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Parent–child talk about the origins of living things

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ABSTRACT

This study examined relations between 124 British children's and their parents' endorsements about the origins of three living things (human, non-human animal, and plant) as reported on questionnaires. In addition to completing questionnaires, half of the sample discussed the origins of entities ($n = 64$) in parent–child dyads before completing the questionnaires. The 7-year-old age group endorsed creationism more than evolution, and the 10-year-old age group endorsed both concepts equally for all three living things. Children's endorsements were correlated with their parents' endorsements for all three living things. Children's endorsement of evolutionary theory was more closely related to parent–child conversational mentions of evolution than to parents' endorsement of evolutionary theory in questionnaires. A similar pattern was found for children's endorsement of creationism. Parent–child conversations did not consistently invoke evolution or creationism even when parents endorsed a particular theory. Findings are interpreted in relation to the pivotal role of joint collaborative conversation in children's appropriation of scientific content.

Introduction

Research inspired by a sociocultural perspective suggests that patterns in parent–child talk influence children's reasoning (Benjamin, Haden, & Wilkerson, 2010; Callanan & Jipson, 2001; Callanan &

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Valle, 2008; Hohenstein, Callanan, & Ash, 2016). For example, Luce, Callanan, and Smilovic (2013) found that when parents emphasized the evaluation of evidence as necessary for understanding science, their children also talked about evidence. In another study, parents' scientific explanations about magnets predicted children's future reading comprehension in science (Tenenbaum, Snow, Roach, & Kurland, 2005). From a sociocultural perspective (Vygotsky, 1978), one means through which children appropriate reasoning about science is via co-construction of conversation with more knowledgeable others, such as parents, who serve as agents of cognitive socialization (Gauvain, 2001).

Collaborative verbal exchange between parents and children also seems to play a pivotal role in children's memory development. Indeed, Haden, Ornstein, Eckerman, and Didow (2001) found that young children spontaneously reported more details about a past experience 1 day later, as well as 3 weeks later, as a result of engaging in joint verbal interaction with their mothers. Across studies in parent–child conversation about science and past events, evidence converges to suggest that conversational styles influence children's reasoning and memory. Indeed, these conversations may support children in developing habitual patterns of thinking. These reviewed studies focus on style or the ways in which parents structure conversations rather than the content, or what is explicitly communicated, during these conversations. What remains unanswered, thus, is whether the *content* of such conversations also influences specific children's beliefs.

Research looking at testimony, which does not rely on parent–child conversation, demonstrates that children can be receptive to learning content knowledge from the testimony of others (Harris, 2012; Harris & Koenig, 2006; Lane & Harris, 2014). In a typical experimental paradigm from this literature, children are provided information by an unknown speaker that conflicts with their prior perception (Lane, Harris, Gelman, & Wellman, 2014). Even when information is counterintuitive (Lane et al., 2014), children incorporate adults' testimony into their knowledge base, suggesting that children are not always stubborn autodidacts. Moreover, by 4 years of age, children are sensitive to cultural attitudes in reporting that others endorse the existence of invisible scientific entities such as germs (Harris, Pasquini, Duke, Asscher, & Pons, 2006, Study 1). When questioned about their own beliefs, 5- and 6-year-olds were more confident about the existence of invisible scientific entities than of beings who are frequently but not unequivocally endorsed such as God and the tooth fairy (Harris et al., 2006, Study 3). An important distinction between the literature on testimony and literature inspired by a sociocultural theoretical perspective is that the former seems to be agnostic as to how children take up information that is endorsed by their parents and others in their environment. The perspective we take is that although children certainly incorporate some cultural beliefs and content knowledge, they are more likely to do so when participating in conversation with an agent of socialization. Indeed, as noted by Gauvain (2001), knowledge that parents hold is instantiated in everyday situations such as parent–child conversations, which allow children to learn ways of thinking and to gain content knowledge.

The current study focused on whether the *content* rather than the *style* of parent–child conversations is related to children's domain-specific beliefs and, in particular, children's endorsement of evolutionary and creationist beliefs. The study examined relations between parents' and children's endorsement of the origins of living things as reported on questionnaires. To examine the effects of conversation more fully, half of the parents and children also engaged in conversation about the origins of living things (conversation group). From these conversations, we were able to examine whether parents or children mentioned evolutionary theory or creationism as an explanation for the origins of living things. This design enabled us to examine whether the content of joint conversation influences children's appropriation of scientific beliefs beyond parents' beliefs.

Focused on children's and parents' beliefs, Evans (2001) found some correspondence between parents' and children's beliefs about origins. A study focused on U.S. Christian children's reasoning about the origins of entities suggests that children blend testimony from their culture with their naive theories (Evans, 2001). In her study, Evans compared children aged 6 to 13 years from fundamentalist and non-fundamentalist Christian families. The fundamentalist Christians endorsed Biblical literalism in which all species were created by God in their current form. When reasoning about animates, children of all ages from fundamentalist Christian backgrounds were more likely to endorse creationist accounts than were those from non-fundamentalist Christian backgrounds. Similarly, 8- to 10-year-olds from non-fundamentalist families were more likely to endorse creationism than other explanations.