Individual paper

Title: Believing without seeing: Children Expect Others to Share their Beliefs about Invisible Entities

Abstract

Children learn about invisible scientific and religious entities via testimony, relying largely on the consensus surrounding these entities, rather than on first-hand experience (Ma et al., 2024). However, studies have mainly examined children's claims about their own beliefs regarding high consensus entities, such as germs and God. How do children judge controversial entities, such as evolution? How do they evaluate others' beliefs across both immediate and broader social contexts? And to what degree does this evaluation demonstrate children's awareness of belief diversity?

To explore these questions, we presented 116 US children (6- to 12-year-olds, $M = 8.36$, $SD = 1.74$) with 12 entities that vary in the community consensus surrounding them. Based on similar research conducted with adults (i.e., Shtulman, 2014), children judged: 1) if an entity is real or not, 2) how confident they are in this belief (5-very sure to 1-not sure at all), 3) how many of their family and friends, and 4) how many Americans hold the same belief (5-all of them to 1-none of them). We created a 10-point *belief score* (10-Real, very sure, to 1-Not real, very sure) by merging the reality judgments with confidence ratings. We also created a 10-point *consensus score* (10-Real, all of them agree, to 1-Not real, all of them agree), separately for friends and family, and for Americans, by merging reality judgments with consensus estimations.

Children expressed a strong belief in scientific entities regardless of religious background, ($p = .65$; Figure 1), and they expected their family and friends (Figure 2, left), as well other Americans (Figure 2, right), to share this belief ($ps \geq .46$). An exception to this pattern was evolution, for which children with a non-religious background expressed a stronger belief, ($p = 0.005$), and attributed greater consensus to both their family and friends, ($p = 0.003$), and to Americans, ($p = .017$), compared to children with a religious background. Background also influenced belief in high-consensus religious entities; children with a religious background not only expressed a stronger belief in these entities ($p < .001$), but also expected both family and friends, ($p < .001$), and all Americans ($p < .001$), to join them in their belief.

These findings show that religiosity is not associated with a lower belief in scientific entities among US children (except for evolution). Belief in religious entities, however, is largely determined by religious background, and can vary sharply across the religious and non-religious. An important novel result is that regardless of religious background, children expect not just members of their immediate context but also members of the broader social context to agree with them. Although religious and secular children may be right about members of their immediate context, their divergent claims about the broader American context cannot both be right. Future research should explore whether this misperception of the broader context holds in other political and cultural contexts. **(477 words)**

Figure 1. Belief scores by entity and religious background.

Note: **** $p < 0.001$; ** $p < 0.01$, * $p < 0.05$. Results reflect significance after adjusting for multiple comparisons.*

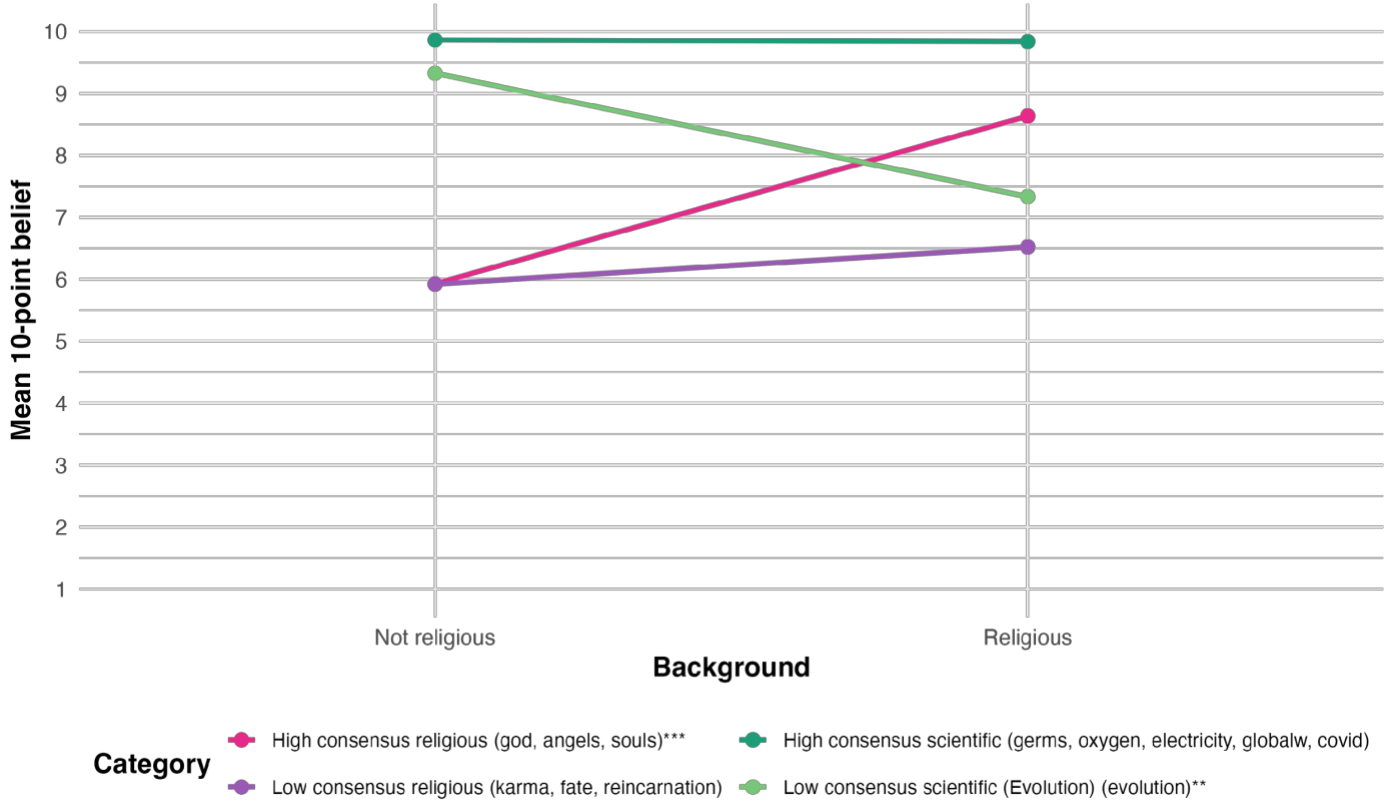

Figure 2. Estimated consensus for family and friends (Left panel) and for Americans (Right Panel) by entity and religious background.

Note: **** $p < 0.001$; ** $p < 0.01$, * $p < 0.05$. Results reflect significance after adjusting for multiple comparisons.*