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Learning About the Self in Early Childhood

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Introduction

Humans are remarkable learners. Decades of research have shown that, from early in life, children efficiently acquire knowledge through their exploration (Bonawitz et al., 2012; Giron et al., 2023; Meder et al., 2021; Ruggeri et al., 2019; Schulz & Bonawitz, 2007) and social input (Harris & Corriveau, 2011; Ronfard et al., 2018). However, this body of work has largely focused on how children learn about the *external* world. The current symposium highlights an equally important, but underexplored, and perhaps even more challenging learning problem: How do humans learn about the *internal* world (i.e., themselves)? By bringing together cognitive, computational, and developmental perspectives, this symposium examines how young children direct their learning abilities inward to infer who they are and what they are capable of.

The idea that the “self” can be a target of learning is not new; a large body of literature in social psychology and education has studied how people’s self-concept can influence their motivation, behaviors, and achievement (Dweck, 2013; Epstein, 1973). Critically, however, we still lack an understanding of the cognitive mechanisms that underlie the development of self-concept: Do young children seek information about their own abilities, strengths, and weaknesses, and how do they use this learning to construct and revise an understanding of the self?

The four talks in our symposium begin to address these questions. Bella Fascendini opens the symposium by examining the foundations of self-directed learning of infants’ and toddlers’ competence and agency. Building on this, Peter Zhu turns to children’s emerging curiosity about social evaluations of the self. Extending this to strategic behavior in social contexts, Daniil Serko examines how children adapt their information-seeking behavior in

different social contexts. Elaine Wang addresses the consequences of social comparison and parenting practices for children’s self-concepts. Dr. Cecilia Calero—an expert on metacognition, social learning, and teaching—will synthesize these findings by situating them in the broader theoretical landscape across cognitive science and education. This symposium will bring together early-career and senior researchers from institutions across three continents to share their latest work on an emerging topic—how children learn about themselves—and explore new research directions.

Talk 1: Young children are intrinsically motivated to explore what they can do

Bella Fascendini

In the first years of life, children’s abilities develop rapidly. Here, we present empirical and computational evidence that children’s exploration is driven by an intrinsic motivation to understand and test their own abilities. First, we show that two-year-olds ($N = 113$) systematically explore toys when they receive ambiguous evidence about whether they could have operated the toy without help from a parent. Critically, this exploration was modulated by task difficulty. Toddlers selectively explored appropriately challenging toys over trivial ones, suggesting they actively seek out opportunities to learn about what they can do. This pattern was best explained by a Bayesian model in which toddlers select toys based on how much information they can yield about their own competence.

Building on these findings, we are currently investigating to what extent early exploration is fundamentally driven by agency—the intrinsic motivation to expand one’s influence over the world—as opposed to information gain about external causal mechanisms (Loewenstein, 1999; Tomasello, 2024; White, 1959). In an ongoing, moderated online experiment, 16-18-month-old infants ($N = 9$) complete a simple motor task where pressing the spacebar either

reliably activated a digital button (contingent condition) or activated at random intervals (non-contingent condition). Infants pressed more frequently in the contingent condition ($M = 28, SD = 29.52$) than the non-contingent condition ($M = 15, SD = 12.84$), suggesting that infants are motivated to test their agency. Together, this work suggests that understanding one's own competence and agency may be a central organizing principle of early exploration—one that shapes not just what children explore, but how they create learning opportunities for themselves.

Talk 2: Young children are curious about what others think about them

Peter Zhu

Growing up means learning about ourselves—but despite its importance, relatively little is known about children's desire to seek out information about the self. Here, we present four studies that measure children's curiosity about the self. Across all studies, children were invited to make a drawing or tracing. After finishing, they were introduced to “Jordan” (a child unknown to the participant) and told that each drawing would be evaluated out of sight (e.g., by placing a star sticker inside the folder if the drawing was good). Study 1 ($N = 40$, 3–5 y/o) shows that, when the experimenter left children alone in the room with one of the two folders, children were more likely to “peek” inside of the folder when left with their own compared to Jordan's folder ($p = .02$). Study 2 ($N = 72$, 3–4 y/o, preregistered) replicated this effect, replacing the star stickers with arbitrary circle slips ($p = .056$). In Study 3 ($N = 36$, 4–5 y/o, preregistered), children were more likely to choose their own folder over Jordan's folder when given a forced choice, even when given explicit permission to look at either one ($p = .004$). Finally, Study 4 ($N = 72$, 4–5 y/o) shows that children's curiosity about the self is modulated by uncertainty: children were more likely to want to look at their own folder when given a more difficult, novel tracing ($p = .03$). While Studies 1–3 did not find any age-related changes, the effect in Study 4 was driven mainly by older children, suggesting that more sophisticated information-seeking about the self may emerge during the preschool years. Taken together, this work suggests that children's curiosity about what others think of them may emerge early in life and manifest as active information-seeking behaviors.

Talk 3: Children adapt their information-seeking behavior across different social contexts

Daniil Serko

Children's understanding of their own abilities does not develop in isolation but through interaction with others, because being “good” in a task is rarely absolute and instead depends on context—whether one is better than another player or good enough to succeed in a given game. To investigate how children actively learn about their own competencies across social contexts, we examined whether 3- to 6-year-olds adapt their information-seeking strategies in

individual, cooperative, and competitive contexts and use it to guide subsequent decisions. Children were familiarized with three physical games (bowling, soccer, and beanbag throwing) without receiving performance feedback. They were then randomly assigned to an Individual, Cooperative, or Competitive condition. At test, children in the Individual condition played alone, those in the Cooperative condition played with a partner as a team, and those in the Competitive condition played against an opponent. Prior to playing, children could select one of three information cards revealing performance-relevant information: their own best and worst game (individual card), their team's best game (cooperation card), or the game in which they had outperformed an opponent (competition card). After this, children select one of the games to be tested. Results from Experiment 1 ($N = 180$; preregistered) suggest that only 5- and 6-year-old children adapted their card selections to condition ($\chi^2(4) = 11.21, p = .024$). However, card choices did not predict game selection at test ($p = .973$). Experiment 2 ($N = 71/100$; preregistered; data collection ongoing) implemented a within-subjects design and improved materials and instructions. Partial data suggest that already from age 3, children adapted their information-seeking to context ($\chi^2(4) = 32.32, p < .001$), yet still failed to use this information to guide game choice at test ($p = .178$).

Talk 4: Overparenting shapes how children learn about the self from social comparison

Elaine Wang

Children often look to their peers to learn about themselves (Dijkstra et al., 2008). Yet in societies like the U.S., where overparenting is increasingly pervasive (Doepke & Zilibotti, 2019), peer performance may be a misleading source of inspiration. Across 3 preregistered studies, we explore how social comparison influences 6- to 8-year-old children's self-beliefs in the context of overparenting. We found that although 6- to 8-year-old children are aware of overparenting, they rarely attribute high peer performance to this external factor (Study 1, $N = 32$). This attribution bias has negative consequences for children's own self-beliefs: In the face of peer success, children felt worse about their own abilities when they learned that peers played a puzzle game independently than when peers received parental help or when no comparison information was provided (Study 2, $N = 100$). This suggests that disclosing parental intervention as a reason for peer success can ameliorate negative self-beliefs and break this cycle of attribution biases. However, we find that children will selectively *omit* information about receiving adult help when they outperformed their peers (Study 3, $N = 50$), potentially perpetuating mistaken internal attributions of inflated peer performance. Together, these findings reveal an unintended consequence of overparenting: Intervening to enhance one child's performance leads peers to feel worse about their abilities, harming their self-concept and potentially their future motivation.

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