"Can I Believe My Eyes?" Three- to Six-Year-Olds' Willingness to Accept Contradictory Trait Labels

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Children base trait inferences about people on direct observations of behavior. In some situations, these inferences might conflict with information supplied by others. This study examined 3- to 6-year-olds' willingness to change their own trait attributions about an actor after receiving a consistent or inconsistent trait label from an authority figure (i.e., a teacher). Participants were more likely to change their attributions when the teacher's trait label was inconsistent with their own and when it was positive rather than negative. In response to inconsistent trait labels, 3- to 4-year-olds changed their trait labels more often than did 5- to 6-year-olds. The results indicate that children do not defer to a teacher's trait testimony indiscriminately but take opportunities to view others positively. Findings are interpreted with reference to children's perceptions of teacher knowledge and trait attribution biases.

Children can learn a lot about the world through direct experience but must often rely on other people to acquire novel information (for reviews, see Gelman, 2009; Harris, 2007; Mills, 2013). In some situations, children's firsthand observations conflict with the claims of another person or *informant.* Under these circumstances, do children revise their own beliefs or reject informant testimony? In this study, we examined children's acceptance of testimony from an authority figure whose trait

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attributions about a story actor conflicted with their own observations and trait attributions about the actor.

Relatively few studies have assessed how children reconcile incompatibilities between their own knowledge and informant claims (Chan & Tardif, 2013; Clément, Koenig, & Harris, 2004; Jaswal, 2004; Jaswal & Markman, 2007; Lane, Harris, Gelman, & Wellman, 2014; Robinson, Champion, & Mitchell, 1999). In a study by Robinson and colleagues (1999, Experiment 3), 3- to 5-year-olds either saw and reported the contents of a container or were denied visual access to the container and guessed its contents. Afterward, participants heard a contradictory claim from an actor with or without visual access to the same container and were again asked to state what they thought was inside. At all ages, children reliably retained their initial statements when they had seen the contents and the actor had not, but switched their statements readily in the reverse situation. In another study, Clément et al. (2004, Experiment 2) presented 3- to 5-year-olds with two informants: one who labeled familiar objects, including their color, accurately and one who labeled them inaccurately. In one condition of relevance to the current study (i.e., the contradiction task), children listened as both the reliable informant and the unreliable informant labeled the color of another object incorrectly. Children were then asked to state the color of the object. At all ages, participants ignored the testimony of both informants and instead labeled the object according to the color that they perceived (i.e., the appropriate color). Taken together, these findings indicate that children do not automatically defer to contradictory informant claims, but, rather, do so in situations where they lack direct access to information.

In situations that involve inductive reasoning about category membership rather than perceptual judgments, children readily change their beliefs. In one study (Jaswal, 2004), 3- to 4-year-olds were shown a key-like item and inferred that it would be used like a key. When the experimenter labeled the item a "spoon," children reported that it should be used to eat food. Thus, participants used the experimenter's category label to infer that their own classification was incorrect and that appearance can be misleading about category membership. Four-year-olds were less willing than 3-year-olds to accept the label, possibly because the former inferred that the informant was ignorant. Indeed, after hearing a disclaimer (i.e., "You're not going to believe this, but this is a spoon!"), 4-year-olds were more likely to endorse the label.

In this study, we extend inquiry about children's treatment of incompatible testimony to the social domain, as previous research has focused largely on the aforementioned domain of object labeling. We asked

whether 3- to 6-year-olds would change their own trait attributions about a character after hearing competing testimony by an informant who is an authority figure—namely, a teacher. This assessment can provide insight into whether teachers are seen as knowledgeable about people in particular, as previous research has established that they are considered good sources of knowledge about artifacts (Koenig, 2012). This inquiry can also provide general information about whether testimony acceptance varies by domain. On one hand, traits are construed as social categories (Gelman & Heyman, 1999) and should be subject to the same treatment as nonsocial categories as described earlier. Children who hear a contradictory trait label may assume that their own observations and attributions were limited and defer automatically to another's label. On the other hand, children may view trait attributions as highly subjective as compared to object labels, and this might reduce willingness to accept information that contradicts their own observations even if it comes from an authority figure. It is also possible that acceptance will vary with age: Younger children may defer to a contradictory opinion because of limitations in their trait reasoning (Miller & Aloise, 1989), whereas older children may trust their own observations because they have more sophisticated trait reasoning abilities (Liu, Gelman, & Wellman, 2007). Moreover, confidence in trait attributions increases with age (Kalish, 2002; Yuill & Pearson, 1998).

Children's Trust in Authority Figures

Given our focus on children's willingness to accept testimony from a teacher, the literature on children's acceptance of information from authority figures is highly relevant. Age is one characteristic that can denote authority, but children give credence to informants with a history of accurate knowledge irrespective of informants' age. Jaswal and Neely (2006) showed 3- to 4-year-olds videos of an adult and child informant labeling familiar objects. One informant labeled items correctly (e.g., labeled a shoe as a shoe) and the other did so incorrectly (e.g., labeled a shoe as a glass). Then, children watched the informants label novel objects (e.g., a paint roller) with contradictory names (e.g., Blicket vs. Wug) and were asked to name the objects. Both age groups endorsed the labels provided by reliable informants irrespective of informant age, and children preferred the adult's object labels only when both informants were reliable.

Other research indicates that children defer to adults when there are reasons to believe that they have more expertise in specific domains than do children. For example, children choose to learn from adults about the nutritional value of food but prefer to learn from other children about the

function of a toy (VanderBorght & Jaswal, 2009). In the sole study that examined children's reliance on adults as compared to children to learn about a stranger's personality, Boseovski (2012) found that the willingness to accept informant testimony did not differ based on whether the testimony was offered by a child or an adult. Taken together, these data suggest that children do not automatically consider adult testimony to be accurate.

In contrast to the aforementioned studies, in which informants were nondescript adults or parental figures, we examined whether children would show deference to a teacher. Like any other individual, a teacher is not an *expert* in personality attribution, particularly in contrast to more objective domains (e.g., object names). Nonetheless, we reasoned that simply hearing about this social role might be particularly compelling to children. Children view teachers as a good source of knowledge (e.g., Koenig, 2012) and do not judge them as authority figures simply because they are knowledgeable, but because they fulfill the delegated position of teaching (see Laupa, 1991). Thus, teachers may be seen as a particularly important source for learning in general.

In addition to holding the expectation that teachers are knowledgeable, children are sensitive to whether informants would reasonably have access to the information that they supply (Nurmsoo & Robinson, 2009). In this study, because we described the teacher as the *actor's teacher,* it was reasonable for children to assume that the teacher might have more extensive knowledge about the actor that might legitimately differ from the participants' own observations. Thus, children might be expected to defer to the teacher despite their own contradictory observations of the actor.

Only one study assessed how children handle information from a teacher that conflicts with their own perceptions, and that study focused on object labeling. Chan and Tardif (2013) examined kindergartners' and second graders' use of a teacher's labels for familiar and ambiguous objects that contradicted children's own labels. First, children labeled four familiar and four ambiguous objects and assigned the objects to categories. For example, children were presented with a picture of a button (i.e., an item familiar to them) and asked "What is this?" and "Does it go with a jacket or a car?" Later, they were asked to demonstrate the game for a confederate visiting teacher who supplied contradictory labels for the objects. For instance, when showing a picture of the button to children, the teacher asked "Where do you think this *wheel* goes?" Kindergartners deferred to the teacher's label to classify objects irrespective of whether the item was familiar or ambiguous. In contrast, second graders used the teacher's label only when classifying ambiguous objects but persisted in their original classification of familiar objects. These findings indicate that there are age-related changes in willingness to accept teacher

testimony, with older children showing more selectivity in doing so based on their familiarity with the issue at hand. Given the arguably more subjective nature of personality attributions, it is unclear whether such findings would extend to trait labeling. Moreover, it has been well established that children's acceptance of testimony in social domains is influenced by its valence (i.e., whether it is positive or negative; see Boseovski, 2010), as discussed in the next section.

Biases in Acceptance of Testimony

Beginning at approximately 4 years of age, children display a positivity bias in trait attributions that is marked by the prioritization of positive over negative information and the reluctance to make negative social judgments (Boseovski & Lee 2006, 2008; Boseovski & Thurman, 2014; Cain, Heyman, & Walker, 1997). This bias peaks in middle childhood (Benenson & Dweck, 1986; Heyman & Giles, 2004; Lagattuta & Sayfan, 2013; Newman, 1991; Rholes & Ruble, 1986) and attenuates by 10–11 years of age (Heyman, Gee, & Giles, 2003; Heyman & Legare, 2005), after which a negativity bias is documented in preadolescence (i.e., in 9- to 13-year-olds; see Fiske, 1993; Skowronski & Carlston, 1989; Tversky & Kahneman, 1991).

In one study, Boseovski (2012) examined 3- to 7-year-olds' acceptance, based on informant testimony, of positive and negative trait labels about a stranger. In a reliability training phase, children watched an actor perform positive or negative actions. Then, participants heard an adult informant and a child informant provide trait labels for the actions such that one informant was reliable and the other was unreliable (e.g., said "nice" instead of "mean" after viewing negative behavior). In a test phase, participants heard the same informants label a stranger as "nice" or "mean" and were asked to endorse one label. The majority of children rejected the label "mean" even when it came from reliable informants and instead chose "nice." Other research indicates that 3- to 6-year-olds endorse testimony about novel objects from informants who are described with positive rather than negative traits (Lane, Wellman, & Gelman, 2013; Mascaro & Sperber, 2009) and that preschoolers disregard expert testimony if the expert is described as "mean" (Landrum, Mills, & Johnston, 2013). Finally, this bias has been found even when children reason about animals (Boseovski & Thurman, 2014). Based on the prevalence of the positivity bias in early to middle childhood, children may be more willing to accept testimony that is positive rather than negative, which was one hypothesis that was tested here.

Current Study

We assessed whether 3- to 6-year-olds accepted positive or negative trait testimony from a teacher that conflicted with their own trait attribution about a story actor. We chose this age range because we anticipated that response patterns might be linked to the aforementioned developmental changes in trait attributions, acceptance of informant testimony, and biases in trait attribution. Participants observed an actor engage in positive or negative behaviors and were asked to decide whether the actor was "nice" or "mean." Additionally, to understand the general context of personality reasoning skills in this age group, we asked children about their and others' willingness to befriend the actor and assessed whether these judgments aligned with children's behavioral observations. Next, a teacher who was described as the actor's teacher provided a trait label that was consistent or inconsistent with the child's trait label. Finally, children were asked again to indicate whether the actor was "nice" or "mean." Thus, children could use their self-generated trait label or revise it according to teacher testimony when they made the second and final trait attribution.

We expected that the majority of children would make appropriate trait attributions initially (i.e., before hearing teacher testimony), given that children consider behaviors as closely linked to traits (Yuill & Pearson, 1998). Thus, children should link negative behaviors to meanness and positive behaviors to niceness (i.e., behavior-matching). Conversely, children consider many factors when deciding who to befriend, reject, or victimize (e.g., social status [Benenson, 1990], gender-typical behaviors [Kochel, Miller, Updegraff, Ladd, & Kochenderfer-Ladd, 2012], and physical attractiveness [Rosen, Underwood, & Beron, 2011]). Given the potential complexity of friendship decisions, we predicted that children would make fewer behavior-matched friendship judgments than trait attributions and that appropriate judgments would increase with age.

We expected that older children would be more likely than younger children to retain their initial trait attributions after hearing the teacher's trait label, because older children demonstrate more sophisticated trait reasoning (Liu et al., 2007) and have more confidence in their trait attributions (e.g., Kalish, 2002). Based on the aforementioned findings of a positivity bias in this age group, as well as evidence that children see negative traits as unstable (Heyman & Dweck, 1998; Heyman & Giles, 2004; Lockhart, Chang, & Story, 2002), we predicted that participants would be more likely to retain positive trait attributions than negative trait attributions and that this pattern would increase between 3 and 6 years of age. Finally, we expected that children would change their trait attributions less frequently when the informant's trait label was consistent, rather than inconsistent,

with the child's trait label (i.e., there was no reason to expect otherwise unless children engaged in response alternation when asked the same question twice).

Method

Design

A 2 (age: 3- to 4-year-olds and 5- to 6-year-olds) × 2 (behavior valence: positive and negative) × 2 (teacher's opinion consistency: consistent and inconsistent) mixed design was used, with age and behavior valence as between-subjects variables and the teacher's opinion consistency as a within-subjects variable. The order of the consistent and inconsistent trials was counterbalanced across participants.

Participants

There were 91 participants: forty-eight 3- to 4-year-olds (M = 47.4 months, SD = 6.6, 20 boys), and forty-three 5- to 6-year-olds (M = 70.5 months, SD = 7.3, 20 boys). Participants were recruited from a midsized Southeastern city. The majority of participants were Caucasian; additional demographic information was not available.

Materials

There were 15 different scenarios that were similar to those used in previous research (Boseovski, Shallwani, & Lee, 2009; Jones & Thomson, 2001), with equally positive and negative content and equated in length and structure as closely as possible. To ensure that a particular story characteristic did not influence participants' responses, each participant heard a random set of 10 scenarios. The vignettes were acted out for participants by using toy figures with neutral facial expressions, toy furniture, and miniature toy items. Similar stimuli have been used in previous research with children in this age range (Boseovski & Lee, 2006, 2008; Boseovski, Chiu, & Marcovitch, 2013).

Procedure

Before beginning the study, parents provided written informed consent for their children, and their children provided verbal assent to participate. All participants were tested by the same female experimenter in a quiet room

in a single session at their school or day care. Participants were told that they would hear stories about children their age who attend a school like their own. Participants were shown the classroom stimuli and introduced to the actor, recipient of behavior, and the actor's and recipient's teacher (e.g., Mrs. Smith). All characters in the scenarios were matched to participants' gender, except for the teacher, who was always female. In the positive conditions, all scenarios described an actor engaging in prosocial behavior (e.g., sharing a toy). In the negative conditions, scenarios described an actor engaging in antisocial behavior (e.g., not sharing a toy).

Inconsistent trial. Participants heard five positive or five negative behavior scenarios and answered comprehension questions to ensure they could label the actor by name and identify what the actor did in the scenario (see the Appendix for sample scenarios and comprehension questions). While the scenarios were enacted, only the actor and recipient figurines were displayed (i.e., the teacher figurine was kept out of sight). After participants heard all five scenarios, they were asked to make trait attributions about the actor. First, participants were asked an open-ended trait question: "What do you think about [actor]? What kind of boy/girl is he/she?" If participants did not respond with either "nice" or "mean," the question was followed up with this forced-choice question: "Is [actor] nice or mean?" Regardless of the format of the response (i.e., open ended or forced choice), participants received a trait score of 0 if they did not make a behavior-matched attribution. In these cases, the actor behaved positively but was labeled as "mean" or the actor behaved negatively but was labeled as "nice" (i.e., the trait label did not match the behavior). Participants received a score of 1 if they made a behavior-matched attribution. In these cases, the actor behaved positively and was labeled positively or behaved negatively and was labeled negatively (i.e., the trait label matched the behavior). Additionally, participants made friendship judgments for themselves—"Would you want to be friends with [actor]?"—and for others—"Does [actor] have other friends?" Again, participants received a friend–self and friend–other score of 0 if they did not make a behavior-matched judgment (e.g., the actor behaved negatively, but the participant wanted to befriend the actor) and a score of 1 if they made a behavior-matched judgment (e.g., the actor behaved negatively and the participant did not want to befriend the actor).

Once participants provided their own trait attributions, the teacher informant was brought out again and participants were told "[Teacher] says that [actor] is a nice/mean boy." The trait attribution provided by the teacher was *inconsistent* with the actor's behaviors that participants had witnessed firsthand. For example, if the actor shared in all five scenarios,

the teacher labeled the actor as "mean." After the teacher's opinion was provided, participants responded to a comprehension question to ensure that they understood what the teacher had said: "What did the teacher say about [actor]?" Finally, children were asked again to make a trait attribution about the actor in the aforementioned same format (i.e., open ended, followed by forced choice if necessary). Each participant received a trait change score based on their initial and second responses to the trait question (0 = *no change,* 1 = *change*).

Consistent trial. Children also completed these procedures with different characters and a new set of five randomly selected scenarios. The only difference in the procedure as compared to the inconsistent trial was the testimony of the teacher. After viewing the five scenarios, the teacher provided a trait label consistent with the actor's behaviors that participants witnessed firsthand. For example, if the actor shared in all five scenarios, the teacher labeled the actor as "nice." All dependent measures were the same as in the inconsistent trial. Trial order was counterbalanced.

Results

Given that all of the analyses included repeated measures and binary outcomes, data were analyzed by using generalized estimating equations (GEEs; Zeger, Liang, & Albert, 1988) with a logistic regression model. All variables were standardized.

Children's Initial Trait Attributions and Friendship Judgments

There were no within-subjects effects of trial on the dependent measures collected prior to teacher testimony. Thus, children's responses to both vignettes were used in the following analyses, resulting in two cases for every participant. Age in months, valence, and the interaction between the two were entered as predictors of children's initial trait attributions and friendship judgments. Basic descriptive statistics for the initial trait attributions and friendship judgments, including the significance for tests against chance, are listed in Table 1.

Initial trait attributions. Concerning children's initial trait attributions about the actor, the majority of children made behavior-matched trait attributions (80% of cases), meaning that when children viewed the actor behave negatively, they labeled him or her as "mean," and when the actor behaved positively, they labeled him or her as "nice." As expected (see Boseovski & Lee, 2006), older children were significantly more likely than younger children to provide the trait label spontaneously, $\chi^2(1, N = 182) =$

Table 1. Means and standard deviations for behavior-matched responses by age and valence

	Initial trait attributions			Friend–self			Friend–other		
	M	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*
Age (years)									
3–4	.72*	.45	96	.48	.50	96	.55	.50	92
5–6	.88*	.32	86	.70*	.46	86	.85*	.36	82
Valence									
Positive	.97*	.18	86	.95*	.49	86	.98*	.15	86
Negative	.65*	.48	96	.25*	.44	96	.42	.50	88
Age (years) and valence									
3–4									
Positive	.95*	.21	46	.91*	.28	46	.96*	.21	46
Negative	.50	.50	50	.08*	.27	50	.15*	.36	46
5–6									
Positive	.98*	.16	40	1.00*	0.00	40	1.00*	0.00	40
Negative	.80*	.40	46	.43	.50	42	.71*	.46	46

Note: *N* is the number of cases; each participant completed two trials. Significance of tests against chance is indicated by an asterisk.

*$p < .001$. Scores: 0 = not behavior-matched, 1 = behavior-matched.

21.06, $p < .001$. Among the younger children, 24.7% provided the "nice" or "mean" trait label spontaneously; among the older children, 55.8% did so spontaneously. There was a significant effect of behavior valence. Specifically, children made "nice" attributions after viewing positive behaviors significantly more than they made "mean" attributions after viewing actors' negative behavior ($\beta = 2.74$, Wald $\chi^2 = 15.66$, $p < .001$). As a group, children were more likely than expected by chance to make behavior-matched trait attributions in both the negative condition, $t(95) = 2.97$, $p < .01$, and the positive condition, $t(85) = 23.37$, $p < .001$. A breakdown of means by age revealed that younger children responded at chance levels in the negative condition, $t(49) = 0.00$, $p = 1.00$, but were more likely than expected by chance to make a behavior-matched judgment in the positive condition, $t(45) = 15.02$, $p < .001$. Conversely, older children were more likely than expected by chance to make behavior-matched trait attributions in both the negative condition, $t(45) = 5.15$, $p < .001$, and the positive

condition, $t(39) = 19.00$, $p < .001$. There was no significant effect of age and no significant interaction between age and valence.

Friend–self. The majority of children (59%) made behavior-matched friendship judgments regarding the decision to befriend the actor. Younger children made marginally fewer behavior-matched judgments than older children ($\beta = -2.76$, Wald $\chi^2 = 3.22$, $p = .07$). As a group, younger children responded unsystematically, $t(95) = -0.41$, $p = .69$, whereas older children were more likely than expected by chance to make a behavior-matched friendship judgment, $t(85) = 3.97$, $p < .001$. Also, children made fewer behavior-matched predictions when the behavior was negative rather than positive ($\beta = 6.57$, Wald $\chi^2 = 11.90$, $p < .01$).

As a group, children were less likely than expected by chance to make a behavior-matched friendship judgment in the negative conditions, $t(95) = -5.63$, $p < .001$, but were more likely than expected by chance to do so in the positive conditions, $t(85) = 19.85$, $p < .001$. A breakdown of the means revealed different response patterns by valence for younger and older children. Both younger and older children[1] were more likely than expected by chance to make a behavior-matched judgment after hearing about positive behavior, $t(45) = 9.83$, $p < .001$. After hearing about negative behavior, younger children were less likely than expected by chance to make a behavior-matched judgment, $t(49) = -10.84$, $p < .001$, whereas older children's friendship judgments did not differ significantly from chance, $t(45) = -0.88$, $p = .38$. There was no significant interaction between age and valence ($ps > .05$).

Friend–other. The majority of children (70% of cases) made behavior-matched friendship judgments when they were asked whether the actor was friends with other children. The findings regarding age and valence were similar to those found for the friend–self question. Younger children made marginally fewer behavior-matched judgments as compared to older children ($\beta = -1.43$, Wald $\chi^2 = 3.12$, $p = .08$). As a group, younger children responded at chance levels, $t(91) = 1.04$, $p = .30$, whereas older children were more likely than expected by chance to make a behavior-matched friendship judgment, $t(81) = 9.01$, $p < .001$. Also, children made significantly fewer behavior-matched judgments when the behavior was negative rather than positive ($\beta = 5.11$, Wald $\chi^2 = 21.93$, $p < .001$). A breakdown of the means revealed different response patterns by valence for younger and older children. Both younger and older children were more likely than

1. A *t* test was not calculated for the older age group's friend–self judgments and friend–other judgments because all of these children provided behavior-matched judgments ($M = 1.00$, $SD = 0$, for both questions).

expected by chance to make a behavior-matched judgment after hearing about positive behavior, $t(45) = 15.02$, $p < .001$. After hearing about negative behavior, younger children were less likely than expected by chance to make a behavior-matched judgment, $t(45) = -6.50$, $p < .001$, whereas older children were more likely than expected by chance to make a behavior matched judgment, $t(41) = 3.04$, $p < .01$. There was no significant interaction between age and valence (ps > .05).

Children's Trait Attribution Change After Teacher Testimony

Following their initial trait attributions, participants heard the teacher's testimony, after which they were again asked to make a trait attribution about the actor. We did not ask children to make friendship judgments again because change in such judgments was not a central interest in this study. Individual cases in which children initially failed to make a behavior-matched trait attribution were excluded from the following analyses on children's trait change. Each child had two data cases, resulting in a total of 182 cases. Of these, 37 were excluded: 28.1% ($n = 27$, 13 boys) of cases from 3- to 4-year-olds and 11.6% ($n = 10$, 3 boys) of the cases from 5- to 6-year-olds. More cases were excluded from the negative conditions than the positive conditions, $t(180) = -8.00$, $p < .001$. Additionally, significantly more cases were excluded for younger participants than older participants, $t(178) = -2.54$, $p < .01$. The excluded cases did not differ from the rest of the sample based on gender, $t(180) = 0.10$, $p > .10$.

A model including age, valence, teacher opinion consistency, and all possible interactions, was used to assess possible effects on children's trait change scores. Table 2 lists the model statistics. As shown in the table, Models 2 and 3 had a similar fit; however, Model 3 revealed a significant interaction between some predictors that qualified the main effects found in Model 2. Thus, Model 3 was retained.

Overall, the majority of children (68.7%) retained their original trait attribution after hearing the teacher's testimony. As expected, there was a main effect of consistency such that children changed their attributions more often when the teacher's testimony was inconsistent with their own trait label rather than when it was consistent ($\beta = -2.50$, Wald $\chi^2 = 6.63$, $p < .05$). These effects were qualified by a significant interaction between consistency and age ($\beta = 0.89$, Wald $\chi^2 = 6.27$, $p < .05$) (see Figure 1). Post hoc chi-square analyses indicated that younger children changed their opinions more often when the teacher's testimony was inconsistent with the child's trait label compared to when it was consistent with the child's trait label, $\chi^2(1, N = 69) = 11.38$, $p < .01$. Older children displayed the same response

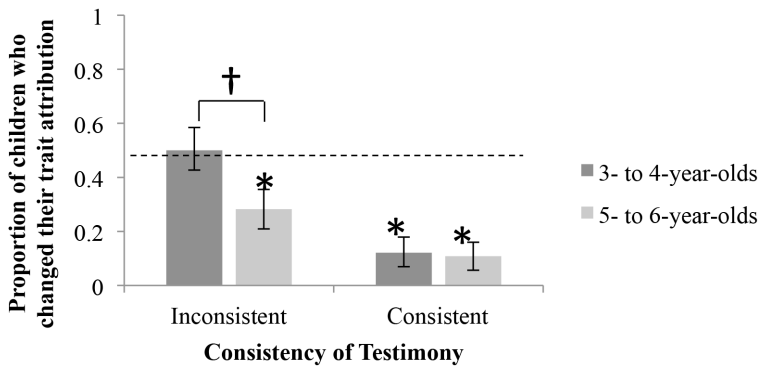
Table 2. Logistic regression analysis on trait change

	Parameter estimates					Goodness-of-fit statistic
Predictor	β	*SE* β	Wald χ^2	*df*	*p*	QICC
Model 1						167.11
Intercept	1.09	.19	33.52	1	.00	
Age in months	.25	.18	.18	1	.18	
Model 2						142.77
Intercept	2.94	.48	37.88	1	.00	
Age in months	.43	.19	5.04	1	.03*	
Valence (0 = negative)	−1.59	.45	12.74	1	.00*	
Consistency (0 = inconsistent)	−1.80	.45	15.73	1	.00*	
Model 3						147.46
Intercept	3.66	1.01	13.17	1	.00	
Age in months	.002	.17	.00	1	.99	
Valence	−2.55	1.10	5.38	1	.02*	
Consistency	−2.50	.97	6.63	1	.01*	
Valence* × Consistency	1.10	1.12	.97	1	.33	
Valence × Age	.14	.42	.11	1	.74	
Consistency × Age	.89	.35	6.27	1	.01*	
Valence × Consistency × Age	−.74	.66	1.29	1	.26	

Note. QICC = corrected quasi-likelihood under independence model criterion.

* $p < .05$.

pattern, but the result of the analysis was marginal, $\chi^2(1, N = 76) = 3.63$, $p = .06$. Younger and older children exhibited low rates of change when the teacher's opinion was consistent and these rates did not differ significantly, $\chi^2(1, N = 70) = 0.03$, $p = .86$. However, younger children changed their trait attributions more often than did older children in the inconsistent condition, $\chi^2(1, N = 75) = 3.75$, $p < .05$. None of the other interaction terms were significant (ps > .05). Table 3 lists the percentage of children who changed their trait attributions by age, valence, and consistency. Finally, there was a



		Consistency		Standard errors	
		Inconsistent	Consistent		
Age	3- to 4-year	0.5	0.1212	0.08452	0.0577
	5- to 6-year	0.2821	0.1081	0.073	0.05175

Figure 1. Proportion of children engaging in trait change by condition and age. The *dashed line* indicates chance performance. $^{*}p < .01$. $^{\dagger}p < .05$.

valence effect such that children changed their trait attribution more often in the negative conditions than the positive conditions ($\beta = -2.55$, Wald $\chi^2 = 5.38$, $p < .05$). Thus, children more readily changed their trait attributions from "mean" to "nice" than from "nice" to "mean" after receiving informant testimony

Discussion

We examined whether 3- to 6-year-olds accepted a teacher's positive or negative trait testimony that conflicted with their own observations and trait attributions about a story actor. In doing so, we gained insight into the extent to which children value teacher testimony in the domain of personality reasoning. Our findings revealed that a substantial proportion of participants deferred to the teacher's attribution after hearing testimony that was inconsistent with their firsthand observations and impressions of actors' behavior.

These results contrast somewhat with those of Robinson et al. (1999, Experiment 3) and Clément et al. (2004, Experiment 2), but there were several differences between these studies and ours that might account for the relatively limited influence of direct perceptual information on participants in the current study. First, our participants were not given

Table 3. Percentage of children who changed their trait attributions by age, valence, and consistency

	Inconsistent		Consistent	
Age (years)	Mean to nice	Nice to mean	Mean to nice	Nice to mean
3–4	69.2%	39.1%	25.0%	4.8%
5–6	42.1%	15.0%	22.2%	0.0%

explicit information about the precise source of the teacher's knowledge (i.e., they were told only that the teacher was the actor's teacher). In contrast, Robinson et al. and Clément et al. provided participants with explicit demonstrations of actors' visual experience that mapped directly onto the judgments at hand. The ambiguity regarding the teacher's knowledge in our study likely resulted in greater deference to her testimony, particularly from the younger children, as discussed in greater detail in the next section. Second, our participants simply listened to story information, whereas children in the other studies participated actively in the procedure. Direct involvement in the procedure may have resulted in greater memory for, or commitment to, one's own knowledge (for research on such effects in late childhood, see Pathman, Samson, Dugas, Cabeza, & Bauer, 2011). Third, as discussed further later in this article, our participants were asked to make relatively complex judgments (i.e., judging the stability of a person's character) rather than to identify objects or colors. Children's reluctance to make judgments of meanness, in particular, may have reflected an awareness of the gravity of such decisions and the belief that trait knowledge is a particularly subjective domain (see Kuhn & Weinstock, 2002). The notion that children's theories of epistemology are domain specific may explain why the willingness to accept testimony varies across the perceptual domain and the personality reasoning domain. Finally, there is no documentation of systematic biases in children's willingness to accept informant testimony in perceptual domains, whereas a positivity bias has been documented in the social domain, both in previous research (Boseovski, 2012) and in the current study.

Notably, younger children in the current study were more likely than older children to change their attributions in response to inconsistent testimony. These findings cannot be attributed to age differences in the ability to form initial trait labels that matched the actor's behavior (i.e., "mean" for negative behavior and "nice" for positive behavior), although older children tended to make these attributions spontaneously as compared to younger children. Our results are consistent with previous research by Chan and

Tardif (2013), who found that younger children were more likely than older children to accept a teacher's incorrect label for an object. Next, we discuss potential reasons for the age differences obtained in the present study.

Age-Related Change in Perceptions of Teacher Knowledge and Epistemic Authority

The age differences in willingness to accept teacher testimony suggest that younger and older children likely had different perceptions of the teacher's knowledge. One possibility is that older children do not consider a teacher to be a trait reasoning expert, whereas younger children assume that teachers have broad expertise that extends to this domain. Consistent with this notion, Raviv, Bar-Tal, Raviv, and Houminer (1990) found that 4- to 5-year-olds perceived teachers as knowledgeable about a variety of topics, including social relations, rules and laws, dealing with personal feelings, and science. In contrast, 6- to 7-year-olds perceived teachers as having more specialized knowledge in science as compared to other domains. Thus, schemas of teacher expertise become less domain general and increasingly domain specific with development.

In addition to perceiving teacher knowledge differently from younger children, older children show more sophisticated trait reasoning (e.g., Liu et al., 2007), which might account for the pattern of results obtained. For example, 5- to 7-year-olds and adults have a greater appreciation than 4-year-olds that traits can vary in intensity (a little shy vs. very shy; see Gonzalez, Zosuls, & Ruble, 2010). The stronger trait reasoning ability of older children, as compared to younger children, may reflect an awareness that trait attributions can be subjective and that the teacher's attributions did not necessarily contradict their own perceptions. Indeed, children's theories of epistemic authority are thought to change from purely objective to purely subjective with development, after which these beliefs become coordinated as children encounter new information in specific domains (Kuhn & Weinstock, 2002).

Relatedly, children's confidence in their own knowledge likely played a role in their decision to revise their beliefs. Given the simplistic nature of the trait attributions here (i.e., global attributions of niceness or meanness; see Boseovski & Lee, 2006), older children may have felt secure about their judgments and attributed the teacher's contradictory trait label to ignorance or error rather than privileged knowledge. Younger children may have accepted contradictory trait labels more readily because they are less confident in their ability to interpret social behavior and assign trait labels (Kalish, 2002; Yuill & Pearson, 1998). In support of this proposition,

younger children in the inconsistent condition responded at chance levels overall. These results are also compatible with the robust finding that younger children are typically more vulnerable to suggestibility than are older children (Ceci & Bruck, 1993). To some extent, the deference to a teacher's testimony may be an adaptive response by younger children in that they recognize that they are less knowledgeable than adults in general.

Inconsistency and Valence as Potential Triggers for Trait Attribution Change

A substantial proportion of participants in the current study changed their minds and discarded their original trait attributions after hearing inconsistent testimony. Why do children sometimes disbelieve their own eyes and defer to a teacher's testimony? Few children (11%) in the consistent condition changed their trait attributions, which casts doubt on the interpretation that they changed responses simply because they were asked the same question twice. In the inconsistent testimony conditions, however, simply hearing the contradictory testimony might have created a context that prompted children to reconsider their initial attributions.

Research supports the notion that inconsistent information is particularly powerful for triggering reflection. For example, Legare, Gelman, and Wellman (2010) told 3- to 5-year-olds about a set of objects that could either turn on a lightbox, turn it off, or have no impact at all. Participants were more likely to pay attention to, and try to explain, outcomes that conflicted with their prior knowledge. This desire for explanation is thought to be important for children's formation of causal theories about the world (Legare et al.). Similar knowledge revision is documented for trait attributions. In a study by Rholes and Ruble (1986), participants saw several negative or positive behaviors that were followed by an inconsistent behavior (e.g., four positive acts followed by one negative act). Although there was no contradictory opinion offered in this study, children were more likely to change their attributions after simply viewing the incompatible behavior. Together with emerging ideas about the subjectivity of trait knowledge as noted earlier, the change in response may have resulted from consideration of alternate viewpoints that participants attempted to integrate into their own limited knowledge base about the actor.

In addition to the possibility that inconsistent information serves as a trigger for reflection, children in this study clearly were motivated to view or present others positively both in their initial trait attributions and in their reactions to teacher testimony. We consider the findings for each of these phases of the experiment in turn. Prior to hearing the teacher's

testimony, participants were more likely to make initial trait attributions and friendship judgments that matched their behavioral observations when the behaviors were positive rather than negative, which is consistent with previous research (Boseovski & Lee, 2006). This was particularly true for the younger children, whose attributions were unsystematic following the presentation of negative behavior. Moreover, younger children were also willing to befriend the actor irrespective of his or her behavior and predicted that the actor had friends. Perhaps these children are unaware of the implications of befriending a person who engages in negative actions. Although negative behavior (e.g., aggression; Guo & Zhang, 2003) predicts children's friendships and peer rejection, at times children disregard this information. For example, 3- to 5-year-olds' friendship selection in the classroom is sometimes unrelated to the behaviors displayed by peers (Masters & Furman, 1981; Roopnarine, Adams, & Mounts, 1988). Even older children in the current study responded unsystematically rather than discounting the possibility of friendship with the actor in negative situations.

The pattern of findings for children's initial trait attributions and friendship judgments suggests that participants have general difficulties with the interpretation of negative behavior, and these difficulties likely had an impact on their subsequent treatment of teacher testimony. Indeed, the valence of the contradictory testimony offered by the teacher had a tremendous impact on children's acceptance of her trait label. Although the majority of children in the full sample retained their initial attributions across conditions, both age groups were more likely to change their attributions from "mean" to "nice" than from "nice" to "mean." This result is consistent with other findings that children favor positive information about the self and others (Benenson & Dweck, 1986; Boseovski, 2012; Jones & Thomson, 2001)

It is unclear how participants perceived the negative testimony by the teacher and why they were less likely to change their stated attributions in response to it. As mentioned previously, children might take the stance that negative trait attributions are particularly subjective. Another possibility is that children consider negative information to be less diagnostic of one's personality traits. Perhaps relatedly, children need more examples of negative information than positive information to make a behavior-matched trait attribution (Boseovski & Lee, 2008). Children also view negative traits as more malleable and less stable over time than positive traits (Heyman & Giles, 2004). Thus, participants may have perceived testimony about negative trait labels as less informative. Children may consider negative information more readily when the stakes are higher (e.g., in situations where there is risk of threat, injury, or loss of resources).

Limitations and Future Directions

Many questions remain that can be pursued in future research. Our goal was to examine participants' perceptions of teacher knowledge in a relatively naturalistic way. Thus, we provided the category label "actor's teacher" without elaboration because it is unlikely that participants would have explicit information in everyday life about the teacher's knowledge in the area of trait attribution. Certainly, there are disadvantages to this approach. Due to the lack of contextual information, it is unclear what inferences children made about the teacher's competence, specific knowledge, or past experience with the actor beyond serving as his or her teacher in a prototypical classroom. The process of making mental state inferences about informants and considering how they acquire knowledge is an important aspect of testimony acceptance (Nurmsoo & Robinson, 2009). Future studies could be aimed at manipulating the type and amount of information provided about the teacher to determine boundaries on testimony acceptance. For example, the majority of children may have changed their attributions if they were told that the teacher had taught the actor for many years and had witnessed him or her in a variety of settings (i.e., implying stability of personality over time).

Although we discussed many possibilities, follow-up studies are needed to determine why some children accept contradictory trait labels quite readily. One potentially fruitful direction is to examine individual differences that influence the willingness to accept testimony. In particular, the motivation and desire to reflect deeply about the quality of one's experiences, known as the "need for cognition" (see Cacioppo, Petty, Feinstein, & Jarvis, 1996), may result in strong convictions about one's own knowledge under circumstances where informant testimony seems minimal or ambiguous, or in increased flexibility when there are reasons to believe that the informant is an expert. Cognitive inhibition is another variable that may impact children's testimony acceptance. Jaswal and colleagues (2014) found that 2½- to 3½-year-olds' willingness to defer to adult's contradictory description of a simple event (that both the child and the adult had witnessed) was associated with poor inhibitory control. In a study with 3- to 4-year-olds, inhibitory control was associated with the ability to override incorrect information provided by a "naughty" wolf informant about the location of a sticker (Heyman, Sritanyaratana, & Vanderbilt, 2013; Experiment 1, but see Experiments 2–4). Perhaps children with stronger cognitive inhibition skills are more likely to retain their own views if they lack sufficient information about the veracity of informant knowledge.

Methodologically, assessment of children's explicit reactions to the contradictory testimony could also provide insight about their decision to accept or reject the testimony. Jaswal (2004) assessed children's spontaneous verbal responses after receiving counterperceptual labels for objects and found that older children, as compared to younger children, often stated explicitly that the informant was wrong. Future studies should include direct questioning (e.g., "What do you think about what [informant] just said?" and "Why do you think [informant] said that?"). For younger children, it may be useful to assess nonverbal reactions, as well (e.g., facial expressions of surprise, confusion, or concern), because these children may be less adept at verbalizing their reactions or inferences about testimony.

Future studies should assess more complex traits to understand the role of children's perceived self-competence or confidence in the willingness to accept contradictory testimony. The personality traits examined in the current study were highly familiar to children (e.g., Boseovski & Lee, 2006). Chan and Tardif (2013) found that children with limited knowledge about an item deferred to informants' labels more frequently (i.e., in contrasts of familiar vs. ambiguous objects). Thus, when reasoning about less familiar traits, children may rely more on informant testimony. It is also important to determine whether testimony acceptance is restricted to a trait label (i.e., calling someone nice or mean) or whether children would use the information to make predictions about the stability of the actors' behavior (i.e., behavioral predictions). Perhaps younger children in this study, who were more likely to change their attributions, did not consider the trait label to be predictive and instead treated it as a summary of the actor's behavior. Assessment of behavioral predictions would provide a more sensitive measure of the degree to which children's impressions about the actor truly changed.

Finally, in this study, data from some children were excluded because these children did not form the initial expected trait attribution. Several younger children viewed negative behavior and made an incorrect trait attribution, which resulted in somewhat of a selection bias for the final sample, and thus our conclusions must be interpreted cautiously. This finding underscores the point that trait understanding improves with age (Liu et al., 2007). Also, although a relatively small percentage of children did not form the appropriate attribution, this finding suggests that behavior and trait attributions are construed as more subjective compared to information that is frequently assessed in informant testimony studies (e.g., object labels).

In sum, these findings indicate that children often deferred to a teacher's trait testimony when it was incompatible with what they viewed personally and that this tendency weakened with age. Children were

also highly motivated to view others optimistically, as indicated by their tendency to change their responses more readily in a positive, rather than negative, direction. The findings of this study highlight the need to develop models of social learning and beliefs about epistemic authority across many domains to better understand the processes that underlie children's decisions about who to trust, and in which contexts, when learning about the world. At a practical level, a better understanding of children's perceptions of teacher knowledge can inform educational approaches such as how to foster children's trust, but not blind acceptance, of epistemic authority.

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Appendix: Sample Positive and Negative Behavior Scenarios and Comprehension Questions

Positive sample scenarios

1. "Today at school, Adam/Allison has cookies for snack. He/she shares his/her cookies with Nathan/Nancy."
2. "Today during play time, Adam/Allison is playing with the blocks. He/she lets Michael/Molly play with the blocks, too."
3. "Today at school, Adam/Allison is playing with his/her new cars. He/she lets Timmy/Tammy play with the new cars."

4. "Today during recess, Adam/Allison is playing with a ball. He/she shares his/her ball with Stephanie/Sammy."
5. "Today at school, Adam/Allison is drawing with the crayons. He/she lets Bobby/Becky draw with the crayons too."

Negative sample scenarios

1. "Today at school, Adam/Allison has cookies for snack. He/she will not share his/her cookies with Nathan/Nancy."
2. "Today during play time, Adam/Allison is playing with the blocks. He/she does not let Michael/Molly play with the blocks."
3. "Today at school, Adam/Allison is playing with his/her new cars. He/she does not let Timmy/Tammy play with the new cars."
4. "Today during recess, Adam/Allison is playing with a ball. He/she will not share his/her ball with Stephanie/Sammy."
5. "Today at school, Adam/Allison is drawing with the crayons. He/she does not let Bobby/Becky draw with the crayons too."

Comprehension questions

1. "Which one is [actor]?"
2. "What did [actor] do with [object]?"
3. "What did [teacher] say about [actor]?"