Focus

Advances in developmental psychology: theoretical and empirical perspectives

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Introduction

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This thematic focus comprises five invited contributions from developmental psychologists, philosophers, and cognitive scientists whose research centers on the communicative and social dimensions of children's early cognitive development. It provides a rich and updated overview of the main advances in developmental psychology from different theoretical and empirical perspectives. The selection of the contributions has been guided by the intent to offer the reader a wide range of alternative views on children's early cognitive abilities, thereby giving representativeness to different theoretical approaches and providing a comprehensive picture of the main debates and research directions in the field.

We are convinced that child development research is facing a challenging and complex task that can no longer be postponed, given the numerous, and high-quality studies on infants' cognitive abilities on the one hand, and the increasing empirical evidence on very young infant's ability to read the context and to be receptive to emotional reactions to stimuli. There has been a tendency, so far, to separate cognitive development from the self-regulatory development of emotions in early childhood. We believe that this separation in developmental psychology and cognitive science needs to be overcome; in this regard, the Focus we proudly present in this issue of "Mefisto" has the humble intention of beginning to intertwine these fields of investigation.

Among all the sophisticated cognitive and affective capacities, we believe that infant communication can offer fertile ground for such a meeting. If we accept the assumption that human emotional experience – throughout the individual life span – is inseparable from the relationships and social contexts in which it arises, we can identify the parameters that define the social context and how the latter change throughout development[1]. The following essays offer insightful suggestions along these lines.

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[1] See in this regard Lavinia Barone, *Le emozioni nello sviluppo. Percorsi tipici e atipici*, Carocci, Roma 2021, in particolare le pp. 26-27.

The opening essay has been entrusted to Edoardo Vaccargiu; in *Pragmatics and modularity: A developmental perspective*, Vaccargiu focuses on the prelinguistic phases of infants' communicative development and discusses the empirical plausibility of Dan Sperber and Deirdre Wilson's Pragmatics Module Hypothesis[2] in light of existing data from developmental pragmatics. Building upon the tenets of the post-Gricean view of communication and drawing from different conceptions of post-Fodorean modularity in evolutionary cognitive science, Vaccargiu spells out the predictions of the modular view of pragmatic comprehension from a developmental perspective and discusses the extent to which these are validated by developmental studies on infants' interpretation of ostensive communication. According to Vaccargiu, key findings from infant pragmatics are best explained by positing a domain-specific "pragmatics module" that infers the meaning of ostensive-communicative stimuli based on contextually modulated relevance expectations. Once we frame this proprietary mechanism from the proposed "algorithmic modularity view", he argues, the different expectations elicited by ostensive communication in infancy can be accounted for as resulting from the functioning of a unitary cognitive module tailored for pragmatic comprehension. Overall, this contribution highlights the significance of developmental research for unraveling open foundational questions in cognitive pragmatics.

The Gricean framework, though, is not the only game in town. In *La comunicazione prelinguistica: Impegni e intenzioni*, Antonio Scarafone takes issue with the dominant Gricean view centered on the notion of communicative intention and outlines an alternative picture of prelinguistic communication based on the notion of shared commitment, recently pioneered by Bart Geurts[3] in theoretical and evolutionary pragmatics. By critically discussing key experiments on infants' production and comprehension of pointing gestures typically framed along a Gricean perspective, Scarafone compares the Gricean interpretation with a commitment-based analysis of the empirical results. Specifically, Scarafone contends that the notion of communicative intention falls short of capturing the complexity of early communication and is potentially misleading in accounting for the obtained results. A commitment-based perspective, he argues, is better positioned for explaining the experimental data and can pave the way for a broader "neo-Vygotskyan" conception of children's communicative and cognitive development as resulting from the internalization of early dialogic interactions. Altogether, Vaccargiu and Scarafone's articles provide two alternative lenses to look at children's

[2] Dan Sperber, Deirdre Wilson, *Pragmatics, Modularity and Mind-reading*, "Mind & Language", 17, 2002 pp. 3-23.

[3] Bart Geurts, *Communication as commitment sharing: Speech acts, implicatures, common ground*, "Theoretical Linguistics", 45, 1-2, 2019, pp. 1-30.

prelinguistic communication and give the reader a glimpse of an open debate in developmental psychology that still engages many scholars in the field.

In *Labelling and categorization: Evidence from experimental studies on infants*, Mara Floris focuses on two key experimental studies investigating how linguistic labels influence categorization processes in infancy and critically discusses different explanations of the main effects observed on empirical grounds against the backdrop of the contemporary debate about the influence of language on perception and thought. The role of labels in young children's categorization, Floris argues, can be coherently explained by Gary Lupyan's[4] Language Feedback Hypothesis (LFH), according to which labels selectively enhance the perceptual features of the labeled category, thereby outlining a radical view that blurs the distinction between perception and cognition and advocates the multimodality of language activated representations. LFH challenges the traditional model of conceptual representations, which distinguishes between semantic and visual representations, and advocates a view in which language-activated representations are multimodal. Floris emphasizes that according to LFH's approach, concepts are not represented by a single modality, but by the activation of all relevant modalities; for example, the visual components of concepts can be represented by some of the same neural mechanisms that process their visual perception. Therefore, the efficiency of conceptual activation by language suggests that conceptual representations are more easily activated by linguistic cues.

In *Extending cognitive development into the body and the environment*, Christian Kliesch makes a brief introduction to the most promising phenomenological perspectives referring to infant development, focusing on Gibson's *Ecological Perception* and Varela, Thompson and Rosch's *Enactivism*, as well as Clark's *Predictive Coding* framework. Despite their differences, according to Kliesch all these approaches "share a focus on explaining cognition beyond the limits of the brain". Studying cognition as part of a general system that includes the body and the environment could have significant implications for the explanations generated by developmental psychology. In particular, Kliesch delves into infants' sophisticated learning strategies, emphasizing the phenomenological aspects related to intersubjective and environmental elements. While learning mainly involves past experiences, it is also enhanced by the changing environments that accompany the specific developmental trajectory. In this context, Linda B. Smith and colleagues have coined the term "curriculum for statistical learning" [5]. Such a curriculum is shaped by

[4] Gary Lupyan, *Linguistically modulated perception and cognition: The label-feedback hypothesis*, "Frontiers in psychology", 3, 54, 2012, A54.

[5] Linda B. Smith, Swapnaa Jayaraman, Elizabeth Clerkin, and Chen Yu, *The Developing Infant Creates a Curriculum for Statistical Learning*, "Trends in Cognitive Sciences", 1767, 22, 2018, p. 4.

the environment and the changes brought about by infants' emerging motor skills, which affect opportunities for action and interaction. Surprisingly, recent studies suggest that this developmental process might begin before birth. While more systematic studies are needed to understand the contribution of the fetal environment to the emergence of later cognitive abilities, this new "enactivist" perspective fosters rethinking how certain concepts and abilities (e.g., self-awareness) can emerge from the child's interaction with the environment and the opportunities it provides. Throughout his article, Kliesch provides a number of intriguing suggestions for further systematic research into how body and environment shape cognition during development.

The last contribution spotlights a research field recently revived in the study of the human mind and behavior, that of emotions and affective phenomena[6], focusing in particular on the complex interplay between emotion and cognition in cultural learning throughout development. In *Emotional displays as windows on the cultural world: Open directions for developmental research*, Ganzetti, Hominis, and Clément provide a comprehensive and updated review of studies investigating the role of emotional displays in children's social learning processes. Building on the Affective Social Learning framework by Fabrice Clément and Daniel Dukes[7], the authors argue that young children, as "attentive explorers", can use adults' emotional displays to gather social values and information worth being learned. The idea that novel, naive members of a social group, use others' emotional expressions to assimilate unfamiliar content indicates that humans, from a very early developmental stage, are able to actively seek and selectively filter information to understand their environments. In these terms, the Authors explain the fundamental notion of "selective trust", and the related, crucial role of early affective components in the infant's environmental exploration. Under this perspective, Ganzetti, Homins and Clément highlight the need "to investigate how the observation of emotional displays contributes to the acquisition of culturally relevant knowledge".

Without further ado, we leave the readers to dive into this interesting collection of articles and enjoy their journey through child development research.

6 Daniel Dukes *et al.*, *The Rise of Affectivism*, Nature Human Behaviour 5, 2021, pp. 816-820.

7 Fabrice Clément, Daniel Dukes, A*ffective Social Learning: A Lens for Developing a Fuller Picture of Socialization Processes*, in The Oxford Handbook of Emotional Development, ed. Daniel Dukes, Andrea C. Samson, and Eric A. Walle, Oxford University Press, 2022.