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An Initial Systematic Review on Intersubjectivity and Play: a solid foundation for learning?

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Abstract: We use the PRISMA method to systematically explore the relationship between intersubjectivity and play. Ending with 54 papers, predominantly from developmental psychology, we assess how these themes are connected to learning. The study finds 6 initial gaps in the literature and notes a lack of interdisciplinarity. Gaps are related to methods, implicated disciplines, epistemological connections, subjects' age, notion of play, and disorders.

Research questions on the relation of intersubjectivity and play to learning

The conceptual space of intersubjectivity is so vast that a literature search with all of the relevant terms such as common ground, joint action, cooperative action, joint attention, shared intention, etc., and of course learning, generates so many papers that analysis is unwieldy. Relevant work spans across many, many disciplines. Only a small fraction of authors identifies with Learning Sciences (LS). Further, in LS, work on intersubjectivity does not typically regard play (e.g., Suthers, 2005), or if it does, it's centered either on older primary school children's play in the service of specific learning goals. (e.g., Mørch, Mifsud, & Eie, 2019) or on university students (e.g., Hatfield & Shaffer, 2006), where role-play helps students develop professional competencies for the workforce. Our focus is rather on childhood play, where play enhances motivation, emotional engagement, and developmental aspects such as physical and mental health, social skills, cognition, and emotional well-being (Li et al. 2023). In connection with intersubjectivity, play enables understanding of others through language but also through prosody, gesture, body posture, facial mimicry, and object manipulation. In our first step, we examine how papers specifically mentioning these keywords/cognates reveal aspects that are foundational for learning. Our first aim is to parse the conceptual space and bring more work on intersubjectivity into interaction with LS.

Our systematic review delves into cognitive and social aspects of learning, and explores the cooperative nature of human social cognition and communication. We examine how intersubjectivity relates to play through an analysis across disciplines but also across species (both human and non-human large primates). This second aspect reveals our secondary goal, still in the shadows. We aim to find inter-species commonalities regarding multimodal aspects of shared meaning-making in order to better understand the origins and evolution of language, hence our focus on play, not necessarily with a verbal component. Games involve intersubjectivity and create optimal learning zones where the body is actively incorporated as a vehicle for understanding, promoting connections between physical experiences, social interactions and cognition.

Our qualitative meta-synthesis outlines the research areas, describes how intersubjectivity and play are conceptualized and how they connect to learning. Research questions focus on the extent of theoretical and empirical research that explores the relationship between intersubjectivity and play regarding human and non-human primates (*Specifically, disciplinary areas and theoretical approaches*); trends or patterns identified in the literature (*highlighting variations in understanding and studying and connection to learning*).

Methods

Using the well-known PRISMA methodology, we conducted a comprehensive search from April 2023 onwards. Keyword combinations of intersubjectivity and play in SCOPUS and the Web of Science yielded 915 papers initially, which were narrowed down to 54 after applying eligibility criteria and a specific study selection. We organized data into particular columns, covering publication year, type, and theoretical approaches. Additional columns were added for qualitative meta-synthesis (i.e., conclusions of theoretical studies; details of qualitative empirical studies; specifics of quantitative empirical studies).

Results

The extent of theoretical and empirical research. Out of 54 selected papers, 24 were theoretical, 30 empirical (15 qualitative, 14 quantitative), with one being mixed-method, indicating a lack of methodological integration (gap #1). The oldest article dates back to 1993, reflecting the recent emergence of intersubjectivity related to play. We depict research/subject areas, with psychology dominating (42%), followed by social sciences (8), education (5), linguistics (5), behavioral science and zoology (4). 48 studies focus on humans, 6 on non-humans, mainly great apes. The prevalence of psychology is confirmed by the articles' foundational literature, where the most cited



authors are in psychology (or assimilated), (i.e., Trevarthen, C.; Stern, D. N.; Tomasello, M.; Merleau-Ponty, M.; Goncu, A.; Winnicott, D.; Vygotsky, L. S.; Piaget, J.). The recent heightened focus on embodiment led us to expect more studies in neurosciences, but we found only one (gap #2). Moreover, the absence of philosophical and epistemic studies may indicate less interest in theoretical analysis on interconnected themes relating to the topic of intersubjectivity and play (gap #3).

Trends and patterns in literature. We analyzed conceptualizations of intersubjectivity and play, focusing on their connection to learning and identified four main classifications (cf. Figure 1), with developmental psychology predominating. Other aspects like interaction, communication, and meaning construction also emerged but required further refinement. Regarding play, concepts were categorized based on cognitive processes, social interactions, environmental factors, technology, and purpose. Play has a vital role in fostering social skills and shared understanding, particularly evident in children and young animals, facilitating social engagement and collaborative activities.

Figure 1

Classification of the Emerging Conceptualizations of Intersubjectivity

Classification	Brief Definition of Intersubjectivity
Development and Meaning Construction	<i>Co-constructed knowledge building; Primary emotional sharing parent-infant; Shared meaning construction; Sharing experiences, thoughts, emotions; Shared orientation (communicative rationality); ToM development; shared understanding; Semiotic development; Co-constructed involvement; Collaboration.</i>
Development and Interactive Processes	<i>Joint attention (also in primates); Social organization; Negotiation; shared meaning; Intertwined subjectivities; Triadic coordination mother/child/object; Primary and secondary intersubjectivity; Human-animal relationships.</i>
Interaction and Communication	<i>Shared social representations; Shared understanding (also teacher-child); Shared communication; Mutual understanding, shared interaction; Shared connection; Shared experiences; Empathic Interaction; Face-to-face experiences; Shared meaning through interaction.</i>
Recognition and Awareness	<i>Recognizing subjectivity through objective experience; Socio-emotional involvement and shared attention; Shared motivation; meaning-sharing; Mutual (mental) recognition; Internal states shared.</i>
Other Definitions	<i>Shared experiences; Participatory engagement; Reciprocal understanding; Emotional sharing; Carnal involvement interaction</i>

Initial Conclusions and Future Work

Our review highlights three foundational aspects: interaction, communication, and development, primarily linked to psychology, with considerations for sociological, educational, and evolutionary perspectives. We identify six gaps; three are mentioned above. Gap #4 reveals a neglect of child development. Gap #5 shows little work on adult playful interactions, not linked to a specific learning goal. Gap #6 is inadequate attention to cognitive disorders, such as autism. Addressing these first gaps but also continuing to parse the vast space of intersubjectivity, and play, in relation to learning, but also in relation to the evolution of language, will enhance our understanding of how these conceptualizations can be connected across disciplines and populations.

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