based on the child-parent ($N=60$) dyads’ interactions while performing on the Alternative Uses Task. Cognitive perspective taking was specifically coded based on two behaviors: (1) Listen/understand, when one showed having (only) listened to and understood the other’s ideas and thoughts; and (2) Extend/revise, when one showed having integrated the other’s ideas and thoughts to that of theirs. Characteristics of families, parents and children were measured through surveys. **Results.** Multiple linear regression analyses revealed that: (1) None of the characteristics was associated with children’s Listen/understand scores. (2) Several characteristics showed a relationship with children’s Extend/revise scores: a) children from families which spent higher percentages of their income on childcare costs showed less Extend/revise behaviors; b) for equally interactive parents, children with a sibling showed more Extend/revise behaviors than the only-child children; c) for equally active parents, children who finished the divergent thinking task with their mother showed more Extend/revise behaviors; d) children who were reported as stronger showed less Extend/revise behaviors. **Significance.** This study provided novel mini-c, process-based methodologies for future research, and the empirical findings can inform



and support parents and educators to adapt their educational practices towards facilitating children's mini-c.

Session 3.3: STEM Play-Based Learning I

14:00–15:30; Room L0.4

Chair: Alessandra Landini

Characteristics and didactical foundations of a game-based learning approach for chemistry teaching

Maxime Hansen

Use of game-based approaches in the context of learning a well-documented topic among scholars and educational researchers (Mayer, 2014; Plass et al., 2015, 2020). However, an investigation of the available literature revealed that chemistry appears to be a discipline that is less interested in developing such tools for classrooms. This field also frequently shows confusion between different types of game-based approaches. Among the available body of literature, only two meta-analyses have been found (Hu et al., 2022; Xu et al., 2025), which investigate the impact of games on cognitive, motivational, or emotional outcomes in chemistry, without investigating the didactical components behind these games. Considering this situation, clarifying game-based approaches is essential to differentiating between types of games. Analogic or digital game-based learning (GBL) approach is considered, as it has the potential, compared to other game-based approaches, to develop skills not only related to chemistry (Elmali et al., 2026). Investigation of the theoretical foundation underlying game-based learning in chemistry also revealed that, although common pedagogical models are used by game creators, specific didactic models related to chemistry, such as the chemistry triplet (Johnstone, 1991; Taber, 2013; Talanquer, 2011), are not generally considered during development. This raises the question of the theoretical foundations of such games and the existence of guidelines to develop effective and well-designed GBL practices, in light of these didactical models.

Towards Immersive Digital Learning Scenarios: Escaping where Shapes Unlock Creativity and Skills

Alessandra Landini, Chiara Crespi, Silvia Ferretti

This case study begins with the aim of enhancing geometry skills among 2nd grade primary school children. The project, grounded in playfulness (Dewey, 1938) and Embodied Cognition (Gallese & Lakoff, 2005), took place at Manzoni School Institution in Reggio Emilia, By choosing the INVALSI Italian standardized tests, area Space and Figures, the work hypothesizes that learning processes could be improved if the body became the privileged



medium in teaching-learning experiences, fostering motivation and fun. The assumption is to investigate a “Playing to test” approach. A mythical story is the guiding thread. Children, as “inhabitants” of the town of Polygonia, had to pass through five escape rooms inside the Sorcerer’s castle, in which they experienced, working together, educational aims. The analyses of the “enacted narratives” of students seem to enlighten their learning stories and the processes underpinned, leading to the skills enforcement of most of the children, especially the struggling ones.

Valuing Pedagogy of Play in STEM: A Bibliometric Analysis of Research Fronts

Mei-Shiu Chiu

This study explores the research front of play as a "valuing pedagogy" in science, technology, engineering, and mathematics (STEM). Using bibliometric analysis of 194 documents from the Web of Science, this study identified chronological trends, academic categories, and conceptual structures. Findings reveal that the valuing pedagogy of play is a "reborn" field, experiencing a sharp rise in 2024, driven by science education, management, and technology. The research front is characterized by multicultural collaboration rather than individual dominance and is organized into three systemic pillars. First, Play as Artifact focuses on defining play patterns, including integrative play, games, and avatar-body interaction. Second, Play by and for the Person emphasizes teacher expertise and playfulness alongside learner development and situated affect. Third, Play in Context addresses pedagogical designs for sustainability, technological simulation, and embodiment to cross disciplinary boundaries. These results highlight play as a desirable pedagogy for deep engagement and understanding of rigorous STEM content. By mapping the artifact-person-context triad, this study provides systemic insights into the current research status and identifies promising directions for the future of playful learning. These findings offer a comprehensive knowledge base for educators and researchers aiming to implement play in formal and informal STEM settings.

Motivation & Self-Regulated Learning in STEM: Measuring Playful Inquiry in a Sport-Integrated Class

Katie Bell, Shane Dawson, Srecko Joksimovic, Daniel Ebbert

Sport-integrated STEM programs have often been positioned as playful and culturally meaningful approaches to engage students in learning. Despite increasing popularity, there remains a lack of quantitative evidence about how such programs support and sustain learning processes across cultural, social and classroom disciplinary contexts. For



instance, motivation is frequently reported through ad hoc, context-specific tools, and self-regulated learning (SRL) is rarely measured or examined in conjunction with curriculum outcomes. As such, it remains unclear whether sport-based STEM programs merely function as an engagement hook or as playful learning designs that do support deeper and more sustained learning over time. This paper reports on the initial quantitative findings from STEMfooty, a 10-week, classroom-embedded STEM program delivered by teachers in middle-years classrooms. STEM concepts are taught through Australian Football (AFL), a context that is a familiar, culturally relevant, and playful lens for inquiry. STEMfooty learning activities support students to apply core mathematics and science concepts to real-world scenarios, while learning goals remain explicitly curriculum-focused. Students (N=622) completed pre-post self-reports using the Motivated Strategies for Learning Questionnaire (MSLQ) to measure motivation and SRL strategies. Preliminary matched analyses indicate positive directional shifts across motivation and SRL in participating schools (N=17). The findings provide quantitative evidence that sport-integrated STEM programs designed as playful inquiry can support motivation and SRL processes that are known to underpin student learning.

Session 4.1: STEM Play-Based Learning II

16:00–17:30; Room L0.1a+b

Chair: Liliana Silva

Construction Play, Math Problem-Solving, and Self-Regulation: Interrelations in Preschool STEM

Ornit Spektor-Levy, Nurit Paz-Baruch, Taly Shechter

Early childhood is a critical period for developing integrated STEM competencies within play-based contexts. Construction play offers a natural setting in which children engage with mathematical ideas, engineering thinking, and self-regulatory processes. This study examined the interrelations among preschoolers' numeracy skills, mathematical problem-solving, engineering performance, and metacognitive and self-regulation capabilities in guided construction play. Participants were 56 preschool children (aged 4–5 years) from mainstream classrooms. Mathematical skills were assessed using a curriculum-based Mathematical Capabilities Test measuring number recognition, counting, and mathematical problem-solving. Engineering and regulatory processes were examined during a guided LEGO® model-building task in which children reproduced progressively complex models from two-dimensional diagrams. Engineering performance was measured by model complexity, time on task, and construction quality. Video micro-analysis captured metacognitive strategic awareness and regulation of cognition and emotions using a highly reliable coding scheme ($\alpha = .97$). Descriptive findings indicated moderate to high



mathematical competencies and meaningful variability in engineering performance and regulation. Correlational analyses revealed that mathematical problem-solving was significantly associated with engineering skills and both cognitive and emotional regulation during play. In contrast, numeracy skills alone showed limited associations with construction performance. The findings suggest that mathematical problem-solving reflects broader cognitive and strategic competencies that transfer across domains, supporting children's planning, monitoring, and persistence in engineering challenges. Guided construction play thus serves as a valuable context for observing interconnected STEM and regulatory development, underscoring the importance of integrating mathematical reasoning with hands-on building experiences in early childhood education.

TIDE Canvas: Playful Tinkering and Reflective Documentation for Shared Inquiry in Primary Science

Stefano Rini, Sara Ricciardi

Playful tinkering is widely recognised as a powerful driver of curiosity and creativity in primary education. However, in formal school contexts, the linking from playful exploration to disciplinary inquiry often remains implicit, making it difficult for teachers to connect children's experiences to curricular goals. The TIDE Canvas is an intentionally flexible design framework that integrates playful tinkering, structured reflection, and pedagogical documentation in primary science. Each classroom enactment both draws from and reshapes the canvas through situated practice. This study presents a four-month implementation of TIDE in a fourth-grade class on light and shadow. The learning sequence combined incremental tinkering workshops with "hot" and "cold" reflective moments, a personal "Journal of Light," and collaborative teacher reflection sessions (Fishbowl protocol). For the first time within this design trajectory, children's research questions were systematically documented and revisited as shared artefacts of inquiry. The analysis suggests that documentation plays a pivotal mediating role: it makes children's questions visible, supports their alignment with disciplinary concepts, and enables teachers to reposition playful explorations as collective scientific problems. In doing so, documentation not only sustains playfulness in formal STEM education but also fosters teacher engagement and contributes to the ongoing refinement of the TIDE Canvas. The study contributes to research on play and creativity by illustrating how reflective documentation can transform playful activity into shared, curricular inquiry while simultaneously evolving the design framework through practice.



Playing with Binary Knowledge: Embodied Playful Learning in Mathematics and Computational Thinking

Surya Pasupuleti, Marjaana Kangas, Kristian Kiili

This study investigates how embodied playful learning can enhance the understanding of abstract computational and mathematical concepts, focusing on binary (base-2) numbers in elementary education. Drawing on research with 15 third-grade students (aged 8–10), the study examines how designing and playing outdoor games transforms disembodied symbols into engaging, sensorimotor experiences. Students worked in small groups to design games using typical playground materials, such as chalk, stones, and balls, integrating binary-to-decimal conversions within playful activities. Quantitative results indicated significant learning gains, with mean test scores rising from 7 to 13.3 out of 20 ($p < .01$). Students improved substantially in converting numbers between binary and decimal, but significant improvements in transfer skills such as addition, abstraction, and pattern recognition were also found. Surveys of epistemic emotions revealed increased enjoyment with decreased boredom and confusion during and after play. Qualitative video analysis highlighted embodied processes, including gestural anchoring, collaborative problem-solving, and playful peer scaffolding, which enabled students to externalize and spatialize abstract knowledge. Students used gestures, movement, and environmental cues to negotiate rules, calculate scores collectively, and sustain engagement, revealing the interplay of social, cognitive, and sensorimotor dimensions in learning. This approach provides a replicable model for integrating embodied playful learning into computational thinking and mathematics instruction. The findings demonstrate that student-designed, low-resource games can support cognitive and affective learning outcomes, positioning play not as a break from learning but as a vehicle for it.

Session 4.2: Contextual conditions for Creative and Play-Based Learning

16:00–17:30; Room L0.2a+b

Chair: Antonia Zachariou

What is the place of Play? Exploring the Infrastructures surrounding Play in Residential Settings

Fernanda Rufs

This study aimed to analyze the physical, organizational, relational and belief infrastructures of three non-governmental agencies providing residential services within the child protection system in the Metropolitan Region of Chile, to identify facilitators and barriers to



play. Following a multiple case study design, data collection included 35 semi-structured interviews with key stake holders, 69.5 hours of participant observation, and a documentary analysis of daily logs. Data were analyzed using Reflexive Thematic Analysis. Preliminary results regarding physical infrastructure reveal that despite the availability of spaces and materials, various forms of play -including construction, symbolic, artistic and rule-based- are partially restricted, as they depend on adult authorization. Regarding organizational infrastructure, the findings highlight the primacy of a welfare-based (social assistance) approach over a rights-based and developmental framework. This, combined with a perceived lack of institutional support for direct-care staff, diminishes guided play opportunities and renders the potential of free play invisible. In terms of the relational infrastructure, although affective interactions were identified as a resource, a normative view of behaviour often leads to authoritarian corrections. Consequently, instead of utilizing play as a tool for conflict mediation or fostering social cohesion, it is frequently sidelined in favor of disciplinary control, missing vital opportunities for co-regulation. Finally, a discrepancy exists within the belief infrastructure between theoretical convictions and actual practice, hindering the identification of systematic play actions. The theoretical and practical implications for residential care settings are discussed.

When policies shape play: Access to baby room provision in Chile

Blanca Barco

Play is widely recognised as a foundational condition for early learning, creativity and wellbeing. However, less attention has been paid to how early childhood policies shape the institutional conditions under which play becomes possible or constrained, particularly for babies. This paper examines how access policies to baby room provision (0–2 years) in Chile configure the conditions for play in public early childhood education settings. Drawing on a qualitative study combining policy analysis and interviews with policymakers and system-level actors, the paper analyses access as a multi-dimensional process shaped by availability, accessibility, affordability, comprehensibility, quality and intersectoral mediation. Findings show that, while access policies have expanded provision and strengthened institutional recognition of baby rooms, they also generate tensions that affect play opportunities. Rigid attendance requirements, extended daily schedules, fragmented funding models and administrative pressures on practitioners tend to prioritise labour-market needs and system accountability over babies' rhythms, relational continuity and exploratory play. These dynamics produce uneven "playful worlds" across territories and types of provision, revealing how policy design can both enable and constrain play as a lived educational experience. The paper argues that understanding play requires examining the policy conditions shaping professional work in baby rooms within public early childhood education.



School Culture and Creativity-Fostering Teacher Behavior: The Role of Leadership and Seniority

Alexander Zibenberg, Rima'a Da'as

Numerous studies have examined the factors that enable teachers to foster creativity in the classroom. This study integrates Implicit Leadership Theory (ILT), creativity theories, and school culture frameworks to propose a model linking school culture to teachers' creativity-fostering behavior. Specifically, it explores the mediating role of ILT in the relationship between school culture and teachers' creativity-fostering behavior, and the moderating role of teachers' seniority in education. Data were collected from 456 teachers across various schools. The findings reveal a dynamic interplay between cognitive and environmental factors in shaping teachers' ability to nurture creativity. Teachers do not necessarily need to be inherently creative; rather, working in a school culture that values creative thinking and upholds a positive ideal of school leadership enhances their capacity to cultivate creativity among students.

Rethinking 'purposeful play' in schools: the place of child agency

Soizic Le Courtois

Over the past decades, play has increasingly been acknowledged as having an important place in children's learning and development. However, the need for teachers to demonstrate learning outcomes has led playful learning research to focus on activities that aim to reconcile children's play with adult-imposed learning objectives (e.g. guided play, Skene et al., 2022), and to smooth over tensions between the two. In this paper, we draw on research carried out in Primary schools in England working with teachers to increase children's autonomy through playful learning practices. We draw out teachers' understanding of play as needing to be purposeful in a classroom context, and what this meant for their practice, in particular tendencies to curtail or redirect play that was not considered to be targeted towards learning. These practices took place in the context of high institutional pressures to meet learning objectives, and highlights that discussions on the relationship between play and learning are not neutral but instead framed by narratives around what is valuable in schools. We propose that this tension can be loosened by a focus on children's agency (Baker et al., 2021), which re-centres the child's willing involvement and enjoyment in activities, and therefore their experiencing learning as playful.



Session 4.3: Poster Session II

16:00–17:30; Central Atrium

Chair: Juan Lira

Creativity Compass Program in Practice: Inter-School Festival Implementation and Lessons Learned

Dorota Maria Jankowska, Aleksandra Gajda

This poster presents the implementation of a nationwide inter-school education and culture festival grounded in the Creativity Compass programme—an open-access set of workshop scenarios that integrates creativity training with intercultural learning through a structured three-phase framework: (a) Curiosity, (b) Creative Exploration, and (c) Understanding. The programme is evidence-informed and has demonstrated effectiveness in school-based evaluation studies, including improvements in pupils’ creative abilities and selected intercultural competences. The festival, “Creativity Compass: Culture Explorers,” was implemented in 50 Polish primary schools, combining core Creativity Compass workshops with locally designed, teacher-led creative initiatives. Prior to delivery, participating teachers completed preparatory training in two formats—an on-site session and an asynchronous podcast series—focused on developing competences for supporting children’s creative potential in educational contexts. The poster reports implementation effects and lessons learned from school-based delivery, focusing on: (1) participation and delivery (the extent to which core workshop components were enacted alongside teacher-designed initiatives), (2) capacity building (how teacher preparation supported facilitation and pedagogical confidence), and (3) practice-based educational outcomes observable at school level (e.g., pupils’ engagement in divergent thinking tasks, collaborative creative work). The findings inform recommendations for scaling creativity-and-intercultural learning initiatives through short, high-visibility festival formats while balancing fidelity to programme principles with informed local adaptation.

Teacher Behaviors Supporting Student Creativity Across Subjects and Lesson Types

Aleksandra Gajda, Jacek Gralewski, Ewa Wiśniewska

This observational study examined how teachers support students’ creativity during regular classroom instruction and which contextual factors influence the frequency of creativity-supportive behaviors. Sixty lessons conducted by 12 high school teachers (mathematics and native language) were systematically observed using a structured behavioral protocol covering six domains: stimulating creative abilities, supporting openness, supporting



independence, building creative self-beliefs, valuing creative ideas, and fostering schematic thinking. Results showed that the most frequent behaviors involved valuing students' creative ideas and supporting student independence, whereas behaviors directly aimed at stimulating creative abilities and strengthening students' belief in their creative potential were least frequent. Subject differences were evident: language lessons showed higher frequencies of behaviors supporting openness and independence, while mathematics lessons more often fostered schematic thinking. Lesson type also differentiated teacher practices: creativity-supportive behaviors related to openness and creative stimulation were most frequent during lessons introducing new material, whereas schematic and evaluative behaviors dominated consolidation lessons. No significant differences were found between classrooms with higher versus lower student-rated creativity-supportive climate. Overall, the findings indicate that although creativity-supportive teaching behaviors are present in everyday instruction, they are selective and context-dependent rather than systematic. The study highlights the importance of lesson structure and subject domain in shaping opportunities for creative engagement.

Gaming for a better team culture – effects of a simulation game about occupational health and safety

Felix Kapp

Serious games - defined as digital or analog games designed for purposes beyond entertainment, such as education and training - are increasingly discussed as promising tools for professional development. In workplace learning, they offer opportunities to create environments in which participants can practice decision-making, collaboration, and reflection in a safe setting. However, investigating the effects of such applications remains challenging. The impact of serious games depends on complex and interacting processes (e.g. Plass, Homer & Kinzer, 2015): game experience, motivational engagement, and cognitive processing underlying learning and attitude change must be made observable, while well-documented example implementations are still scarce. Against this background, the present contribution reports three empirical studies examining the effects of a simulation game aimed at fostering team culture. The simulation game SIMKULT places players in the role of managers of a restaurant, requiring them to make operational and personnel decisions while addressing connections between health and safety issues and leadership behavior. The first study investigated cognitive and motivational effects of an analog prototype of SIMKULT (n = 87). The second study examined an early digital version of the game, focusing on whether gameplay could initiate future learning behavior (n = 48). The third study analyzed in-game perception and behavior depending on the players' types (n = 72). Across the three studies, the findings indicate that serious games contain multiple design factors influencing player experience and, consequently, cognitive and motivational outcomes.



Designing an Interdisciplinary Music-Mathematics Course in Teacher Education

Libby Azaryahu

The integration of music and mathematics has attracted growing interest in educational research and practice, particularly in relation to creative thinking and interdisciplinary learning. Previous studies indicate that both in-service and preservice teachers hold positive attitudes toward interdisciplinary instruction combining music and mathematics, recognizing its potential to enhance engagement, creativity, and learning. At the same time, research highlights a gap between teachers' interest in interdisciplinary teaching and their ability to implement it in practice, pointing to a need for concrete tools in teacher education. In response to this need, we developed Musimath, an experiential, workshop-based teacher education course designed to integrate music and mathematics in elementary education. The course aims to cultivate creative thinking and to provide preservice teachers with practical strategies for interdisciplinary teaching. The present study describes the course and examines its impact on preservice teachers' perceptions of interdisciplinary learning that integrates music and mathematics. Data were collected through a pre- and post-course questionnaire focusing on attitudes toward interdisciplinary learning and self-efficacy for interdisciplinary teaching, alongside a qualitative analysis of students' reflections on meaningful learning experiences. Results show a significant positive change in perceptions regarding the motivational value of interdisciplinary learning and its contribution to mathematics learning and support for struggling learners. Perceived self-efficacy for interdisciplinary teaching was moderate to high and remained stable over time. The findings highlight the role of teacher education courses in supporting meaningful interdisciplinary practice.

Inclusive Play Environments: Special Educators' Views on Indoor Spaces and Materials

Tone Rove Nilsen

Play is central to children's well-being, learning, and participation, and its inclusive potential is shaped not only by pedagogical and relational practices but also by the indoor physical environments in which children interact and play unfold. Research has shown that room layout, interior design and the availability of play materials structure opportunities for engagement and meaning-making through play (Berti et al., 2019; Nilsen, 2025; van Liempd et al., 2020). For children with special educational needs (SEN), equitable participation in play often depends on thoughtful adaptations to the physical environment, yet this aspect remains underrepresented in inclusion research. This study examines how special educators in Norwegian early childhood education and care (ECEC) perceive the role of indoor physical environments in facilitating inclusive play. It asks how spatial organisation, interior design, and the availability of play materials influence opportunities for participation



and belonging in play. Drawing on sociocultural and affordance theories, the study treats play as both a developmental and relational practice shaped by environmental possibilities. Data are collected through an anonymous digital questionnaire with closed- and open-ended questions. Open responses provide practice-based examples of enablers and barriers in inclusive play environments. All participants provide informed consent, and the study is approved by the Norwegian Agency for Shared Services in Education and Research. Anonymity is ensured, and data are securely stored on encrypted institutional servers. The findings aim to identify practical challenges and opportunities in inclusive play, offering recommendations to strengthen environmental design and professional practice in ECEC.

EARLI Play, Learning and Development - Special Interest Group (SIG) Business Meeting – all invited

17:30–18:30; Room L0.1a+b



Friday, July 10th

Keynote II:

Harnessing Creativity Research in Education: From Theory to Practice and Back Again

Prof. Paul Sowden, University of Winchester

9:30 -11:00 at Main Conference Building

Session 5.1: Playful Promotion of Creativity I

11:30–13:00; Room L0.1a+b

Chair: Juan Lira

Creative Play in an ECE Classroom: The “Tailor Shop” Case Study

Georgia Hadjiandreou, Eleni Loizou

The study draws on sociocultural approaches to learning and play, which conceptualise creativity as a socially mediated process developed through participation, interaction, and pedagogical guidance (Vygotsky, 2004; Fler, 2010). It explores how structured preparatory and enriching whole-class activities can support the development of creativity skills focusing on flexibility and originality, during creative play. With the involvement of children, the play area “The Tailor Shop” was designed and was gradually enriched with materials, roles, and techniques, following a spiral of preparation, play, reflection and enrichment. The study adopted a qualitative case study approach, and data was collected through systematic observations, documentation of children’s play (photography and video recording), and reflective notes. The findings indicate that children developed their skills to create, for example designing, constructing, sewing, and adapting patterns, while also demonstrating flexibility and originality through strategy changes, creative use of materials, and altering predefined models. The study highlights that intentionally designed creative play centers, supported by structured preparatory and enriching whole-class activities, effectively promote creativity. Also, the teacher’s role is emphasized in designing learning environments that encourage participation, flexibility, and originality.

From Play to Epistemic Game: Mobilization of Games Media Knowledge in a Multiliteracy Classroom

Esa Pavloff-Pelkonen, Tiina Korhonen, Kai Hakkarainen



Digital games are central sites of playful, creative, and collaborative meaning-making in young people's everyday lives. While games are widely recognized as drivers of learning and imagination, less is known about how they are taken up and transformed within game-related multiliteracy learning environments. This study examines how students' everyday gameplay becomes a learning resource when play is reconfigured as a shared object of classroom inquiry. Drawing on design-based research conducted in Finnish lower secondary classrooms, the study investigates a game literacy learning environment in which students collaboratively analyze and represent digital games through multimodal, playful activity. Using video-based multimodal interaction analysis, the study traces how students move between embodied play, talk, drawing, writing, and audiovisual composition while working with game-related ideas. Rather than treating games as motivational add-ons, the analysis focuses on how playful representation support collective meaning-making under classroom conditions. The findings indicate that learning unfolds through iterative exploration, where students negotiate how gameplay can be represented or transformed, become key drivers of creativity and understanding. Through these processes, everyday play and school-based inquiry begin to overlap, enabling students to approach games as cultural and imaginative worlds rather than fixed texts. The study contributes to discussions on play, creativity, and learning by offering a process-oriented account of how playful digital practices can be integrated into formal education. It highlights how translating the same phenomenon across multiple modes and spaces supports creative agency, collaborative inquiry, and flexible ways of knowing in a media-saturated world.

Exploring Children's Creativity During Creative Play with a Creativity Description Tool

Evi Loizou, Eleni Loizou

The creativity of early childhood children is evident in their play (Vygotsky, 2004), and creative play (CP) can serve as an ideal context for them to express it (Szekely, 2015). CP connects play with creativity and the Arts and can be defined 'as a flow of actions', were teachers and children 'in the context of the arts', participate 'in the process of creation and creativity' (Author & Author, 2022, p.3-4). The aim of this case study was to explore how children's creativity manifests in CP. The participants were six children, aged 5-6, in two preschool settings. Data collected through video recordings of children's CP at three play areas (e.g. "Toy Factory"). Data was analyzed with the Children's Creativity Description Tool (CCDT), that was developed for this purpose. CCDT was developed after reviewing creativity literature and includes variables categorized into three themes: attitude-related (e.g., motivation), creative process-related (e.g., idea fluency), and creation-related (e.g., originality). The findings revealed that CP provided an optimal environment for children to express their creativity in many different ways. Children demonstrated their motivation to participate, their willingness to take risks, their ability to propose solutions to problems, and their capacity to produce original outcomes. Such information needs to be unfolded in the



most appropriate ways; thus, there is a growing need for tools that help educators observe and describe creativity in young children (Lucas, 2016; Robson, 2014). CCDT provided a flexible and inclusive framework for observing and describing different components of children's creative behavior in the context of CP.

Session 5.2 Symposium I:

Play Under Pressure: Playful Pedagogies and Schoolification in the Transition to School

11:30–13:00; Room L0.2a+b

Organiser: Daniela Jadue Roa

Discussant: Antonia Zachariou

Playful and non-playful activities and the joint construction of meanings in transition to school

Daniela Jadue Roa, David M. Gómez Rojas

This presentation draws on a cross-sectional study conducted in 23 classrooms, from pre-kindergarten through second grade, across five schools in Chile. The aim of the study was to compare and contrast classroom dynamics, focusing on children's possibilities to jointly construct meanings. Drawing on previous research in the transition field, it was considered relevant to address the playful and non-playful nature of classroom activities in order to further the debate between readiness for school (which leads to schoolification) and school readiness (which leads to child-centred and developmentally appropriate pedagogical practices). However, empirical evidence comparing playful and non-playful interactional patterns across the transition years remains limited. Video recordings of classroom activities were analysed using the Effective Learning Programme proforma scales and Dunlop's Children's Agency Scale, comparing playful (39) and non-playful (334) episodes. Findings demonstrate how continuities and discontinuities in classroom interactions accentuate schoolified practices in early childhood classrooms aimed at preparing children for the transition to first grade (regardless of their playful nature, which is mainly instructional). These findings align with children's perspectives and with the author's previous studies on their possibilities for agentic participation in their learning. Furthermore, they suggest that policies aimed at strengthening transition practices towards more developmentally appropriate, child-centred approaches are ineffective; therefore, actions need to move beyond policy statements to have an impact on daily classroom



interactions. Further research could help close the gap between policy and practice and work towards effective transition pedagogical practices.

What scientific knowledge do preservice kindergarten and primary teachers expect to teach, and how?

Camilo Vergara Sandoval, David M. Gomez Rojas

Early childhood education lays the foundations for learning throughout schooling, promoting the development of key skills. Teachers play a fundamental role as mediators of such development, and teacher education is crucial for them to fulfil this role. Understanding how future teachers envision themselves developing their students' skills and curriculum content offers insight into their potential future classroom practices. This study examined drawings produced by preservice early childhood and primary teachers when asked to draw a classroom addressing the science curriculum in kindergarten and first grade. The aim was to explore what and how they intend to work in relation to science, with a focus on the transition between early childhood education and primary education. The drawings were analysed using the filter integration method, revealing a diversity of conceptions. These range from views of science as direct contact with nature, characterised by free exploration and an emphasis on experience and curiosity, prevalent in early childhood education, to views of science as the transmission of knowledge with limited experiential practice, common in primary education. Other conceptions reflect experiences in which science is promoted as inquiry and exploration of the natural environment, mediated by the teacher. We discuss the importance of knowing and understanding these conceptions to identify opportunities and challenges for teachers' professional development about what and how teaching about science in early education, promoting a continuity in this context of transition between early childhood education and primary education.

Collaborative Work and Pedagogical Diversification in Initial Teacher Education

Mayer J. Soto Sarmiento, Beatriz Fernández

Collaborative work has been promoted in initial teacher education as a key condition for addressing diversity and fostering inclusive pedagogical practices. However, evidence shows that opportunities for interdisciplinary collaboration at this stage of teacher education are often limited or insufficiently structured. This study presents the results of an exploratory qualitative research based on a paradigmatic case study, corresponding to a transversal course shared across teacher education programs and situated in the initial cycle of teacher education. The study was conducted at a public Chilean university and



involved students from Early Childhood Education, Primary Education, and Special Education programs. Data were collected through curricular document analysis, group interviews, individual semi-structured interviews, and analysis of students' pedagogical artifacts. Data were analyzed using qualitative content analysis. Findings reveal a tension between the course's formative intentions and the effective implementation of collaborative work. While students value dialogue across teacher education programs and recognize play as a pedagogical tool for diversifying teaching in the initial cycle, collaboration was largely voluntary, which limited its formative impact. In addition, the lack of structured practical experiences constrained the systematic development of diversified pedagogical strategies, which were primarily grounded in intuition rather than in explicit pedagogical frameworks.

Session 5.3: Game-Based Learning, Gaming, and Artificial Intelligence

11:30–13:00; Room L0.4

Chair: Liliana Silva

Generative AI as a support for teachers in designing curricular Videogame enhanced Learning Units

Francesco Claudio Ugolini, Domenico Morreale, Ainzara Favini, Flavia Di Donato, Michele Sardo, Francesca Fallucchi

This paper aims at describing Generative AI as a support for teachers in designing curricular Learning Units that integrate a videogame within a learning activity. We refer to a theoretical framework we developed, drawing on Jens Jensen Interactivity and Thorkild Hanghøj game scenarios, which is based upon three dimensions that can be used both in game evaluation and in Learning Unit design: directivity, sociality, and Modifiability/Projectivity. The present study is divided into two phases: the first one tested the opportunities of Generative AI in evaluating games according to the framework; the second one is a Pilot study aiming at designing a Learning Unit including a videogame with curricular affordance. In relation to the first phase, we found that, in most renowned games, the AI adopts a more technical or slang language. AI-generated answers also tend to go beyond the focus led by the prompt, offering suggestions on instructional design. Regarding the second phase, an initial experience provided positive feedback about the possibility of relying on both AI and our framework in Learning Unit design.

Prompt'n'Play: A Game-Based Approach to Developing AI Literacy in Primary Education



Massimiliano Andreoletti, Andrea Tinterri, Maria Concetta Carruba, Marika Lamacchia, Maria Clara Dicaldo, Francesco Facciorusso, Anna Dipace

Background The emergence of Generative Artificial Intelligence (GenAI) necessitates new transversal competencies in prompt construction, involving linguistic precision, logical reasoning, and adaptive communication strategies. Currently, primary education lacks structured pedagogical approaches to develop these competencies (Glazewski et al., 2022). **Objective** This study investigates whether systematic engagement with Prompt'n'Play, a board game designed to scaffold prompt construction skills, enhances linguistic awareness, creative expression, and problem-solving capacities in Grade 4-5 students (ages 9-10). **Method** A pre-post comparative design was implemented across four Italian schools (N=8 classes) from September 2025 to May 2026. The intervention comprised 6-8 weeks of gameplay (2 sessions/week) with progressive difficulty levels following a Use-Modify-Create scaffolding progression (Mott et al., 2023). Data collection employed multiple methods: comparative analysis of pre- and post-intervention prompts as pedagogical documentation (Gouzouasis & Yanko, 2018), teacher observation protocols, student logbooks, and structured evaluation rubrics assessing creativity, relevance, and clarity. Ongoing data collection includes student and teacher questionnaires, with planned focus groups (March-May 2026) and student follow-up questionnaires. **Preliminary Findings** Comparative prompt analysis reveals qualitative transformations in instruction formulation, contextual construction, and request articulation. The play experience appears to support reworking processes, heightened metalinguistic awareness (Rodríguez-Gonzalo et al., 2022), and expansion of expressive repertoires.

Significance Findings align with sociocultural perspectives positioning play-based learning as inquiry-oriented, exploratory practice fostering co-construction of meaning (van Oers, 2015). The study contributes empirical evidence for integrating ludic pedagogical approaches to develop emerging digital literacies (Ricoy & Sánchez-Martínez, 2022) while maintaining creative and collaborative dimensions of primary education.

Unpacking Screen Time In Naturalistic Digital Play: Dynamic Systems Perspective

Yared Getachew Kahsay, Antje von Suchodoletz

Since the pandemic era and the boom of AI, a growing body of empirical and descriptive research has examined the increase in children's digital media use. Much of this literature examines associations between screen time and developmental outcomes, often treating digital exposure as a unitary measure. Moreover, screen time is typically operationalized through parent or self-reported duration estimates or broad content categories, obscuring the microstructure of children's real-time engagement with digital environments. As a result, little is known about children's real-time behavioral patterns while using digital media, or how engagement unfolds beyond coarse play/watch classifications. In this paper,



we examined naturalistic observations of 130 children (54%F; Mage=6.05 years, SDage=1.35) playing with an tablet under two 10min contexts; independent digital play (IDP) and digital co-play with a parent (DCP). Using screen recordings, we derived probabilistic behavioral features capturing play stability, switching, external capture, and engagement modes for Gaussian mixture modeling (GMM). The unsupervised GMM identified 5 behavioural clusters (i.e., focused, balanced, exploratory, interrupt-driven, and passive profiles). There was no significant difference in gender and self-identified ethnicity: Arab and non-Arab, however age varied significantly across profiles. Profile membership also differed significantly between IDP and DCP, indicating a clear systematic shift in engagement patterns due to the presence of the parent. The results highlight the need to move away from screen time as a coarse construct by unpacking the behavioral structure as a dynamic, context-sensitive account of digital engagement.

The AIM Framework Between Play, Creativity, and Digital Educational Innovation

Claudio Palazzi

The digital transformation of education poses fundamental challenges that transcend mere technological adoption to invest the epistemological, pedagogical and ethical dimensions of contemporary educational experience. This paper explores the intersection of play, creativity and learning across analogue and digital spaces through the analysis of the Mediated Immersive Learning theoretical framework, developed within the MuSed VR project at Roma Tre University. This model articulates three fundamental synergistically interacting dimensions: technological immersion, concerning the sensory and cognitive engagement generated by the virtual environment; pedagogical mediation, implementing forms of adaptive digital scaffolding through conversational avatars powered by artificial intelligence; cultural experience, which consciously preserves and actualizes historical and pedagogical content while avoiding a technocratic vision of education. Empirical research, conducted with mixed-methods methodology on 2,524 participants, documents significantly superior learning outcomes in immersive experience compared to traditional museum visits, with emotional engagement reaching 89.7% of participants. Particularly relevant is the technology's capacity to neutralize the influence of prior cultural capital and age on learning outcomes, thus serving as a powerful instrument of cultural democratization. Results support a reconfiguration of the educational paradigm towards an intrinsically hybrid model, where the playful dimension of exploration and interactive dialogue integrates with the authenticity of analogue experience. Initial and continuing teacher training emerges as the strategic fulcrum for realizing the educational potential of these technologies, suggesting that such preparation should itself be designed according to immersive and mediated learning principles.



Session 6.1: Play, Social and Emotional Dimensions - Young Children

14:00–15:30; Room L0.1a+b

Chair: Mariska Okkinga

Reticent Behavior in Children's Play: Bidirectional Links with Children's Emotional Problems

Isabelle Duss, Corina Wustmann Seiler, Cornelia Ruedisueli, Patricia Lannen

Reticent behavior in children's play is defined as the onlooking and unoccupied behavior in the presence of peers. In this study involving 855 children aged 2 to 6 years, we examined cross-sectional and longitudinal associations between reticent behavior in children's play, emotional problems and well-being. Teachers assessed reticent behavior in play and emotional problems among children at three measurement time points with a one-year interval. Parents reported on children's well-being at the same three time points. A random intercept cross-lagged panel model revealed moderate within-time correlations between reticent behavior in children's play and emotional problems. But no significant cross-lagged effects were found, suggesting that changes in one domain do not predict changes in the other. Emotional problems showed a moderate to high stability over time, whereas reticent behavior in children's play was more variable. Children's well-being was consistently negatively associated with both, emotional problems and reticent behavior in children's play at each measurement time point, highlighting its central role for child development.

Puppet Play in ECEC as a Dialogical and Playful World: An Action Research Case Study

Ioulia Sgouromalli, Marios Pourkos

This paper explores puppet play in Early Childhood Education and Care (ECEC) as a dialogical and playful world that supports children's meaning-making, emotional expression, and reflective development. The study draws on an in-depth qualitative teacher-researcher action research case study conducted in a Greek kindergarten with 17 children. Focusing on children's imaginative, narrative, and embodied interactions, puppet play is conceptualized as a culturally and relationally mediated space in which lived experiences are symbolically explored, transformed, and integrated through play. A central pedagogical



practice involved the collaborative creation and animation of handmade self-puppets by the children and the classroom teacher. These self-representational puppets functioned as embodied symbolic mediational means for self-expression, narration, and the dialogical processing of emotional experiences. Drawing on Dialogical Self Theory, the self-puppets are understood as promoter positions that mediate the voices of significant others—particularly the pedagogical voice of the teacher—while supporting internal dialogical movements, emotional regulation, and the emergence of new self-positions. Puppet play is thus approached not merely as a pedagogical technique but as a psychopedagogical practice and a zone of proximal meaning-making, facilitating transitions between action, emotion, imagination, and reflection. The study is theoretically grounded in dialogical and socio-cultural perspectives and informed by principles of Experiential, Heuristic, and Narrative-Dialogical Psychopedagogy. Methodologically, it draws on ethnographic classroom observations, reflective teacher journals, and documentation of children's verbal and embodied dialogues. The analysis indicates that sustained engagement with puppet play supported socio-emotional regulation, the internalization of dialogical processes, and the co-construction of an emotionally attuned classroom community.

Social maturity, social preference and children's perceptions of their playfulness

Rianne van de Weitgraven, Brenda Jansen, Tycho Dekkers, Elian Fink

Children's playfulness is associated with increased social skills and positively predicts later prosocial behaviour. Social skills become increasingly important as children enter formal schooling. To understand the role of playfulness in children's social-emotional development during the first years of school, this three time-point longitudinal study explored reciprocal longitudinal associations between children's self-reported playfulness, teacher-reported social maturity, and peer-reported social preference. The sample consisted of 172 children (99 boys [58%], majority White [79.5%]) from England who were first seen at age 5 ($M = 63$ months, $SD = 3.86$) and then at ages 6 ($M = 73$ months, $SD = 4.53$) and 7 ($M = 81$ months, $SD = 4.69$). Findings showed robust longitudinal stability in children's self-reported playfulness across the three time-points. Children's own perceptions of their playfulness at age 7 were predicted by teacher's views of their social maturity and peer-ratings of social preference. As playfulness both drives behaviour and reflects how others judge a child's behaviour, it is important to consider playfulness when trying to protect and promote children's social-emotional competencies. Given the rise in play-based pedagogies, further research is needed to explore the impact of context on these findings.



Session 6.2: Equity, Inclusion and Playful Education

14:00–15:30; Room L0.2a+b

Chair: Valeska Grau Cardenas

Inclusive Play Pedagogy in Early Childhood Education and Care

Eleni Loizou, Simoni Symeonidou

Play is a term and an activity that is widely employed in early childhood education and care. It is mentioned by researchers, teachers, parents and children as an important experience and learning context. This study is grounded in a rights-based framework, informed by the Universal Declaration of Human Rights (1948), the Convention on the Rights of the Child (1989), and the Convention on the Rights of Persons with Disabilities (2006) foregrounding the rights to education, participation, play, and inclusion. The aim of this research is to employ this framework to deconstruct the existing definition of play. While there is no common definition of play, researchers agree on several defining characteristics: it is pleasurable, involves symbolic thinking, is self-initiated, emphasizes the process rather than the product, and requires active participation by children. With the use of semi-structured interviews with six early childhood education teachers we discussed and deconstructed the prementioned characteristics by providing several examples from their day-to-day praxis. Findings suggest that commonly accepted play characteristics are not experienced by all children. Play emerged as situational and relational, and at times uncomfortable, particularly for children with disability. Inclusive pedagogical approaches enabled educators to reinterpret such moments as meaningful starting points for learning and participation. We propose a more inclusive understanding of play acknowledging children's rights and referring to an inclusive play pedagogy as a democratic practice.

Playfulness and Inclusive Pedagogy in Primary Education: Findings of a qualitative Study

Francesca Berti, Giulia Consalvo, Simone Seitz

The present contribution explores the potential of a playful approach for inclusive pedagogy in primary school. We refer to findings of ethnographic classroom observations, conducted in the frame of a mixed-method research project on inclusive school development



(“Researching School Development: Pathways to Inclusive and Quality Education 2030”, 2023–2026). The reconstructive analyses which were conducted by means of Grounded Theory methodology, reveal, in a situated manner, how teachers’ roles, postures, and the organization of learning settings either enable or constrain opportunities for deep learning, participation and recognition. The theoretical framework refers to the three dimensions of inclusive teaching - personality, sociality, and complexity - proposed by Seitz (2020; 2025) which serve as the primary interpretative lens. The findings suggest that a professional disposition characterized by exploration and responsiveness to contingency resonates strongly with playfulness, thereby creating fertile ground for the advancement of pedagogical strategies. In particular, discovery learning situations strongly evoke inquiry play, as described by Pyles and Danniels (2017) in the context of early childhood education, thereby generating insights into the relationship between play and learning in primary education (Berti & Seitz, 2025). The planned contribution reflects on the way playfulness in the sense of teachers’ attitude can be a potential for inclusive teaching in primary education (Berti et al., 2025).

Exploring Inequality in Creative and Higher-Order Skills in Chilean Higher Education

David Preiss, Catalina Reszczynski, Benjamín Carmona, Valeska Grau Cardenas, Katherine Strasser, Carolina Matamala

In Chile, students’ academic trajectories are strongly shaped by socioeconomic inequality, yet little is known about how these disparities extend to creativity and higher-order thinking skills in higher education. While national and international assessments have consistently documented socioeconomic gaps in academic achievement, evidence on creativity, critical thinking, and metacognition at the university level remains scarce. Drawing on recent concerns raised by PISA results on creative thinking and persistent gender and socioeconomic inequalities in Chilean education, this study examines group differences in creativity, critical thinking, and metacognition among university students. A total of 406 undergraduates from a selective private university and a non-selective public university participated, including first- and fourth-year students, first-generation and continuing-generation students, and women and men. Creativity was assessed through multiple performance-based tasks capturing verbal, figural, and generative dimensions, while critical thinking was measured through inference, argument analysis, and syllogistic reasoning tasks. Metacognition was evaluated using self-report measures of study strategies, independent thinking, and self-efficacy. Multivariate analyses revealed significant inequalities associated with institutional selectivity, parental university education, and cohort. Students from a selective university, continuing-generation students, and fourth-year students consistently outperformed their counterparts in several indicators of creativity and critical thinking. Gender differences were not observed in



creativity or critical thinking, but emerged in metacognition, with men reporting higher self-efficacy and women reporting greater use of study strategies. These findings highlight the cumulative effects of educational and social stratification on creative and thinking skills in Chilean higher education and underscore the need to address inequality beyond academic outcomes.

Do traditional and game-based assessments measure the same?

Juan Lira, Victoria Espinoza, Ricardo Rosas Diaz

Executive functions are core cognitive processes that support goal-directed behaviour and are closely related to academic performance. Although traditional instruments are commonly used to assess these processes, recent research highlights the potential benefits of technology-mediated, game-based assessments, particularly for increasing motivation and engagement. The aim of this study was to analyze whether a traditional working memory test and a game-based digital test assess this construct equivalently, and whether performance differs according to students' cognitive level. The sample consisted of 228 school-aged children (5.58–12 years). Working memory was assessed using the Digits subtest of the Chilean adaptation of the WISC-V (traditional format) and the Farm task from the Yellow Red battery (playful digital format). Participants were divided into four groups based on their age-standardized scores on the traditional test, and paired t-tests were conducted for each group. Results showed significant differences only at the extremes of performance. Students with low performance scored significantly higher on the game-based test, whereas high-performing students obtained better results on the traditional test. No significant differences were found for students with intermediate performance levels. These findings suggest that assessment format systematically influences working memory performance depending on the individual's cognitive level. Game-based assessments may better capture the cognitive potential of lower-performing students, while traditional tests may remain more sensitive at higher levels. Complementary use of both formats is therefore recommended in psychological and educational assessment.



Session 6.3. Symposium II

Cultivating Creative Thinking in a Creativity Collaborative of Schools

14:00–15:30; Room L0.4

Organiser: Paul Sowden

Discussant: Nicola Wells

Developing Teachers' Metacognitive Knowledge and Practice in Teaching for Creativity

Frances Warren, Paul Sowden, Marnie Seymour, Ellen Spencer, Sandra Mansfield, Clare Martin, Nicola Wells, Judy Waite

Despite growing global recognition of creativity as a core competency (Vincent-Lancrin et al., 2019), the systematic implementation of teaching for creativity in education remains challenging, as school priorities and pressures often lie elsewhere (Kyritisi & Davis, 2020). This paper reports findings from a three-year programme, funded by Arts Council England, that aimed to develop, evaluate, and embed innovative approaches to teaching for creativity, by working alongside teachers and existing school structures. We examine the creative knowledge, beliefs, and pedagogical practices of teachers across a network of 15 UK primary schools. As part of the Creativity Collaboratives project, teachers and researchers participated in a Teacher Research Group (TRG) to co-develop approaches to support teaching for creativity, including the Creativity Navigator framework (Sowden et al., 2025). This paper draws on qualitative data from semi-structured interviews with TRG teachers. Using reflexive thematic analysis, baseline and exit interviews were analysed separately to capture change over time. At baseline, teachers' accounts reflected varied and sometimes fragmented conceptions of creativity, frequently positioning it as aligned with the arts. Pedagogical discussions showed limited evidence of sustained approaches to teaching for creativity across the curriculum. By project-end, teachers articulated a more coherent, domain-general understanding, with increased emphasis on creative processes, effective outcomes, and the role of knowledge. Described pedagogical practices shifted towards structured autonomy, meaningful learning and consistent focus on developing creative thinking using a shared framework. Findings highlight the importance of collaborative,



sustained professional learning in shaping teachers' understanding of creativity and supporting changes in classroom practice.

Supporting a Culture for Teaching for Creativity: The Role of School Leaders in Sustaining Change

Marnie Seymour, Nicola Wells, Paul Sowden, Frances Warren, Sandra Mansfield, Ellen Spencer, Clare Martin

As the demand for creativity in education grows, research highlights the pivotal role of school leaders in fostering systemic change (OECD, 2019; Harris & Jones, 2018). Embedding creativity within schools requires more than individual teacher innovation, it necessitates a cultural shift, driven and sustained by leadership. This paper presents findings from our Creativity Collaboratives project that aimed to embed pedagogies for creativity across 15 local primary schools, as part of a three-year national pilot programme funded by Arts Council England. One of the project's five key workstreams explored leadership and governance for cultivating a climate for creativity and sustainable change. Drawing on baseline and end-point data, this presentation focuses on qualitative interviews with school Headteachers. Our thematic analysis examines the alignment between leaders' visions and project aims, strategies for securing staff buy-in, and approaches to embedding and sustaining creative pedagogies beyond the project's lifespan. Key themes include: the role of leadership in shaping a vision for creativity; strategies for securing institutional commitment and overcoming barriers; structural and cultural conditions that enable or hinder sustainability; implications for policy and practice in embedding creativity in schools. Our findings highlight both the enablers and challenges of leading systemic change for creativity, including the role of leadership structures, professional development, and school culture in shaping long-term impact. This research translates research on leadership and creativity (e.g. Royston & Reiter-Palmon, 2022) to education contexts, offering insights for researchers, policymakers, and practitioners engaged in school improvement relating to teaching for creativity.

Studying and Cultivating Emotions in School through Creative Pedagogies

Jean-Christophe Goulet-Pelletier, Paul Sowden, Frances Warren, Marnie Seymour

Are we equipping students with the skills they need for the future? Emotional literacy and emotional creativity are often overlooked in traditional education systems (Glonek & King, 2014; Weare, 2004), despite being central to self-actualization and decision-making (Lerner et al., 2015). This presentation explores how educational practices can be adapted to recognize, value, and foster these emotional competencies in school settings. Drawing on a textual analysis of case examples of teachers' units of work, I explore how they developed



emotional literacy and creativity in pupils. In particular, historical and contemporary events, as well as fictional narratives from literature and film, were used by teachers to analyze history and social phenomena. Immersing children in the lives of real and fictional characters enabled them to experience specific emotions, develop empathy and discuss these feelings in a safe environment. In addition the emotional component engaged the children's interest, motivating them through personal connections and collaborative work.

Session 7.1: Play, Social and Emotional Dimensions

16:00–17:30; Room L0.1a+b

Chair: Nicola Pensiero

Beyond the Classroom: Board Games for Cooperative Argumentation

Laura Landi, Liliana Silva, Erica Biagini, Elsa Manzini, Chiara Bertolini

This paper presents an educational experience for lower secondary school students, introducing board games to foster argumentation and cooperation among peers. The use of board games for education is not new, yet this project brings teachers and pupils out of school in a Widespread Education (WE) setting. Students work out of school for a few days in small groups, together with an adult, teacher or educator. Teachers and researchers from the Interdepartmental Research Center on Play and Playing (MO.RE.PL.A.Y.) of the University of Modena and Reggio Emilia jointly defined transversal learning objectives for students, namely strengthening argumentation and cooperation skills. The research group selected cooperative board games that would imply the necessity for students to describe, explain or argue. The researchers investigated whether students' argumentative skills and ability to cooperate improved through the project; how teachers gained deeper insights into using games as teaching-learning tools; and how students enhanced their self-assessment skills. Research tools included pre and post tests for teachers, field notes, forms to collect students' ideas on games and experience, observation grid compiled by teachers. Students enjoyed the WE experience and showed a growing interest and a deeper understanding of the benefit of cooperation. They progressively used more complex sentences and description, although improvement in argumentative skills were harder to identify. Teachers' interest in board games and their possible use during regular school hours grew during the project. Through observation they changed their idea of competencies and how to develop and evaluate them.

Reciprocity, cooperation and cheating in a classroom principal-agent game

Nicola Pensiero



This paper reports evidence from a university classroom experiment designed to simulate realistic labour–capital interactions under uncertainty, monitoring, and opportunities for cheating. The design builds on a principal–agent framework in which a principal (the capitalist) offers a wage to agents (workers) who lack capital and can only supply labour to generate income. Workers can coordinate to strike in order to obtain higher wages. The framework is enriched by allowing workers to declare an effort level higher than the effort actually exerted, while capitalists can choose to monitor workers at a cost. Profits and final wages are revealed to players, creating a competitive environment. The experiment includes 70 cases and 350 observations. Capitalists frequently anticipated worker opportunism, offering mid-range wages combined with monitoring in approximately 70% of decisions. Workers exerted moderate effort and misreported effort in about 80% of relevant cases, showing limited reciprocity to higher wage offers. The treatment group that received 12 hours of instruction on the origins of political and strategic behaviour showed a significantly higher likelihood of successful strikes, although such events remained rare. These findings are difficult to reconcile with standard models based on fairness and reciprocity and are instead consistent with Relative Position Theory of Social Behaviour, whereby actors primarily seek to avoid relative disadvantage in a competitive environment. The study demonstrates how classroom behavioural games can generate evidence about political behaviour and cooperation.

The Body at Play: From Ethological Foundations to the Digital Dimension through Polyvagal Theory

Marco Scicchitano

Play, defined by Burghardt as spontaneous and non-stereotyped, is a vital neural exercise grounded in the body. Integrating Polyvagal Theory, it utilizes synchronous interactions to down-regulate defense systems, fostering safety and tension release. This physical engagement triggers neuroplasticity and emotional regulation essential for health. While analog play exercises the social engagement system through reciprocal bodily cues, digital play often lacks these synchronous interactions. This highlights the irreplaceable value of embodied analog play, while raising questions about the richness of the human mind, capable of translating the ludic dimension into digital environment.

Session 7.2: Playful Promotion of Creativity II

16:00–17:30; Room L0.2a+b

Chair: Valeska Grau Cardenas

Tracking the Loose Parts During Free Play in Early Childhood



Merve Gemici Kosar, Duygu Yalman Polatlar

This study explores the gap between the theoretical benefits of loose parts and their limited classroom application, focusing on preservice teachers' observations during extended preschool internships. Designed as a qualitative case study, the research employed semi-structured focus group interviews with 32 senior preschool teacher candidates who completed 12-week internships. Data were analyzed through thematic content analysis. Findings were categorized under classroom environment, material diversity, accessibility, and teacher attitudes. Results revealed that classrooms were dominated by structured toys such as Legos and blocks, while open-ended materials—including natural and recycled loose parts—were rarely accessible. Teachers often restricted materials perceived as “messy” and maintained control over play, limiting children’s autonomy. Although children demonstrated symbolic and creative use of available resources, teacher interventions frequently curtailed play, prioritizing order and preparation for primary school. The study concludes that despite strong theoretical support, loose parts pedagogy remains underutilized in practice. Supporting child-led exploration is essential for holistic development and requires a paradigm shift in early childhood education.

Navigating Digital Affordances: Assessing Creative Expression in Children’s Independent Digital Play

Ola Ahmed

Digital play has become an inevitable context for early childhood development. Current debates remain preoccupied with the potential risk of “screen time”, overshadowing the potential cognitive benefits of “the quality” of interaction with digital content. This study examines how the affordances of digital games influence children’s creative expression. To investigate this, our study utilizes a secondary data analysis of observational data from 46 children aged 4–8 years during digital play sessions conducted in a controlled laboratory setting. Methodology involved synchronized data streams comprising screen recordings and video observations to capture the process of creative expression during digital play. Data analysis is currently ongoing. We utilized an event-based coding approach within Mangold INTERACT to map the temporal synchrony between digital game affordances (number of potential variations, set of sequenced actions, game rules, etc.) with child’s creative expressions and behavioral markers. We specifically contrasted “emergent” (open-ended) and “progressive” (task-oriented) games to identify how varying affordances nurture or constrain creative expression. For coding, we adapted the Torrance Test of Creative Thinking (TTCT) to quantify divergent thinking and the child’s capacity to generate multiple unique strategies. We evaluated creative dimensions of fluency, flexibility, originality, elaboration, and persistence. We integrated behavioral coding, such as self-talk, problem-solving, and affective engagement, to provide a holistic assessment of the creative process. For analysis, we compared the frequency and duration of creativity components and identified behavioral occurrences to the affordance of the game type (emergent vs



progressive). Findings will show if high affordances correlate with increased creative expression.

Does pretend play predict later creativity development?

Valeska Grau Cardenas, María Francisca Morales, David Preiss, Katherine Strasser, Fernanda Rufs , Daniela Lagos, Javiera Ramirez

Creativity is widely recognized as a core skill for the twenty-first century, yet its early developmental pathways remain insufficiently understood. This longitudinal study examined trajectories of creativity in a sample of 230 children aged 4–7, assessed across five waves from pre-kindergarten to first grade. Using group-based trajectory modelling, we identified three distinct patterns: “Accelerated Growth” (22.3%), “Gradual Growth” (72.6%), and “Early Peak and Recovery” (5.1%). Higher quality of fantasy during pretend play quality predicted membership in the Accelerated Growth pattern (OR = 4.91), while higher receptive language predicted Early Peak and Recovery (OR = 1.17). Demographic factors such as gender and school-level socioeconomic vulnerability were not significant predictors. Trajectory membership was associated with developmental outcomes: children in higher-growth groups demonstrated superior expressive and receptive language skills, as well as higher divergent thinking scores, by the first semester of 1st grade. Socioemotional differences were limited, with fewer peer problems observed in the Accelerated Growth group. Findings underscore the importance of promoting high-quality fantasy play and language development in early childhood education. Limitations include small subgroup sizes and reliance on visual-narrative creativity measures. Future research should incorporate multidimensional assessments and explore diverse populations to advance the understanding of creativity development.

Conference Closing Session: Farewell and Next Steps

17:40–18:00; Room L0.5 (Aula Artigianelli)

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