Children's meta-talk in their collaborative decision making with peers

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ABSTRACT

In collaborative decision making, children must evaluate the evidence behind their respective claims and the rationality of their respective proposals with their partners. In the main study, 5- and 7-year-old peer dyads ($N = 196$) were presented with a novel animal. In the key condition, children in a dyad individually received conflicting information about what the animal needs (e.g., rocks vs. sand for food) from sources that differ in reliability (with first-hand vs. indirect evidence). Dyads in both age groups were able to reliably settle on the option with the best supporting evidence. Moreover, in making their decision, children, especially 7-year-olds, engaged in various kinds of meta-talk about the evidence and its validity. In a modified version of the key condition in Study 2, 3- and 5-year-olds ($N = 120$) interacted with a puppet who tried to convince children to change their minds by producing meta-talk. When the puppet insisted and produced meta-talk, 5-year-olds, but not 3-year-olds, were more likely to change their minds if their information was unreliable. These results suggest that even preschoolers can engage in collaborative reasoning successfully, but the ability to reflect on the process by stepping back to jointly examine the evidence emerges only during the early school years.

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Introduction

Reasoning—in the sense of explicating reasons for actions—is a fundamentally social skill enabling people to produce and evaluate arguments to reach joint decisions (Mercier & Sperber, 2011; Tomasello, 2014). Sperber et al. (2010) argued that in a world of mistrust, where everyone is practicing "epistemic vigilance", individuals win others over to their point of view by providing good reasons, which will be accepted based not on trust but rather on logic and evidence. On the other hand, Tomasello (2014) stressed that reasoning is also critical in situations of trust; if the joint decision benefits both parties, then individuals want to make the best decision based on logic and evidence (regardless of who "wins" the argument), so they produce and evaluate reasons cooperatively as a means to that end.

Research on testimony suggests that young children are vigilant social learners and selectively trust certain information sources more than others. At around preschool ages, children prefer to learn new information from informants who accurately label familiar objects more than those who do not (Corriveau & Harris, 2009; Koenig & Harris, 2005), from informants who express their expertise/knowledge more than those who express uncertainty (Sabbagh & Baldwin, 2001; Sobel & Corriveau, 2010), and from informants who produce noncircular arguments more than those who produce circular arguments (Corriveau & Kurkul, 2014; Mercier, Bernard, & Clément, 2014).

Nevertheless, in most of these studies, children were asked to choose the more reliable informant out of the two informants rather than evaluating the reliability of a single informant in the absence of a reference point. Moreover, all of these were comprehension studies in which children did not need to justify their decisions to convince a partner. Justifying a decision about information reliability for a partner is an advanced meta-cognitive skill because speakers need to go beyond the content of the message. First, they need to refer to their information source in their justifications (where or from whom they received the information). Next, they need to express how reliable their information source is and express why they believe this piece of information is therefore reliable (Kuhn, 2001; Mahr & Csibra, 2017). Although preschoolers produce explanations when they have disagreements with others (Dunn & Munn, 1987; Kyratzis & Ervin-Tripp, 1999) and when they encounter information contradicting their prior beliefs (Legare, 2012; Young, Alibali, & Kalish, 2012), to date only much older children (around 11 or 12 years) have been observed to use meta-argumentative strategies, or meta-talk, aimed at assessing the validity of arguments and/or evidence directly (e.g., "Tell us where you got that evidence"; Kuhn, Zillmer, Crowell, & Zavala, 2013, p. 466). However, it is possible that young children have so far not been observed in the right situations, that is, not in situations of dispute but rather in situations of collaborative decision making in which both participants are motivated to get the right answer.

In Study 1, therefore, we created an interactive context in which two peers would need to jointly solve a problem to reach correct joint decisions for a reward and investigated whether/how they produced meta-talk, explanations about the information source and the information reliability, for their decisions. We introduced 5- and 7-year-old peer dyads to a novel animal, called a "selk," with three unique characteristics (e.g., eating rocks). Each child learned about the novel animal individually from an informant in a clip. In the critical condition, the *unequal reliability* condition, children within a dyad received conflicting information (e.g., one child was told that selks eat only rocks, and the other was told that they eat only sand) from sources that differ in reliability (one child watched a first-hand report by a selk, and the other watched a second-hand report by a girl who expressed uncertainty). In the *equal reliability* condition, children received conflicting information from the same source (both children watched first-hand reports or both watched second-hand reports). In the *same information* condition, children received the same information from different sources (one child watched a first-hand report, and the other watched a second-hand report). Later, each dyad needed to decorate the home for the novel animal and jointly decide on three items that it needs. We predicted that children would favor the items supported by the first-hand report in the *unequal reliability* condition and in the *same information* condition, whereas they would favor items randomly in the *equal reliability* condition. We also predicted that children would produce justifications and meta-talk more in the two conditions where children had conflicting information than in the *same information* condition (see Legare, 2012). We explored whether there were any age differences in children's argumentation because