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SHORT REPORT

The role of epistemic and social characteristics in children's selective trust: Three meta-analyses

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Abstract

Over the last 15 years, researchers have been increasingly interested in understanding the nature and development of children's selective trust. Three meta-analyses were conducted on a total of 51 unique studies (88 experiments) to provide a quantitative overview of 3- to 6-year-old children's selective trust in an informant based on the informant's epistemic or social characteristics, and to examine the relation between age and children's selective trust decisions. The first and second meta-analyses found that children displayed medium-to-large pooled effects in favor of trusting the informant who was knowledgeable or the informant with positive social characteristics. Moderator analyses revealed that 4-year-olds were more likely to endorse knowledgeable informants than 3-year-olds. The third meta-analysis examined cases where two informants simultaneously differed in their epistemic and social characteristics. The results revealed that 3-year-old children did not selectively endorse informants who were more knowledgeable but had negative social characteristics over informants who were less knowledgeable but had positive social characteristics. However, 4- to 6-year-olds consistently prioritized epistemic cues over social characteristics when deciding who to trust. Together, these meta-analyses suggest that epistemic and social characteristics are both valuable to children when they evaluate the reliability of informants. Moreover, with age, children place greater value on epistemic characteristics when deciding whether to endorse an informant's testimony. Implications for the development of epistemic trust and the design of studies of children's selective trust are discussed.

KEYWORDS

children, epistemic characteristics, informants, meta-analysis, selective trust, social characteristics

1 | INTRODUCTION

Describing children as 'little scientists', Piaget (1970) put great emphasis on children's first-hand observations and their direct experience with their environment. However, there is a profound limit to the role that first-hand experience can play in children's information acquisition. In many domains (e.g., learning historical or scientific facts), children cannot gather the relevant information for themselves and they have to depend on what other people tell them (see Harris, 2012 for a review).

It is often not sufficient for children to simply receive information from another person, they also need to be able to assess the credibility of that information. To assess the credibility of information they receive, children can sometimes rely on their existing knowledge. For example, if an informant makes a statement that obviously contradicts reality, children will be quick to reject that

statement (e.g., Bernard, Harris, Terrier, & Clément, 2015). However, in many cases, children lack relevant knowledge or experience and must make their judgments based solely on what they know about the informant. The challenge here is that informants are prone to differences in motivation and knowledge states that influence their trustworthiness (Mills, 2013). Thus, children must develop means of assessing informants based on their characteristics (Harris, Koenig, Corriveau, & Jaswal, 2018; Landrum, Eaves, & Shafto, 2015; Sobel & Kushnir, 2013).

In order to investigate how informant characteristics influence children's judgments, Koenig, Clément, and Harris (2004) introduced the 'conflicting sources paradigm'. In this paradigm, researchers introduce children to a pair of informants with different and often contrasting characteristics during a familiarization phase where the informants' characteristics are described (e.g., children are told that the informant is mean or nice) or demonstrated (e.g., each informant makes a statement that the child knows to be accurate or inaccurate). In the subsequent test phase, researchers present questions for which children have no prior knowledge (frequently about novel entities, e.g., naming a novel object). In some studies, children are prompted to seek information from one of two informants and they are given a choice of who to ask (i.e., Ask questions). In other studies, the informants provide conflicting statements, and children must subsequently endorse one of the two statements (i.e., Endorse questions). Many studies have included a combination of ask and endorse questions. Using the conflicting sources paradigm, researchers have found that children as young as age 3 display greater trust in some informants than others (e.g., Koenig et al., 2004; Koenig & Harris, 2005a).

Despite the fact that, over the last 15 years, there has been a large increase in interest in the topic of children's selective trust (also called selective social learning), to the best of our knowledge, no quantitative review has been conducted. Therefore, the goals of the present meta-analyses were to: (a) estimate the effect sizes of children's selective trust in an informant based on epistemic or social characteristics and, (b) examine whether there are consistent developmental changes in the degree to which children rely on epistemic or social characteristics when deciding who to trust.

1.1 | How children evaluate informants: two distinct strategies

When choosing who to trust, children can use at least two distinct strategies (see Harris et al., 2018; Jaswal & Kondrad, 2016). The first strategy is to rely on epistemic cues (e.g., previous accuracy, expertise), which potentially pertain to the informant's knowledge state. For instance, preschoolers are more likely to trust an informant who accurately labeled familiar objects in the past (e.g., Koenig & Harris, 2005b; Koenig et al., 2004), who showed confidence when speaking (Bridgers, Buchsbaum, Seiver, Griffiths, & Gopnik, 2016; Tenney, Small, Kondrad, Jaswal, & Spellman, 2011) or who gave a noncircular answer (Corriveau & Kurkul, 2014; Mercier, Bernard, & Clément, 2014). Focusing on an informant's epistemic characteristics is beneficial for children who lack relevant experience or background knowledge in order to obtain reliable information and reduce the probability of being misled (Harris et al., 2018). The second strategy is to rely on social characteristics, which reveal an informant's social status, relationships, or personality (see Harris et al., 2018 for a review). These characteristics include age (VanderBorght & Jaswal, 2009), familiarity (e.g., Corriveau & Harris, 2009a), language or national origin (Gaither et al., 2014; Kinzler, Corriveau, & Harris, 2011), and benevolent behavior (e.g., Johnston, Mills, & Landrum, 2015). Although social characteristics are not a direct indicator of an informant's trustworthiness, trusting informants who share in-group traits or who have positive social characteristics (e.g., accent, niceness) can be helpful for children to establish and maintain positive social relationships (Jaswal & Kondrad, 2016; Schillaci & Kelemen, 2014). In Meta-analyses 1 and 2 of this study, we seek to estimate the effect sizes of children's trust in an informant who is knowledgeable or an informant with positive social characteristics.

Epistemic and social characteristics are both important to children's strategies for selecting and trusting informants. Moreover, these two types of characteristics also interact with each other (e.g., Terrier, Bernard, Mercier, & Clément, 2016). For instance, Corriveau and Harris (2009a) found that seeing a familiar teacher inaccurately label familiar objects undermined 4- to 5-year-old preschoolers' trust in her labels for unfamiliar objects. In everyday life, children are rarely confronted with informants whose profile is equivalent in all but one respect. When facing two informants who simultaneously differ along epistemic and social characteristics, how do children assess the relative impact of each dimension? Do they value epistemic characteristics more in order to gather accurate information, or do they put more weight on social factors in order to maintain positive social relationships? The literature on children's evaluations yields mixed results, with some studies finding that preschoolers put more value on epistemic characteristics (e.g., Liu, Vanderbilt, & Heyman,

Research Highlights

- We conducted three meta-analyses of children's selective trust decisions across studies in order to quantitatively assess children's reliance on the informant's epistemic and social characteristics.
- We found that children displayed greater trust in knowledgeable informants or informants with positive social characteristics, with medium-to-large effect sizes overall.
- Children's age strongly moderated their evaluation of informant's epistemic characteristics for endorse questions, with age 4 appearing to be a key transitional period.
- Age did not moderate children's responses to ask questions, suggesting that responses to ask and endorse questions might rely on different motivational and epistemic considerations.

2013; Taylor, 2013), some studies suggesting that they prioritize social characteristics (e.g., Landrum, Mills, & Johnston, 2013), and others suggesting children give equal weight to epistemic and social characteristics (e.g., Danovitch & Mills, 2014; Elashi & Mills, 2014). In Meta-analysis 3 of this study, we analyze whether children prioritize epistemic or social characteristics across multiple studies.

1.2 | Developmental trajectory of children's evaluations

Because evaluating the reliability of informants is a key component of children's cognitive development (Mills, 2013), and children become more adept at selecting appropriate informants with age (see Harris et al., 2018), we examined the relation between age and children's reliance on epistemic and social characteristics in selective trust decisions. According to Henrich and Broesch's (2011) two-stage theory of transmission, younger children do not benefit from expert input due to their low overall skill levels. Thus, early in development, informants with whom children have socioemotional bonds are the most appropriate information sources, as they are capable of scaffolding a range of fundamental skills and transmitting cultural information, which is helpful for children's social adaptation. As children get older, they need to learn new practices and acquire expertise. At this point, considering an informant's knowledgeability and favoring informants who appear particularly competent should be more beneficial. Experimental evidence offers some support of this theory. For instance, Lucas et al. (2017) found that when faced with the task of getting prizes out of a puzzle box, younger children preferred to imitate their mother, whereas older children more often imitated an expert. Based on the two-stage theory of transmission, one would expect this age difference to reflect shifts in the value that children place on epistemic characteristics. To test this prediction, our meta-analyses include a moderator coded according to children's age group (3-year-olds, 4-year-olds, 5- to 6-year-olds).

1.3 | Hypotheses

We predicted that, across different studies, children displayed greater trust in knowledgeable informants (Meta-analysis 1) and informants with positive social characteristics (Meta-analysis 2). On the basis of the two-stage theory of transmission, we predicted that children's trust preferences would be moderated by age when two informants simultaneously differed along epistemic and social characteristics (Meta-analysis 3), with younger children placing more weight on social characteristics and older children prioritizing epistemic characteristics.

2 | METHODS

2.1 | Literature search strategies

We began identifying published and unpublished studies of children's selective trust by searching electronic databases (ERIC, PsycINFO, PubMed, SAGE Social Science & Humanities Package, Taylor & Francis Online, ProQuest Dissertations & Theses) and Google Scholar, using combinations of the following keywords: *credibility*, *reliable*, *trustworthy*, *trust*, *selective trust*, *epistemic trust*, *learning from testimony*, *selective social learning*, *selective learning*, *informant*, *children*, *preschooler*. Once relevant studies were identified, their reference sections were examined for other relevant studies. Additionally, a request for unpublished studies was sent to members of the Cognitive Development Society e-mail list requesting the provision of any unpublished data and necessary statistical clarification. Searches for relevant studies were concluded in July 2018.

2.2 | Inclusion criteria

All studies included in the meta-analyses met the following criteria:

1. The study was empirical and the article was written in English.
2. The study was conducted on 3- to 6-year-old children and reported the data separately per age group (or, upon our request, the researcher provided the data by age group).
3. The study used the 'conflicting sources paradigm' (Koenig et al., 2004), where children received conflicting testimony from two informants with different characteristics.
4. The dependent variables consisted of *Ask Questions* and/or *Endorse Questions*.
5. The data necessary for the computation of an effect size based on a statistic such as sample size or *t*-value (compared to chance level) was provided directly or could be computed.
6. To be included in the first meta-analysis (epistemic characteristics), the two informants could only differ in one characteristic that directly reflected each informant's knowledge (e.g., expertise, prior accuracy; e.g., Koenig et al., 2004). To be included in the second meta-analysis (social characteristics), the two informants could only differ in a characteristic that reflected the informant's social standing or personality (e.g., familiarity, benevolence; e.g., Lane, Wellman, & Gelman, 2013). Although some social characteristics could be perceived as having both epistemic and social components (i.e., having a native or non-native accent; Corriveau, Kinzler, & Harris, 2013; having in-group or out-group status; Elashi & Mills, 2014; belonging to a consensus or dissenting; Corriveau, Fusaro, & Harris, 2009; Schillaci & Kelemen, 2014), we classified these studies in the social characteristics category. We did this based on evidence that children make social judgments using these characteristics (e.g., children were more likely to make friends with kids who share the similar accent with them; Souza, Byers-Heinlein, & Poulin-Dubois, 2013) and that the social element of behaviors such as belonging to a consensus is likely to be more salient to 3- to 6-year-old children than the epistemic element (Einav, 2018). For inclusion in the third meta-analysis (interaction of characteristics), children had to be presented with two informants who simultaneously differed along epistemic and social characteristics, where one informant was more knowledgeable but had negative social

characteristics, whereas the other informant was less knowledgeable but had positive social characteristics (e.g., accurate/unfamiliar-inaccurate/familiar; e.g., Corriveau & Harris, 2009a).

2.3 | Coding system and other inclusion decisions

The moderator was coded on children's age: 3 years, 4 years, 5–6 years. To satisfy the requirement of independent effect sizes, only one effect size could be extracted from a given sample of participants. In several articles, it was possible to extract more than one effect size. In that case, the effect size included in the meta-analyses was selected according to the following criteria:

1. If a study manipulated the characteristics of informants across multiple conditions (e.g., happiness-anger, happiness-neutral; Clément, Bernard, Grandjean, & Sander, 2013), we selected the condition with the highest contrast (e.g., happiness-anger).
2. If a study measured participants' trust using different types of posttest questions (e.g., novel labeling task and novel morphology task; Corriveau, Pickard, & Harris, 2011), we only included the posttest consistent with the familiarization stage, because children's reasoning about the generalizability of an informant's knowledge or characteristics across epistemic domains did not fall in the scope of the present meta-analyses.
3. If a study contained immediate tests and delayed tests with the same participants, we selected immediate tests only (e.g., Corriveau & Harris, 2009b).

To assess the reliability of the coding, the variables and the effect sizes were coded by two independent raters (both graduate-level students). There was no discrepancy between raters.

2.4 | Meta-analytic procedures

2.4.1 | Effect size metric

The effect size index used in all three meta-analyses was Hedges' *g*, which was corrected for biases given the sample size. In the first and second analyses, Hedges' *g* was given a positive sign when preschoolers showed greater trust in an informant who was knowledgeable (in the first meta-analysis) or who had positive social characteristics (in the second meta-analysis). In the third analysis, positive values indicated that children were more likely to trust in informant who was knowledgeable but whose social characteristics were negatively valenced. Values of Hedges' *g* of 0.20, 0.50, and 0.80 are interpreted as small, medium, and large, respectively (Cohen, 1988).

2.4.2 | Model decision

We analyzed the effect size data in a random effects model due to its tolerance of heterogeneous effect sizes and conservative nature of estimation (Cumming, 2011). Cochran's *Q* and I^2 statistics were used to assess heterogeneity across effect sizes (Borenstein, Hedges, Higgins, & Rothstein, 2009). All the analyses were computed with Comprehensive Meta-Analysis, version 2 (https://www.meta-analysis.com).

3 | RESULTS

3.1 | Meta-analysis 1: epistemic characteristics

Thirty-two articles (30 published and two unpublished) were included in this meta-analysis; see Appendix A for the list of studies and their corresponding effect sizes.[1]

3.1.1 | Ask questions

The primary meta-analysis (k = 63, N = 1,283) revealed that 3- to 6-year-old children were more likely to ask knowledgeable informants (Hedges' g = 0.59, 95% CI [0.48, 0.70], Z = 10.65, p < .001). There was evidence for heterogeneity ($Q(62)$ = 201.68, p < .001, I^2 = 69.26%). However, age was not a statistically significant moderator, $Q(2)$ = 0.46, p = .796 (see Table 1). To address the issue of publication bias, we used Duval and Tweedie's (2000) trim-and-fill method, on the basis of the random-effect model, to determine that 18 studies were potentially missing from the left of the mean effect.

TABLE 1 Results of moderator of ask and endorse questions in the first meta-analysis (epistemic characteristics)

Moderator	*k*	*N*	Hedges' *g*	95% CI	*Q*	*df*	*p*
Ask questions							
Age					0.46	2	.796
3-year-old	15	261	0.55***	[0.29, 0.81]			
4-year-old	33	669	0.63***	[0.47, 0.78]			
5- to 6-year-old	15	353	0.55***	[0.38, 0.72]			
Endorse questions							
Age					7.21	2	.027
3-year-old	28	515	0.42***	[0.27, 0.57]			
4-year-old	44	952	0.70***	[0.56, 0.85]			
5- to 6-year-old	27	662	0.59***	[0.42, 0.75]			

***p < .001.

TABLE 2 Results of moderator of ask and endorse questions in the second meta-analysis (social characteristics)

Moderator	*k*	*N*	Hedges' *g*	95% CI	*Q*	*df*	*p*
Ask questions							
Age					3.99	2	.136
3-year-old	8	171	0.66***	[0.43, 0.89]			
4-year-old	12	268	0.69***	[0.47, 0.91]			
5- to 6-year-old	12	227	1.07***	[0.72, 1.42]			
Endorse questions							
Age					3.46	2	.177
3-year-old	16	358	0.57***	[0.40, 0.74]			
4-year-old	23	557	0.56***	[0.44, 0.68]			
5- to 6-year-old	17	349	0.77***	[0.58, 0.97]			

***$p < .001$.

Imputation of these studies would reduce the point estimate under the random-effects model to a smaller effect ($g = 0.38$, 95% CI [0.27, 0.50]) but it would remain significant. Rosenthal's fail-safe *N* indicated that 5,405 effects averaging a null result would be required to reduce the pooled effect to be nonsignificant.

3.1.2 | Endorse questions

The primary meta-analysis ($k = 99$, $N = 2{,}129$) revealed that preschoolers were more likely to endorse statements from knowledgeable informants (Hedges' $g = 0.59$, 95% CI [0.50, 0.68], $Z = 12.87$, $p < .001$). There was evidence for a significant amount of variance ($Q(98) = 363.25$, $p < .001$, $I^2 = 73.02\%$) in the sample of effect sizes, suggesting that it was appropriate to conduct a moderator analysis. The moderator analysis revealed that age significantly moderated children's endorsement of statements by a knowledgeable informant ($Q(2) = 7.21$, $p = .027$; see Table 1), and 4-year-old children showed a significantly larger preference for knowledgeable informants than 3-year-olds ($Q(1) = 7.14$, $p = .008$). There were no significant differences in trust in the knowledgeable informant between 5- to 6-year-old children and 4-year-olds ($Q(1) = 1.02$, $p = .313$) or 3-year-olds ($Q(1) = 2.29$, $p = .120$). Duval and Tweedie's (2000) trim-and-fill method estimated that no hypothetical study was potentially missing from the left and the right of the mean effect. Rosenthal's fail-safe *N* indicated that 4,048 additional effects would be needed to make the pooled effect nonsignificant.

3.2 | Meta-analysis 2: social characteristics

Nineteen articles (18 published and one unpublished) were included in this meta-analysis; see Appendix B for the list of studies and their corresponding effect sizes.[2]

3.2.1 | Ask questions

The primary meta-analysis ($k = 32$, $N = 666$) revealed that 3- to 6-year-old children were more likely to ask informants with positive social characteristics (Hedges' $g = 0.81$, 95% CI [0.65, 0.97], $Z = 9.95$, $p < .001$). Though there was evidence for heterogeneity ($Q(31) = 102.71$, $p < .001$, $I^2 = 69.82\%$), age was not a statistically significant moderator, $Q(2) = 3.99$, $p = .136$ (see Table 2). Duval and Tweedie's (2000) trim-and-fill method did not suggest any effects had been suppressed by publication bias. Rosenthal's fail-safe *N* indicated that 2,508 effects averaging a null result would be needed to reduce the pooled effect to nonsignificance.

3.2.2 | Endorse questions

The primary meta-analysis ($k = 56$, $N = 1{,}264$) suggested that children were more likely to endorse information from informants with positive social characteristics (Hedges' $g = 0.63$, 95% CI [0.53, 0.72], $Z = 13.37$, $p < .001$). There was significant heterogeneity in the sample ($Q(55) = 125.01$, $p < .001$, $I^2 = 56.01\%$). However, age was not a statistically significant moderator ($Q(2) = 3.46$, $p = .177$; see Table 2). To address the issue of publication bias, Duval and Tweedie's (2000) trim-and-fill method revealed that after potentially imputing one study, the global effect would increase, and still remain significant ($g = 0.64$, 95% CI [0.55, 0.73]). Rosenthal's fail-safe *N* indicated that the number of effects averaging null results required to render the pooled effect nonsignificant was 5,865.

3.3 | Meta-analysis 3: epistemic and social characteristics in conflict

Sixteen articles (fifteen published and one unpublished) were included in the third meta-analysis; see Appendix C for the list of studies and their corresponding effect sizes.

3.3.1 | Ask questions

The primary meta-analysis ($k = 25$, $N = 299$) revealed that 3- to 6-year-old children did not display any preference for asking the knowledgeable informant over the informant with positive social characteristics (Hedges' $g = 0.16$, 95% CI [−0.08, 0.39], $Z = 1.31$, $p = .190$). There was evidence for heterogeneity ($Q(24) = 94.68$, $p < .001$, $I^2 = 74.65\%$). However, because of the small number of sample sizes, no moderator

TABLE 3 Results of moderator of endorse questions in the third meta-analysis (interaction of characteristics)

Moderator	*k*	*N*	Hedges' *g*	95% CI	*Q*	*df*	*p*
Age					5.12	2	.077
3-year-old	12	190	0.11	[−0.17, 0.38]			
4-year-old	22	373	0.39**	[0.12, 0.66]			
5- to 6-year-old	16	265	0.69**	[0.24, 1.14]			

**$p < .01$.

analysis was run for the ask questions (Borenstein et al., 2009). For the same reason, no publication bias analysis was carried out.

3.3.2 | Endorse questions

The primary meta-analysis ($k = 50$, $N = 828$) suggested that preschoolers were more likely to endorse information from an informant who was knowledgeable but had negative social characteristics than an ignorant informant with positive social characteristics (Hedges' $g = 0.40$, 95% CI [0.21, 0.59], $Z = 4.10$, $p < .001$). There was significant heterogeneity in the sample ($Q(49) = 318.83$, $p < .001$, $I^2 = 84.63\%$). Children's age was a marginally significant moderator ($Q(2) = 5.12$, $p = .077$; see Table 3). Children ages 4 through 6 were more likely to endorse testimony from a knowledgeable informant than from an informant who had positive valenced social characteristics. However, 3-year-olds did not show differential endorsement of either informant. Moreover, 5- to 6-year-old children had a significantly larger trust preference for the knowledgeable informant than 3-year-olds ($Q(1) = 4.65$, $p = .031$), but they did not differ from 4-year-olds ($Q(1) = 1.24$, $p = .266$). Duval and Tweedie's (2000) trim-and-fill method did not suggest any effects had been suppressed by publication bias, and Rosenthal's fail-safe *N* indicated that 1,152 effects averaging a null result would be required to reduce the pooled effect to nonsignificance.

4 | DISCUSSION

The goal of the present meta-analyses was to estimate the effect sizes of children's selective trust in an informant based on epistemic or social characteristics. Across studies, the results indicated that when two informants only differed in one characteristic, children asked and endorsed the informant who was more knowledgeable (in Meta-analysis 1) or the informant with positive social characteristics (in Meta-analysis 2). The effects revealed by these meta-analyses were all medium to large, suggesting that although epistemic goals and social goals might rely on different mechanisms (see Brosseau-Liard, 2017; Jaswal & Kondrad, 2016), they are both valuable to children when they evaluate the reliability of informants who differ on only one of these dimensions. The strength of these effects also supports that children have a relatively strong preference to acquire information from some informants over others. Children do not believe everything they hear; instead, they actively evaluate information sources using multiple criteria (Landrum, Eaves, et al., 2015).

We also examined how effect sizes were moderated by children's age. When a pair of informants only differed in epistemic characteristics, age group was a significant moderator: 4-year-olds were more likely to endorse statements from knowledgeable informants than 3-year-olds. Moreover, when two informants simultaneously differed along epistemic and social characteristics (in Meta-analysis 3), 4-year-olds endorsed the more knowledgeable informant who also had negative social characteristics more often than 3-year-old children. These findings suggest that age 4 might be a key transition period for children's attention to and use of epistemic characteristics for selective social learning. Perhaps 4-year-olds are more adept at recognizing a wider range of epistemic characteristics than 3-year-olds, including characteristics such as fluency (Bernard, Proust, & Clément, 2014) and the production of circular explanations (Corriveau & Kurkul, 2014; Mercier et al., 2014). Another possible explanation for the age-related trends in our analyses is that, with age, children's working memory (e.g., Gathercole, Pickering, Ambridge, & Wearing, 2004), theory of mind (e.g., Sabbagh, Xu, Carlson, Moses, & Lee, 2007), and ability to reason about traits (e.g., Heyman, 2009) improves. Children must encode, monitor, and recall each informant's characteristics before they make trust judgments (see Koenig & Harris, 2007), and their ability to reason about other people's knowledge states (i.e., theory of mind) may relate to their judgments and preferences in terms of selective trust (Brosseau-Liard, Penney, & Poulin-Dubois, 2015; DiYanni, Nini, Rheel, & Livelli, 2012). Thus, older children may be better at identifying informants' characteristics from their behavior in the familiarization phase, and they may understand that personal characteristics could be a good predictor of the reliability of the informant's testimony in the test phase (Corriveau, Meints, & Harris, 2009; Koenig et al., 2004; Koenig & Harris, 2007).

The results of Meta-analysis 3 also indicated that when facing a pair of informants who simultaneously differed along epistemic and social characteristics, 4- to 6-year-olds were more likely to endorse statements from an informant who was knowledgeable but had negative social characteristics, suggesting that older children put more value on epistemic cues than social characteristics. However, younger children (3-year-olds) gave equal weight to both types of characteristics. These results are consistent with the two-stage theory of transmission postulating that, with age, children prioritize epistemic factors when evaluating informants (Henrich & Broesch, 2011; Lucas et al., 2017).

In the 'conflicting sources paradigm' introduced by Koenig et al. (2004), ask questions and endorse questions are two of the most common tasks used to measure children's trust preferences. The meta-analyses described here focused on children's performance in these two tasks with the expectation that children's responses would be consistent across tasks. However, we found that children's age

significantly moderated their performance on endorse questions, but not on ask questions. One possible explanation might be that responses to ask and endorse questions are based on different motivational and epistemic considerations. Ask questions may be more likely to be motivated by children's desire to interact or associate with a particular informant, while children's responses to endorse questions may be based on who they deem as more accurate (Reyes-Jaquez & Echols, 2013). This finding may also suggest that, with age, children's desire to establish and maintain positive social relationships remains relatively stable, while their motivation to acquire reliable information increases.

Our meta-analyses make a number of important empirical and theoretical contributions; however, some potential limitations should be noted. When investigating how an informant's characteristics impact children's selective trust, some researchers have designed studies where children evaluate a single informant (e.g., Bergstra, Mulder, & Coopmans, 2018; Diesendruck, Carmel, & Markson, 2010; Nguyen, Gordon, Chevalier, & Girgis, 2016). In this paradigm, each child encounters only one informant and must decide whether to endorse the informant's statements. Arguably, encountering one informant at a time is more similar to situations that children encounter in their daily lives. However, because of the potential bias involved in combining different study designs in the same meta-analysis (Morris & DeShon, 2002), we did not include studies that used single-informant designs. Therefore, whether the conclusions drawn from our meta-analyses are applicable to studies using the one informant design remains to be seen. Another potential limitation is that in some situations, an informant's social characteristics could also be construed as reflecting epistemic characteristics, or vice versa. For example, an informant who labels objects accurately could be seen as socially conforming with local naming practices or behaving in a helpful manner. Likewise, an informant with a native accent could not only be perceived as having in-group status, but also as having more culturally relevant knowledge (see Corriveau et al., 2013). Although we classified informant characteristics based on how they were treated in prior research, it is important to note that the line between epistemic and social characteristics can sometimes be blurry.

The meta-analyses presented here demonstrate that, across studies and populations, 3- to 6-year-old children are sensitive to an informant's epistemic and social characteristics when evaluating their reliability. We also found evidence that the effects of informants' epistemic characteristics were moderated by children's age, with children beginning to prioritize epistemic characteristics over social ones at age four. Finally, the current findings suggest that children may rely on different mechanisms when responding to ask questions versus endorse questions in the typical 'conflicting sources paradigm'. Psychologists should consider this issue when designing future studies of children's selective trust.

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CONFLICT OF INTEREST

The authors declare no conflicts of interest.

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ENDNOTES

[1] Because children could have perceived informants who accurately or inaccurately named familiar objects as conforming to socially driven naming conventions or reflecting social conformity (Harris, 2012), we conducted an additional set of moderator analyses where we divided the studies from Meta-analysis 1 into studies where the informants labeled objects and studies that involved epistemic characteristics other than object labeling (e.g., expressions of confidence, providing circular or noncircular explanations). The results indicated that children's selectivity was significant in both types of manipulations of epistemic characteristics, although the effect size was stronger for studies involving object labeling (see Table S1).

[2] In order to examine whether the inclusion of studies involving social characteristics that could also be construed as having epistemic components (i.e., having a native or non-native accent; Corriveau et al., 2013; having in-group or out-group status; Elashi & Mills, 2014; belonging to a consensus or dissenting; Corriveau et al., 2009; Schillaci & Kelemen, 2014) influenced our results, we also conducted the second meta-analysis omitting these studies. The results were not changed (see Tables S2–S4).

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SUPPORTING INFORMATION

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APPENDIX A

Summary of the Studies Included in the First Meta-Analysis (Epistemic Characteristics)

Study	Characteristics of informants	Children's age	*N*	Test	Hedges' *g*	95% CI
Koenig et al. (2004)	Accurate-inaccurate	3	13	Endorse	0.57	[0.01, 1.12]
Koenig et al. (2004)	Accurate-inaccurate	4	19	Endorse	0.51	[0.05, 0.97]
Koenig and Harris (2005a); Exp. 1	Accurate-inaccurate	3	21	Ask & Endorse	−0.21 & −0.29	[−0.62, 0.21] & [−0.71, 0.13]
Koenig and Harris (2005a); Exp. 1	Accurate-inaccurate	4	18	Ask & Endorse	1.16 & 0.54	[0.58, 1.74] & [0.07, 1.02]
Koenig and Harris (2005a); Exp. 2	Accurate-ignorant	3	20	Ask & Endorse	0.60 & 0.28	[0.14, 1.05] & [−0.15, 0.71]
Koenig and Harris (2005a); Exp. 2	Accurate-ignorant	4	21	Ask & Endorse	0.67 & 0.46	[0.21, 1.12] & [0.03, 0.90]
Koenig and Harris (2005a); Exp. 3	Accurate-ignorant	3	20	Ask & Endorse	0.39 & 0.50	[−0.05, 0.83] & [0.05, 0.95]
Koenig and Harris (2005a); Exp. 3	Accurate-ignorant	4	18	Ask & Endorse	0.60 & 0.53	[0.12, 1.09] & [0.06, 1.01]
Pasquini, Corriveau, Koenig, and Harris (2007); Exp. 1	More accurate-less accurate	3	20	Ask & Endorse	0.72 & 0.60	[0.24, 1.20] & [0.14, 1.06]
Pasquini et al. (2007); Exp. 1	More accurate-less accurate	4	20	Ask & Endorse	1.74 & 1.89	[1.06, 2.42] & [1.17, 2.62]
Pasquini et al. (2007); Exp. 2	More accurate-less accurate	3	22	Ask & Endorse	0.33 & 0.19	[−0.09, 0.74] & [−0.21, 0.60]
Pasquini et al. (2007); Exp. 2	More accurate-less accurate	4	30	Ask & Endorse	0.81 & 0.70	[0.41, 1.22] & [0.31, 1.09]
Jaswal, McKercher, and VanderBorght (2008)	Accurate-inaccurate	3	8	Endorse	0.63	[−0.06, 1.31]
Jaswal et al. (2008)	Accurate-inaccurate	4	8	Endorse	0.69	[−0.01, 1.39]
Corriveau and Harris (2009b); Exp. 1	Accurate-inaccurate	3	20	Ask & Endorse	1.01 & 1.16	[0.49, 1.53] & [0.61, 1.71]
Corriveau and Harris (2009b); Exp. 1	Accurate-inaccurate	4	24	Ask & Endorse	1.61 & 1.26	[1.02, 2.21] & [0.73, 1.78]
Corriveau and Harris (2009b); Exp. 2 (1 week delay group)	Accurate-inaccurate	3	10	Ask & Endorse	1.77 & 0.89	[0.81, 2.73] & [0.20, 1.57]
Corriveau and Harris (2009b); Exp. 2 (4 days delay group)	Accurate-inaccurate	3	10	Ask & Endorse	1.19 & 1.94	[0.42, 1.96] & [0.92, 2.96]
Corriveau and Harris (2009b); Exp. 2 (1 week delay group)	Accurate-inaccurate	4	11	Ask & Endorse	1.50 & 2.73	[0.67, 2.32] & [1.47, 4.00]
Corriveau and Harris (2009b); Exp. 2 (4 days delay group)	Accurate-inaccurate	4	11	Ask & Endorse	1.11 & 2.52	[0.39, 1.83] & [1.33, 3.70]
Corriveau, Meints, et al. (2009)	Accurate-inaccurate	3	20	Ask & Endorse	1.08 & 0.75	[0.54, 1.61] & [0.27, 1.23]
Corriveau, Meints, et al. (2009)	Accurate-inaccurate	4	24	Ask & Endorse	1.15 & 1.10	[0.64, 1.65] & [0.60, 1.59]
Rakoczy, Warneken, and Tomasello (2009)	Successful-unsuccessful	5	16	Ask & Endorse	1.16 & 0.98	[0.54, 1.77] & [0.40, 1.56]
Rakoczy et al. (2009)	Successful-unsuccessful	4	23	Ask & Endorse	0.41 & 0.61	[−0.01, 0.82] & [0.17, 1.04]
Fitneva and Dunfield (2010); Exp. 1	Accurate-inaccurate	4	20	Ask	0.01	[−0.42, 0.42]
Fitneva and Dunfield (2010); Exp. 2	Accurate-inaccurate	4	12	Ask	0.77	[0.16, 1.38]
Fitneva and Dunfield (2010); Exp. 3	Accurate-inaccurate	4	16	Ask	0.21	[−0.26, 0.68]

(Continues)

APPENDIX A (Continued)

Study	Characteristics of informants	Children's age	*N*	Test	Hedges' *g*	95% CI
Einav and Robinson (2010); Exp. 1 (Animal-object)	More accurate-less accurate	6	20	Ask & Endorse	0.57 & 0.43	[0.11, 1.03] & [−0.01, 0.87]
Einav and Robinson (2010); Exp. 1 (Different animals)	More accurate-less accurate	6	20	Ask & Endorse	0.88 & 0.28	[0.38, 1.38] & [−0.15, 0.71]
Brosseau-Liard and Birch (2010); Exp. 1	Accurate-inaccurate	5	25	Ask	0.72	[0.29, 1.15]
Corriveau et al. (2011); Exp. 1	Accurate-inaccurate	4	16	Ask & Endorse	0.58 & 0.55	[0.07, 1.09] & [0.05, 1.05]
Corriveau et al. (2011); Exp. 2	Accurate-inaccurate	4	16	Ask & Endorse	0.96 & 1.30	[0.39, 1.53] & [0.65, 1.95]
Corriveau et al. (2011); Exp. 3a	Accurate-inaccurate	4	16	Endorse	1.16	[0.55, 1.78]
Corriveau et al. (2011); Exp. 3b	Accurate-inaccurate	4	15	Endorse	1.26	[0.60, 1.92]
Koenig and Jaswal (2011); Exp. 1 (novel dog test)	Dog expert-novice	3	6	Ask & Endorse	−0.19 & 0.60	[−0.87, 0.49] & [−0.16, 1.35]
Koenig and Jaswal (2011); Exp. 1 (novel dog test)	Dog expert-novice	4	6	Ask & Endorse	0.72 & 0.75	[−0.07, 1.50] & [−0.05, 1.54]
Koenig and Jaswal (2011); Exp. 2 (novel dog test)	Neutral-incompetence	3	7	Ask & Endorse	0.51 & 0.63	[−0.19, 1.21] & [−0.09, 1.35]
Koenig and Jaswal (2011); Exp. 2 (novel dog test)	Neutral-incompetence	4	7	Ask & Endorse	0.56 & 0.52	[−0.15, 1.27] & [−0.18, 1.22]
Kondrad and Jaswal (2012)	More accurate-less accurate	5	16	Endorse	1.03	[0.44, 1.61]
Kondrad and Jaswal (2012)	More accurate-less accurate	4	16	Endorse	0.94	[0.37, 1.50]
Koenig (2012)	Good reason-bad reason	3	11	Ask & Endorse	1.20 & 0.50	[0.46, 1.94] & [−0.08, 1.08]
Koenig (2012)	Good reason-bad reason	4	16	Ask & Endorse	1.12 & 0.89	[0.51, 1.72] & [0.33, 1.45]
Bernard, Mercier, and Clément (2012); Exp. 1	Arguments: well connected-poor connected	5	24	Endorse	0.44	[0.04, 0.85]
Bernard et al. (2012); Exp. 1	Arguments: well connected-poor connected	3	25	Endorse	0.17	[−0.22, 0.55]
Bernard et al. (2012); Exp. 1	Arguments: well connected-poor connected	4	24	Endorse	0.45	[0.05, 0.86]
Bernard et al. (2012); Exp. 2	Arguments: well connected-poor connected	5	24	Endorse	0.45	[0.05, 0.86]
Bernard et al. (2012); Exp.2	Arguments: well connected-poor connected	3	25	Endorse	0.01	[−0.38, 0.38]
Bernard et al. (2012); Exp.2	Arguments: well connected-poor connected	4	25	Endorse	0.60	[0.19, 1.02]
Bernard et al. (2012); Exp.3	Arguments: well connected-poor connected	5	25	Endorse	0.50	[0.09, 0.90]
Bernard et al. (2012); Exp. 3	Arguments: well connected-poor connected	3	26	Endorse	0.05	[−0.32, 0.42]

(Continues)

APPENDIX A (Continued)

Study	Characteristics of informants	Children's age	*N*	Test	Hedges' *g*	95% CI
Bernard et al. (2012); Exp. 3	Arguments: well connected-poor connected	4	26	Endorse	0.54	[0.14, 0.94]
Cao, Gong, and Tang (2012)	Accurate-inaccurate	4	23	Endorse	1.18	[0.66, 1.71]
Cao et al. (2012)	Accurate-inaccurate	5	32	Endorse	2.89	[2.10, 3.67]
Cao et al. (2012)	Accurate-inaccurate	6	28	Endorse	1.91	[1.30, 2.53]
Corriveau et al. (2013); Exp. 2 (100%–0%)	Accurate-inaccurate	4	16	Ask & Endorse	1.77 & 1.98	[1.00, 2.54] & [1.15, 2.81]
Corriveau et al. (2013); Exp. 2 (75%–25%)	More accurate-less accurate	4	16	Ask & Endorse	0.57 & 0.89	[0.06, 1.08] & [0.33, 1.44]
Danovitch and Alzahabi (2013); Exp. 1	Accurate-inaccurate	3	16	Endorse	1.07	[0.47, 1.66]
Danovitch and Alzahabi (2013); Exp. 1	Accurate-inaccurate	4	19	Endorse	1.17	[0.60, 1.74]
Danovitch and Alzahabi (2013); Exp. 2	Accurate-inaccurate	3	8	Endorse	0.88	[0.13, 1.63]
Danovitch and Alzahabi (2013); Exp. 2	Accurate-inaccurate	4	15	Endorse	1.25	[0.60, 1.91]
MacDonald, Schug, Chase, and Barth (2013); Exp. 1	More accurate-less accurate	4	22	Ask & Endorse	0.72 & 1.03	[0.26, 1.17] & [0.53, 1.54]
B. Luu, de Rosnay, and Harris (2013)	Accurate-inaccurate	5	16	Ask & Endorse	1.77 & 1.24	[1.00, 2.54] & [0.61, 1.87]
B. Luu et al. (2013)	Accurate-inaccurate	3	16	Ask & Endorse	0.69 & 0.72	[0.17, 1.21] & [0.20, 1.25]
B. Luu et al. (2013)	Accurate-inaccurate	4	16	Ask & Endorse	0.49 & 0.92	[−0.01, 0.99] & [0.36, 1.48]
Sobel and Macris (2013); Exp. 1	Accurate-inaccurate	4	32	Ask & Endorse	0.24 & 0.32	[−0.11, 0.58] & [−0.03, 0.67]
Sobel and Macris (2013); Exp. 2	Accurate-inaccurate	4	39	Endorse	0.41	[0.08, 0.73]
Bernard et al. (2014); Exp. 1	Fluent-dysfluent	5	28	Endorse	0.54	[0.15, 0.93]
Bernard et al. (2014); Exp. 1	Fluent-dysfluent	3	27	Endorse	−0.21	[−0.58, 0.17]
Bernard et al. (2014); Exp. 1	Fluent-dysfluent	4	26	Endorse	0.40	[0.01, 0.79]
Bernard et al. (2014); Exp. 2	Fluent-dysfluent	5	27	Endorse	0.46	[0.08, 0.85]
Bernard et al. (2014); Exp. 2	Fluent-dysfluent	3	24	Endorse	−0.05	[−0.43, 0.34]
Bernard et al. (2014); Exp. 2	Fluent-dysfluent	4	27	Endorse	0.44	[0.05, 0.82]
Corriveau and Kurkul (2014); Exp. 1	Explanation: noncircular-circular	5	16	Endorse	0.62	[0.11, 1.13]
Corriveau and Kurkul (2014); Exp. 1	Explanation: noncircular-circular	3	17	Endorse	0.50	[0.02, 0.98]
Corriveau and Kurkul (2014); Exp. 2	Explanation: noncircular-circular	5	16	Endorse	0.58	[0.07, 1.09]
Corriveau and Kurkul (2014); Exp. 2	Explanation: noncircular-circular	3	16	Endorse	0.67	[0.15, 1.19]
Mercier et al. (2014)	Argument: perceptual-circular	5	28	Endorse	0.47	[0.09, 0.85]
Mercier et al. (2014)	Argument: perceptual-circular	3	27	Endorse	0.47	[0.08, 0.86]
Mercier et al. (2014)	Argument: perceptual-circular	4	29	Endorse	0.59	[0.21, 0.98]
Barth, Bhandari, Garcia, MacDonald, and Chase (2014); Exp. 1	Group with past accurate-inaccurate	3	22	Endorse	0.46	[0.03, 0.88]
Barth et al. (2014); Exp. 1	Group with past accurate-inaccurate	4	23	Endorse	0.51	[0.09, 0.93]

(Continues)

APPENDIX A (Continued)

Study	Characteristics of informants	Children's age	*N*	Test	Hedges' *g*	95% CI
Barth et al. (2014); Exp. 2	Group with past accurate-inaccurate	5	25	Ask & Endorse	0.67 & 0.36	[0.25, 1.09] & [−0.04, 0.75]
Barth et al. (2014); Exp. 2	Group with past accurate-inaccurate	4	25	Ask & Endorse	0.34 & 0.42	[−0.05, 0.73] & [0.02, 0.82]
Landrum, Cloudy, and Shafto (2015); Exp. 1	Examples: typical-atypical	6	21	Ask & Endorse	0.21 & 0.84	[−0.21, 0.63] & [0.36, 1.32]
Landrum, Cloudy, et al. (2015); Exp. 2	Examples: diverse-nondiverse	6	23	Ask & Endorse	0.38 & 0.11	[−0.03, 0.79] & [−0.29, 0.50]
Palmquist and Jaswal (2015); Exp. 1	Accurate-inaccurate	4	16	Ask	1.03	[0.44, 1.62]
Palmquist and Jaswal (2015); Exp. 2	Accurate-inaccurate	4	16	Ask	0.92	[0.36, 1.48]
Palmquist and Jaswal (2015); Exp. 2	Accurate-inaccurate	4	16	Ask	0.35	[−0.13, 0.83]
Bascandziev and Harris (2016)	Accurate-inaccurate	5	22	Ask & Endorse	0.45 & 0.59	[0.03, 0.88] & [0.15, 1.02]
Bascandziev and Harris (2016)	Accurate-inaccurate	4	22	Ask & Endorse	0.34 & 0.40	[−0.07, 0.76] & [−0.02, 0.82]
Doebel, Rowell, and Koenig (2016); Exp. 1	Logical: consistent-inconsistent	5	24	Ask & Endorse	0.61 & 0.57	[0.19, 1.03] & [0.15, 0.99]
Doebel et al. (2016); Exp. 1	Logical: consistent-inconsistent	3	27	Ask & Endorse	−0.27 & 0.26	[−0.64, 0.10] & [−0.11, 0.64]
Doebel et al. (2016); Exp. 1	Logical: consistent-inconsistent	4	24	Ask & Endorse	0.09 & −0.16	[−0.30, 0.48] & [−0.55, 0.23]
Doebel et al. (2016; Exp. 2	Logical: consistent-inconsistent	5	60	Ask & Endorse	0.16 & 0.30	[−0.09, 0.41] & [0.04, 0.55]
Doebel et al. (2016); Exp. 2	Logical: consistent-inconsistent	4	60	Ask & Endorse	0.20 & 0.18	[−0.06, 0.45] & [−0.07, 0.44]
Castelain, Bernard, der Henst, and Mercier (2016); Exp. 1	Strong reason-weak reason	4	29	Endorse	1.21	[0.74, 1.68]
Castelain et al. (2016); Exp. 1	Strong reason-weak reason	5	33	Endorse	1.07	[0.65, 1.49]
Castelain et al. (2016); Exp. 1	Strong reason-weak reason	6	37	Endorse	0.47	[0.14, 0.81]
Baer, Malik, and Odic (2018); Exp. 1	More accurate-less accurate	4	20	Ask & Endorse	−0.11 & −0.34	[−0.53, 0.32] & [−0.77, 0.09]
Baer et al. (2018); Exp. 1	More accurate-less accurate	5	21	Ask & Endorse	0.72 & −0.11	[0.25, 1.18] & [−0.52, 0.31]
Baer et al. (2018); Exp. 1	More accurate-less accurate	6	20	Ask & Endorse	0.39 & 0.07	[−0.05, 0.83] & [−0.35, 0.49]
Baer et al. (2018); Exp. 2	More accurate-less accurate	4	20	Ask & Endorse	0.05 & 0.01	[−0.37, 0.47] & [−0.42, 0.42]
Baer et al. (2018); Exp. 2	More accurate-less accurate	5	21	Ask & Endorse	0.34 & 0.28	[−0.08, 0.77] & [−0.14, 0.70]
Baer et al. (2018); Exp. 2	More accurate-less accurate	6	19	Ask & Endorse	0.29 & 0.14	[−0.15, 0.73] & [−0.30, 0.57]
Luu, Whittaker, deRosnay, and Goldwater (2018); Exp. 2	Confident-unconfident	3	31	Ask & Endorse	0.37 & −0.03	[0.02, 0.73] & [−0.38, 0.31]
Luu et al. (2018); Exp. 2	Confident-unconfident	4	39	Ask & Endorse	0.01 & −0.20	[−0.31, 0.31] & [−0.51, 0.11]

APPENDIX B

Summary of the Studies Included in the Second Meta-Analysis (Social Characteristics)

Study	Characteristics of informants	Children's age	*N*	Test	Hedges' *g*	95% CI
Fusaro and Harris (2008)	Bystanders: nod/smile-shake heads/frowns	4	15	Endorse	0.22	[−0.27, 0.70]
Corriveau, Fusaro, et al. (2009); Exp. 1	Consensus-dissenter	3	16	Ask & Endorse	0.40 & 0.47	[−0.08, 0.89] & [−0.03, 0.96]
Corriveau, Fusaro, et al. (2009); Exp. 1	Consensus-dissenter	4	16	Ask & Endorse	0.55 & 0.52	[0.05, 1.06] & [0.02, 1.02]
Corriveau, Fusaro, et al. (2009); Exp. 2	Consensus-dissenter	3	17	Ask & Endorse	0.62 & 0.28	[0.13, 1.12] & [−0.18, 0.75]
Corriveau, Fusaro, et al. (2009); Exp. 2	Consensus-dissenter	4	16	Ask & Endorse	1.08 & 1.18	[0.49, 1.68] & [0.56, 1.80]
Corriveau and Harris (2009a); Exp. 1	Familiar-unfamiliar	3	20	Ask & Endorse	1.22 & 0.50	[0.65, 1.79] & [0.05, 0.95]
Corriveau and Harris (2009a); Exp. 1	Familiar-unfamiliar	4	21	Ask & Endorse	0.50 & 0.56	[0.06, 0.93] & [0.12, 1.01]
Corriveau and Harris (2009a); Exp. 2	Familiar-unfamiliar	5	20	Ask & Endorse	1.90 & 1.10	[1.18, 2.62] & [0.55, 1.64]
Clément et al. (2013); Exp. 2	Happiness-anger	5	29	Endorse	0.37	[0.01, 0.74]
Clément et al. (2013); Exp. 2	Happiness-anger	3	29	Endorse	0.59	[0.21, 0.98]
Clément et al. (2013); Exp. 2	Happiness-anger	4	30	Endorse	0.37	[0.01, 0.73]
Corriveau et al. (2013); Exp. 1	Native-accent	3	20	Ask & Endorse	1.39 & 1.66	[0.79, 1.99] & [1.00, 2.33]
Corriveau et al. (2013); Exp. 1	Native-accent	4	20	Ask & Endorse	1.92 & 1.60	[1.19, 2.65] & [0.95, 2.25]
Corriveau et al. (2013); Exp. 1	Native-accent	5	21	Ask & Endorse	1.70 & 2.27	[1.04, 2.36] & [1.47, 3.07]
Lane et al. (2013)	Nice-mean	5–6	24	Ask & Endorse	2.51 & 2.17	[1.70, 3.31] & [1.45, 2.90]
Lane et al. (2013)	Nice-mean	3	25	Ask & Endorse	0.65 & 0.32	[0.23, 1.07] & [−0.07, 0.71]
Lane et al. (2013)	Nice-mean	4	32	Ask & Endorse	1.21 & 0.44	[0.76, 1.66] & [0.09, 0.80]
Taylor (2013); both accurate condition	Same sex-other sex	5	9	Ask & Endorse	0.57 & 0.30	[−0.08, 1.22] & [−0.31, 0.91]
Taylor (2013); both inaccurate condition	Same sex-other sex	5	6	Ask & Endorse	0.69 & 0.19	[−0.09, 1.47] & [−0.50, 0.87]
Danovitch and Mills (2014); Exp. 1	Familiar-unfamiliar	4	41	Endorse	0.70	[0.36, 1.03]
Danovitch and Mills (2014); Exp. 2	Familiar-unfamiliar	4	42	Endorse	0.64	[0.31, 0.96]
Elashi and Mills (2014); Exp. 1	Ingroup-outgroup	3	20	Ask & Endorse	0.55 & 0.43	[0.10, 1.01] & [−0.01, 0.87]
Elashi and Mills (2014); Exp. 1	Ingroup-outgroup	4	20	Ask & Endorse	0.65 & 0.35	[0.19, 1.12] & [−0.08, 0.79]
Elashi and Mills (2014); Exp. 1	Ingroup-outgroup	5	20	Ask & Endorse	0.49 & 0.38	[0.04, 0.93] & [−0.06, 0.82]
Elashi and Mills (2014); Exp. 2	Ingroup-outgroup	3	20	Ask & Endorse	0.35 & 0.30	[−0.08, 0.79] & [−0.14, 0.73]
Elashi and Mills (2014); Exp. 2	Ingroup-outgroup	4	21	Ask & Endorse	0.82 & 0.77	[0.34, 1.30] & [0.29, 1.24]

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APPENDIX B (Continued)

Study	Characteristics of informants	Children's age	*N*	Test	Hedges' *g*	95% CI
Elashi and Mills (2014); Exp. 2	Ingroup-outgroup	5	21	Ask & Endorse	1.20 & 1.08	[0.65, 1.75] & [0.56, 1.61]
Elashi and Mills (2014); Exp. 2	Ingroup-outgroup	6	20	Ask & Endorse	1.64 & 1.21	[0.98, 2.30] & [0.65, 1.77]
Schillaci and Kelemen (2014); Exp. 1	Majority-dissenter	3	20	Endorse	0.07	[−0.35, 0.49]
Schillaci and Kelemen (2014); Exp. 1	Majority-dissenter	4	17	Endorse	0.08	[−0.38, 0.53]
Schillaci and Kelemen (2014); Exp. 2	Majority-dissenter	3	22	Endorse	1.16	[0.63, 1.69]
Schillaci and Kelemen (2014); Exp. 2	Majority-dissenter	4	22	Endorse	1.32	[−0.10, 0.73]
Bascandziev and Harris (2014)	Face: more attractiveness-less attractiveness	4	17	Ask & Endorse	0.40 & 0.73	[−0.07, 0.88] & [0.21, 1.24]
Bascandziev and Harris (2014)	Face: more attractiveness-less attractiveness	5	15	Ask & Endorse	1.13 & 0.88	[0.50, 1.75] & [0.31, 1.46]
McDonald and Ma (2015); Exp. 1	Dressed formally-dressed casually	6	16	Ask	0.57	[0.07, 1.08]
McDonald and Ma (2015); Exp. 1	Dressed formally-dressed casually	4	16	Ask	0.38	[−0.11, 0.86]
McDonald and Ma (2015); Exp. 2	Dressed formally-dressed casually	6	33	Ask	0.33	[−0.01, 0.67]
McDonald and Ma (2015); Exp. 2	Dressed formally-dressed casually	4	33	Ask	0.21	[−0.12, 0.55]
Jaffer and Ma (2015); Exp. 1	Physically abled-disabled	5	24	Endorse	0.75	[0.31, 1.19]
Jaffer and Ma (2015); Exp. 1	Physically abled-disabled	4	23	Endorse	0.65	[0.21, 1.08]
Johnston et al. (2015); Exp. 1	Nice-mean	3	18	Endorse	1.36	[0.74, 1.99]
Johnston et al. (2015); Exp. 1	Nice-mean	4	18	Endorse	0.96	[0.42, 1.50]
Johnston et al. (2015); Exp. 1	Nice-mean	5	19	Endorse	1.30	[0.70, 1.89]
Johnston et al. (2015); Exp. 3	Nice-mean	3	6	Endorse	0.53	[−0.21, 1.27]
Johnston et al. (2015); Exp. 3	Nice-mean	4	9	Endorse	0.59	[−0.06, 1.24]
Johnston et al. (2015); Exp. 3	Nice-mean	5	9	Endorse	0.20	[−0.40, 0.80]
Bernard et al. (2016); Exp. 1	Dominant-subordinate	5	26	Endorse	0.49	[0.09, 0.88]
Bernard et al. (2016); Exp. 1	Dominant-subordinate	3	25	Endorse	0.52	[0.11, 0.92]
Bernard et al. (2016); Exp. 1	Dominant-subordinate	4	23	Endorse	0.31	[−0.10, 0.71]
Bernard et al. (2016); Exp. 2	Dominant-subordinate	5	22	Endorse	0.82	[0.35, 1.30]
Bernard et al. (2016); Exp. 2	Dominant-subordinate	3	22	Endorse	0.91	[0.43, 1.40]
Bernard et al. (2016); Exp. 2	Dominant-subordinate	4	23	Endorse	0.65	[0.21, 1.09]
Bascandziev and Harris (2016)	Face: more attractiveness-less attractiveness	5	22	Ask & Endorse	0.71 & 0.55	[0.26, 1.17] & [0.12, 0.99]
Bascandziev and Harris (2016)	Face: more attractiveness-less attractiveness	4	22	Ask & Endorse	0.67 & 0.45	[0.22, 1.12] & [0.03, 0.88]
Terrier et al. (2016); Exp. 1	Same gender-other gender	3	45	Endorse	0.51	[0.20, 0.81]
Terrier et al. (2016); Exp. 1	Same gender-other gender	4	43	Endorse	0.51	[0.20, 0.82]
Castelain et al. (2016); Exp. 2	Dominant-subordinate	4	31	Endorse	1.03	[0.61, 1.46]
Castelain et al. (2016); Exp. 2	Dominant-subordinate	5	34	Endorse	1.12	[0.70, 1.54]
Castelain et al. (2016); Exp. 2	Dominant-subordinate	6	32	Endorse	0.73	[0.35, 1.12]
Luu et al. (2018); Exp. 1	Conventional-unconventional	3	33	Ask & Endorse	0.46 & 0.34	[0.11, 0.81] & [−0.01, 0.68]
Luu et al. (2018); Exp. 1	Conventional-unconventional	4	34	Ask & Endorse	0.51 & 0.23	[0.16, 0.86] & [−0.10, 0.56]

APPENDIX C

Summary of the Studies Included in the Third Meta-Analysis (Interaction of Characteristics)

Study	Characteristics of informants	Children's age	*N*	Test	Hedges' *g*	95% CI
Corriveau and Harris (2009a); Exp. 1	Accurate/unfamiliar-inaccurate/familiar	3	10	Ask & Endorse	−0.84 & −0.40	[−1.52, −0.17] & [−0.99, 0.19]
Corriveau and Harris (2009a); Exp. 1	Accurate/unfamiliar-inaccurate/familiar	4	11	Ask & Endorse	0.16 & −0.08	[−0.39, 0.71] & [−0.62, 0.47]
Corriveau and Harris (2009a); Exp. 2	Accurate/unfamiliar-inaccurate/familiar	5	10	Ask & Endorse	1.37 & 1.78	[0.55, 2.20] & [0.81, 2.74]
Corriveau et al. (2013); Exp. 1	Accurate/accent-inaccurate/native	3	10	Ask & Endorse	0.15 & 0.20	[−0.42, 0.72] & [−0.37, 0.78]
Corriveau et al. (2013); Exp. 1	Accurate/accent-inaccurate/native	4	11	Ask & Endorse	0.65 & 0.97	[0.04, 1.26] & [0.29, 1.64]
Corriveau et al. (2013); Exp. 1	Accurate/accent-inaccurate/native	5	9	Ask & Endorse	0.90 & 1.03	[0.18, 1.63] & [0.27, 1.78]
Corriveau et al. (2013); Exp. 2 (100%–0%)	Accurate/accent-inaccurate/native	4	10	Ask & Endorse	1.25 & 1.14	[0.46, 2.03] & [0.39, 1.90]
Corriveau et al. (2013); Exp. 2 (75%–25%)	More accurate/accent-less accurate/native	4	10	Ask & Endorse	0.84 & 0.81	[0.17, 1.52] & [0.14, 1.48]
Landrum et al. (2013); Exp. 3	Expert/mean-nonexpert/nice	3	16	Endorse	−0.35	[−0.84, 0.13]
Landrum et al. (2013); Exp. 3	Expert/mean-nonexpert/nice	4	16	Endorse	−0.51	[−1.01, −0.01]
Landrum et al. (2013); Exp. 3	Expert/mean-nonexpert/nice	5	17	Endorse	−0.27	[−0.73, 0.19]
MacDonald et al. (2013); Exp. 2	More accurate/outgroup-less inaccurate/ingroup	4	20	Ask & Endorse	0.22 & 0.21	[−0.21, 0.64] & [−0.22, 0.64]
Taylor (2013); other sex reliable condition	Accurate/other sex-inaccurate/same sex	4	3	Ask & Endorse	0.09 & 0.33	[−0.56, 0.74] & [−0.37, 1.03]
Taylor (2013); other sex reliable condition	Accurate/other sex-inaccurate/same sex	5	10	Ask & Endorse	1.94 & 2.83	[0.92, 2.96] & [1.47, 4.20]
Scofield, Gilpin, Pierucci, and Morgan (2013)	Successful/unconventional-unsuccessful/conventional	3	18	Endorse	0.54	[0.07, 1.02]
Scofield et al. (2013)	Successful/unconventional-unsuccessful/conventional	4	22	Endorse	0.75	[0.29, 1.21]
Danovitch and Mills (2014); Exp. 1	Accurate/unfamiliar-inaccurate/familiar	4	19	Endorse	−0.07	[−0.50, 0.36]
Danovitch and Mills (2014); Exp. 2	Accurate/unfamiliar-inaccurate/familiar	4	22	Endorse	−0.29	[−0.70, 0.13]
Einav (2014)	Knowledgeable/dissenter-no knowledgeable/consensus	4	16	Endorse	0.60	[0.09, 1.11]
Einav (2014)	Knowledgeable/dissenter-no knowledgeable/consensus	5	20	Endorse	0.45	[0.01, 0.89]
Einav (2014)	Knowledgeable/dissenter-no knowledgeable/consensus	6	16	Endorse	1.18	[0.56, 1.80]
Elashi and Mills (2014); Exp. 1	Accurate/outgroup-inaccurate/ingroup	3	10	Ask & Endorse	0.13 & −0.26	[−0.44, 0.70] & [−0.83, 0.32]
Elashi and Mills (2014); Exp. 1	Accurate/outgroup-inaccurate/ingroup	4	10	Ask & Endorse	−0.10 & 0.01	[−0.67, 0.47] & [−0.57, 0.57]
Elashi and Mills (2014); Exp. 1	Accurate/outgroup-inaccurate/ingroup	5	10	Ask & Endorse	0.01 & −0.56	[−0.57, 0.57] & [−1.17, 0.06]
Elashi and Mills (2014); Exp. 2	Accurate/outgroup-inaccurate/ingroup	3	10	Ask & Endorse	0.43 & 0.12	[−0.16, 1.03] & [−0.45, 0.69]
Elashi and Mills (2014); Exp. 2	Accurate/outgroup-inaccurate/ingroup	4	11	Ask & Endorse	−0.25 & −0.35	[−0.80, 0.31] & [−0.91, 0.22]

(Continues)

APPENDIX C (Continued)

Study	Characteristics of informants	Children's age	*N*	Test	Hedges' *g*	95% CI
Elashi and Mills (2014); Exp. 2	Accurate/outgroup-inaccurate/ingroup	5	10	Ask & Endorse	−0.97 & −0.57	[−1.67, −0.26] & [−1.19, 0.05]
Elashi and Mills (2014); Exp. 2	Accurate/outgroup-inaccurate/ingroup	6	10	Ask & Endorse	0.01 & −0.29	[−0.57, 0.57] & [−0.87, 0.29]
Schillaci and Kelemen (2014); Exp. 1	Plausible/dissenter-implausible/majority	3	20	Endorse	−0.12	[−0.55, 0.30]
Schillaci and Kelemen (2014); Exp. 1	Plausible/dissenter-implausible/majority	4	17	Endorse	1.14	[0.55, 1.74]
Schillaci and Kelemen (2014); Exp. 2	Plausible/dissenter-implausible/majority	3	22	Endorse	−0.25	[−0.66, 0.16]
Schillaci and Kelemen (2014); Exp. 2	Plausible/dissenter-implausible/majority	4	22	Endorse	0.78	[0.32, 1.25]
Johnston et al. (2015); Exp. 1	Accurate/mean-inaccurate/nice	3	9	Endorse	0.06	[−0.53, 0.65]
Johnston et al. (2015); Exp. 1	Accurate/mean-inaccurate/nice	4	9	Endorse	0.09	[−0.51, 0.68]
Johnston et al. (2015); Exp. 1	Accurate/mean-inaccurate/nice	5	10	Endorse	−0.45	[−1.05, 0.15]
Johnston et al. (2015); Exp. 2	Accurate/mean-inaccurate/nice	3	12	Endorse	0.39	[−0.16, 0.94]
Johnston et al. (2015); Exp. 2	Accurate/mean-inaccurate/nice	4	18	Endorse	0.22	[−0.23, 0.67]
Johnston et al. (2015); Exp. 2	Accurate/mean-inaccurate/nice	5	18	Endorse	0.16	[−0.28, 0.61]
Bascandziev and Harris (2016)	Accurate/low attractive-inaccurate/high attractive	4	22	Ask & Endorse	−0.35 & −0.26	[−0.77, 0.06] & [−0.67, 0.16]
Bascandziev and Harris (2016)	Accurate/low attractive-inaccurate/high attractive	5	22	Ask & Endorse	−0.03 & −0.03	[−0.43, 0.38] & [−0.43, 0.37]
Terrier et al. (2016); Exp. 2	Visual access/other gender-no access/same gender	3	41	Endorse	1.05	[0.67, 1.43]
Terrier et al. (2016); Exp. 2	Visual access/other gender-no access/same gender	4	44	Endorse	0.92	[0.57, 1.27]
Castelain et al. (2016); Exp. 3	Strong argument/subordinate-weak argument/dominant	4	28	Endorse	1.60	[1.05, 2.15]
Castelain et al. (2016); Exp. 3	Strong argument/subordinate-weak argument/dominant	5	31	Endorse	1.63	[1.10, 2.17]
Castelain et al. (2016); Exp. 3	Strong argument/subordinate-weak argument/dominant	6	32	Endorse	1.56	[1.05, 2.07]
Castelain et al. (2016); Exp. 4	Strong argument/subordinate-no argument/dominant	4	20	Endorse	1.65	[0.99, 2.31]
Castelain et al. (2016); Exp. 4	Strong argument/subordinate-no argument/dominant	5	20	Endorse	1.66	[0.99, 2.32]
Castelain et al. (2016); Exp. 4	Strong argument/subordinate-no argument/dominant	6	20	Endorse	1.91	[1.19, 2.64]
Lawson (2018); Exp. 2	Diverse or large sample/child-nondiverse or small sample/teacher	3	16	Ask	−1.17	[−1.79, −0.55]
Lawson (2018); Exp. 2	Diverse or large sample/child-nondiverse or small sample/teacher	4	15	Ask	0.34	[−0.15, 0.84]
Lawson (2018); Exp. 2	Diverse or large sample/child-nondiverse or small sample/teacher	5	15	Ask	0.77	[0.22, 1.32]
Luu et al. (2018); Exp. 3	Confident/unconventional-unconfident/conventional	3	12	Ask & Endorse	−0.11 & 0.15	[−0.64, 0.42] & [−0.38, 0.68]
Luu et al. (2018); Exp. 3	Confident/unconventional-unconfident/conventional	4	12	Ask & Endorse	−0.47 & −0.72	[−1.03, 0.09] & [−1.32, −0.12]