Children’s Evaluation of Sources of Information About Traits

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Children’s assessment of the value of different sources of information about psychological traits was investigated among 6- to 7-year-olds and 10- to 11-year-olds across 5 studies (N = 330). Older children were more likely than younger children to reject self-report as a source of information about the highly evaluative traits smart and honest, but no such age-related difference was seen for the less evaluative comparison traits outgoing and nervous. A similar pattern of age-related differences was seen when children were asked to identify which of 4 sources of information—self-report, teacher report, peer report, or direct observation—would be most useful for obtaining information about the evaluative and comparison traits. The age-related increase in skepticism about self-report as a source of information for evaluative traits was associated with an increased appreciation of the role that social desirability plays in self-presentational processes.

The way children reason about sources of information about people intersects with many issues of interest to developmental psychologists, including the development of person perception (Ruble & Dweck, 1995; Yuill, 1997) and critical thinking skills (see Gopnik & Graf, 1988). It also has implications for how children make use of other people’s knowledge: Excessive skepticism about sources can lead children to miss opportunities for learning, and a complete lack of skepticism can leave children vulnerable to being manipulated or misinformed (see Baldwin & Moses, 1996; Robinson, Champion, & Mitchell, 1999). Finally, the way children evaluate information about highly value-laden traits has a range of interpersonal consequences. For example, a child who learns that a classmate is antisocial and perceives the information to be credible is likely to attribute other negative psychological characteristics to the classmate, such as low intellectual ability (Cain, Heyman, & Walker, 1997; Heyman, Gee, & Giles, 2003), and to approve of aggression being directed toward the classmate (Giles & Heyman, in press-b).

The present research focuses on children’s evaluation of potential sources of information about psychological traits. This topic has received little attention in the literature to date. Instead, researchers who have investigated children’s reasoning about traits have generally focused on what children do with trait-relevant information once they obtain it, rather than their perceptions of its credibility. Typically, researchers provide children with trait-relevant information about a character under the assumption that the information is reliable. Children are then asked to make inductive inferences about what the character is like at other times and in other contexts. This approach has led to a number of insights into children’s understanding of traits and behavior, such as the finding that children age 8 and older consider trait-relevant behaviors to have greater inductive potential than do younger children (Kalish, 2002; Rholes, Newman, & Ruble, 1990). For example, Rogers and Ruble (1984) found that older children were more likely than younger children to expect that someone who helps to rake leaves on one occasion would exhibit other prosocial behaviors as well, such as sharing a lunch. However, there is also evidence that by the time children enter elementary school, they can use some types of trait-relevant information to guide their inferences (Cain et al., 1997; Heller & Berndt, 1981; Heyman & Gelman, 1999, 2000; Yuill & Pearson, 1998). For example, even 4-year-olds can use the trait labels mean and shy to make inferences about a character’s motivation and emotions in certain contexts (Heyman & Gelman, 1999) and to make inferences about novel properties (such as which of two imaginary games a character likes to play; see Heyman & Gelman, 2000).

The present research focuses on how children evaluate potential sources of information about traits, a process that can involve making sense of different types of information that point toward different conclusions. For example, a child who believes that self-report and direct observation are both useful for evaluating an individual’s honesty may at some point need to evaluate the trustworthiness of an individual who claims to be very honest but is seen telling lies.

Developmental Precursors

By age 6, children have many of the cognitive precursors to reasoning about sources of information about traits. One is a basic understanding of the ways in which knowledge is acquired, which emerges during the preschool years (Gopnik & Graf, 1988; O’Neill & Chong, 2001; O’Neill & Gopnik, 1991; Wimmer, Hogrebe, & Perner, 1988). In Gopnik and Graf’s (1988) three drawer task, young children learned the contents of drawers either by direct
observation, by being told, or by inferring it from a clue, and they were asked to identify the sources of their knowledge. Although 3-year-olds had a great deal of difficulty with the task, 5-year-olds were generally successful at it.

A second precursor to reasoning about sources of trait information is the understanding that appearances do not always reflect reality. Children have some understanding of this distinction by age 3 (Sapp, Lee, & Muir, 2000) and are capable of applying it to a broad range of contexts by age 4 (Flavell, Green, & Flavell, 1986). There is also evidence that by age 6, children are able to apply the appearance–reality distinction to people. For example, 4- to 6-year-olds understand that self-presentational displays can influence others (Banerjee & Yuill, 1999b), and 6-year-olds understand that individuals might be motivated to express emotions that differ from their true emotions (Gnepp & Hess, 1986; Gross & Harris, 1988).

By age 6, children are aware that social sources of information vary in terms of their reliability and can be unreliable (Ackerman, 1983; Ceci, Ross, & Toglia, 1987; Lampinen & Smith, 1995; Lee, Cameron, Doucette, & Talwar, 2002; Robinson et al., 1999). Lee et al. (2002) found that 5- and 6-year-olds were quite good at using their real-world knowledge to detect implausible false statements. Robinson et al. (1999) found that children as young as 3 1/2 years of age gave greater weight to information provided by an informed speaker than to information provided by an uninformed speaker. Lampinen and Smith (1995) found that preschool children tended to view adults as more credible than children and that they considered adults to be less credible if described as “silly.”

The Present Research

Our goal in the present research was to determine whether children’s acceptance of self-report information about psychological traits varies with age and whether any such age-related shifts in reasoning are specific to highly evaluative traits (i.e., traits that are intrinsically value-laden; see Heyman & Giles, 2004). In the first four studies, children were asked to reason about two evaluative traits, smart and honest, and also about two comparison traits, outgoing and nervous. According to the results of pilot testing, each of these traits is either familiar to early elementary school children or can be explained to them easily. Study 1 was designed to determine whether our distinction between evaluative and comparison traits is psychologically meaningful to elementary school children. Studies 2 and 3 focused on children’s tendency to accept self-report information about these traits. Study 4 was designed to compare self-report with three other sources of information that children might use to learn about people: direct observation, teacher report, and peer report. Study 5 used a similar design but with new sets of evaluative and comparison characteristics to help ensure that the results of Studies 2, 3, and 4 were not due to any idiosyncratic associations children may have had with the particular traits that were used in those studies.

Each of the studies involved a younger group of 6- and 7-year-olds and an older group of 10- and 11-year-olds. The age range of the youngest group was selected to ensure that they would have the cognitive capacity to understand the measures and that they would have the cognitive precursors that are thought to be necessary for the evaluation of sources (see Developmental Precursors section above). The age range of the older group was selected to ensure that they would be relatively sophisticated in reasoning about self-presentational strategies (e.g., Aloise-Young, 1993).

We predicted that the older children, but not the younger children, would be skeptical about the value of self-report as a means to learn about the evaluative traits of others. Consistent with this possibility is evidence that reasoning about self-presentation develops considerably across the elementary school years (Aloise-Young, 1993; Banerjee, 2000, 2002b; Banerjee & Yuill, 1999a; Bennett & Yeeles, 1990a, 1990b). For example, Aloise-Young (1993) found that 8- and 10-year-olds but not 6-year-olds changed their self-descriptions depending on whether they had been told that their goal was simply to describe themselves to children at another school or to convince children at another school to pick them as partners during a game. Also consistent with this possibility is evidence that children’s ability to assess the plausibility of different types of information develops considerably after age 7. For example, it is not until late elementary school that children view discrepancies between verbal and nonverbal communication as indicating dishonesty (Rotenberg, Simourd, & Moore, 1989).

On the basis of previous research, one might make plausible alternative predictions. One possibility is that even 6-year-olds will be skeptical about self-report as a means to learn about the evaluative traits of others, which is supported by evidence that by age 6, children have many of the presumed cognitive precursors to skepticism about self-report as well as some understanding of self-presentational display rules (Banerjee & Yuill, 1999b). Also consistent with this possibility is evidence that preschoolers use self-presentational strategies to portray themselves in a favorable light. Stipek, Recchia, and McClintic (1992) found that children as young as 2 years of age shared successes with others to a greater extent than they shared failures, and Ross, Smith, Spielmacher, and Recchia (2004) found that children as young as 4 years of age tended to show self-serving biases in their descriptions of sibling conflict (see also Wilson, Smith, & Ross, 2003; Wilson, Smith, Ross, & Ross, 2004). This suggests that young children are capable of understanding that others might want to present themselves in a positive way.

Another possible prediction is that older children will show a decrease in skepticism about the value of self-report concerning all traits, including those that are highly evaluative. This possibility is consistent with evidence that across the elementary school years, children begin to see the self as more knowledgeable about a range of individual characteristics that are not directly observable (Burton & Mitchell, 2003). If, as children grow older, they conceive of individuals as the ultimate authority on information about themselves, it is possible that they would place a high value on self-report even if they were aware of the potential for distortion.

Study 1

In all but the final study reported here, we used a contrast between the evaluative traits smart and honest and the comparison traits outgoing and nervous. Study 1 was designed to determine whether this distinction is psychologically meaningful for children in the target age ranges (6- to 7-year-olds and 10- to 11-year-olds).
Method

Participants. Participants were 56 children in a 6- to 7-year-old group (n = 28, mean age = 6 years 11 months, range = 6 years 1 month to 7 years 7 months, 10 boys and 18 girls) and a 10- to 11-year-old group (n = 28, mean age = 10 years 11 months, range = 9 years 10 months to 12 years 2 months, 15 boys and 13 girls) who were recruited from elementary schools in a large southwestern city. The sample was approximately 66% European American, 2% Asian American, 14% Hispanic American, and 18% African American.

Procedure. Children were interviewed individually in a quiet area of their school. They were asked a pair of questions about each of four traits: smart, honest, outgoing, and nervous. The goal was to determine whether children would expect characters to care more about whether they were judged to be smart or honest versus outgoing or nervous.

Before each pair of questions, a definition of the trait was presented to help ensure that different children would reason about the traits on the basis of similar definitions. The definitions were as follows:

Smart people are good at learning new things.

Honest people tell the truth and keep their promises.

Outgoing people like to be around people and get attention from people.

Nervous people worry a lot about things.

Following each definition, participants were asked to respond to a pair of emotion response questions, with one question asked about each end of the trait dimension. For example, for the trait nervous, the questions concerned appearing “very nervous” and “not at all nervous.” The differences in responses to questions in each pair were used to create emotion response scores. Emotion response scores serve as an index of the extent to which children consider each dimension to be evaluative, under the assumption that for dimensions children consider to be highly evaluative, the way one is judged has significant emotional consequences, compared with dimensions children consider to be less evaluative. We predicted that the emotion response scores would be significantly greater for the trait dimensions smart and honest than for the trait dimensions outgoing and nervous. The two emotion response questions for the evaluative trait honest were as follows:

If you told someone that you just met that you thought they are very honest, how do you think they would feel?

If you told someone that you just met that you thought they are not honest at all, how do you think they would feel?

The questions for the other traits were in a similar form. The four pairs of traits were presented in random order, as were the two emotion response questions within each trait pair. For each question, children were asked to respond by pointing to one of five faces: a large frown representing “really happy” (coded as 5), a small frown representing “a little unhappy” (coded as 2), a neutral face representing “in the middle” (coded as 3), a small smile representing “a little happy” (coded as 4), and a large smile representing “really happy” (coded as 5). Emotion response scores, with a possible range from 0 to 4, were computed from the absolute value of the difference between the positively and negatively valenced trait questions within each trait dimension. Mean emotion response scores for each age group were then computed for the two evaluative trait dimensions and the two comparison trait dimensions.

Results and Discussion

The emotion response scores are presented in Table 1. As predicted, children in each age group showed a greater sensitivity to valence for the evaluative traits smart and honest than to valence for the comparison traits outgoing and nervous. This was confirmed by a 2 (age) by 2 (trait type: evaluative or comparison) analysis of variance (ANOVA) on mean emotion response scores, which revealed an effect of trait type, F(1, 54) = 176.53, p < .01, 95% confidence interval (CIss) = 1.35–1.83. There was no main effect of age, and no Age × Trait Type interaction. These results indicate that participants found the distinction between this particular set of evaluative and comparison traits to be psychologically meaningful.

Study 2

Study 2 was designed to investigate whether there is an age-related change in the extent to which self-report is viewed as a good way to learn about the traits of others. Participants were asked whether self-report is a good source of information about the evaluative traits smart and honest and the comparison traits outgoing and nervous. For example, participants were asked whether asking someone if they are smart would be a good way to find out how smart they are.

Method

Participants. Participants were 60 children in a 6- to 7-year-old group (n = 30, mean age = 7 years 0 months, range = 6 years 0 months to 7 years 6 months, 14 boys and 16 girls) and a 10- to 11-year-old group (n = 30, mean age = 11 years 4 months, range = 9 years 11 months to 12 years 2 months, 16 boys and 14 girls) who were recruited from elementary schools in a large southwestern city. The sample was approximately 52% European American, 20% Asian American, 20% Hispanic American, and 8% African American.

Procedure. Children were interviewed individually in a quiet area of their school. They were asked a set of self-report endorsement questions that concerned the traits smart, honest, outgoing, and nervous. The ques-

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1 Parent permission letters were passed out by teachers for children to give to their parents. Across all studies, approximately 80% of permission letters were returned, and 94% of parents who returned permission letters agreed to allow their child to participate. In all studies, samples contained children from diverse socioeconomic backgrounds, as reported to us by teachers and school administrators.
tions associated with each trait appeared in a random order that was determined separately for each participant. Questions were preceded by the same trait definitions that were used in Study 1. Following each definition, children were asked whether self-report was a good source of information about the trait. For example, for the trait "smart" they were told, “Smart people are good at learning new things. Is asking someone if they are smart a good way to find out how smart they are?” The response options were “yes,” “maybe,” and “no,” which were scored as 1, 0.5, and 0, respectively, to create self-report endorsement scores. Children were then asked to explain their answers.

Results and Discussion

Self-report endorsement. Results of the self-report endorsement measure are presented in Table 2.² The older children were more skeptical of self-report as a means to learn about the evaluative traits than the comparison traits, whereas the younger children showed the reverse pattern. This was confirmed by a 2 (age) by 2 (trait type: evaluative or comparison) ANOVA on mean self-report endorsement scores, which showed an Age × Trait Type interaction, $F(1, 58) = 9.02, p < .01$. There was also a main effect of age, $F(1, 58) = 17.45, p < .01, CI_{95} = 0.16–0.46$.

Table 2
Self-Report Endorsement Scores From Studies 2, 3, and 5

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Younger children</th>
<th>Older children</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Study 2</td>
<td>Study 3</td>
</tr>
<tr>
<td>Evaluative</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Smart</td>
<td>.77 (.41; .67–.92)</td>
<td>.30 (.36; .18–.42)</td>
</tr>
<tr>
<td>Honest</td>
<td>.82 (.41; .63–.92)</td>
<td>.33 (.38; .22–.47)</td>
</tr>
<tr>
<td>Comparison</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Outgoing</td>
<td>.57 (.41; .45–.74)</td>
<td>.45 (.38; .32–.51)</td>
</tr>
<tr>
<td>Nervous</td>
<td>.62 (.41; .45–.75)</td>
<td>.48 (.38; .32–.61)</td>
</tr>
<tr>
<td></td>
<td>$M$</td>
<td>$M$</td>
</tr>
<tr>
<td></td>
<td>.59 (.41; .45–.74)</td>
<td>.47 (.39; .32–.61)</td>
</tr>
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</table>

Note. Standard deviations, followed by 95% confidence intervals, are shown in parentheses.

Separate analyses for each age group revealed a trend toward older children being more skeptical about self-report as a means to learn about evaluative traits as compared with comparison traits, $t(29) = 1.71, p < .1, CI_{95} = -0.37–0.03$. In contrast, younger children showed the reverse pattern, $t(29) = 2.73, p < .05, CI_{95} = 0.05–3.5$.

Separate analyses for each trait type also showed an age-related decrease in the tendency to endorse self-report as a reliable source of information about the evaluative traits (mean self-report endorsement scores for younger and older children were .79 and .30, respectively), $t(58) = 5.61, p < .01, CI_{95} = 0.31–0.67$, but no corresponding difference for the comparison traits. These results are consistent with the predicted pattern of an age-related difference in skepticism about the evaluative traits, and not the comparison traits.

Explanations. Children in each age group gave a range of explanations for their responses to the self-report endorsement measure, which included reference to self-presentational issues (i.e., whether the character would accurately present what he or she knew), knowledge (i.e., whether the character would have the knowledge to assess the trait in question), concerns about the social dynamics of asking for self-report information (e.g., that it might be rude to ask for the information), and descriptions of the absolute or relative quality of the source (e.g., that it is a good way to learn about the characteristic in question or that another source of information would be better).

For each age group, the most common responses fell into the self-presentation category, which represented 54% of all codable responses for the younger group and 49% for the older group. For both younger and older children, explanations that referenced self-presentation were more common for the evaluative traits than for the comparison traits (for the younger group, 65% of codable responses fell into this category for evaluative traits, compared with 39% for comparison traits; for the older group, these values were 60% and 34%, respectively). Of the explanations that referenced self-presentation, 81% of the older children’s responses mentioned the possibility of distortion (e.g., “People don’t want to tell you they’re not good at something”), compared with 21% of the younger children’s responses. Younger children were more likely to suggest that people will report what they know accurately (e.g., “If you ask them how honest they are, they won’t lie to you”).

The second most common response category within each group involved the quality of the source, which comprised 24% of codable responses for the older group and 21% for the younger group. For example, a common response was that it would be best to find out about how smart someone is by looking at his or her schoolwork or tests. Further details are presented in the Appendix.

² In this study and the following three studies, preliminary analyses were conducted to investigate whether there were gender differences in the way younger and older children reasoned about self-report as a means of learning about evaluative traits. No significant differences were found in any of the studies.
Study 3

The results of Study 2 revealed an age-related difference in skepticism about evaluative traits but no corresponding difference for comparison traits. However, the older children’s tendency to be more skeptical about self-report concerning evaluative traits did not reach significance. One goal of Study 3 was to examine whether this result and other findings of Study 2 would be replicated. A second goal of Study 3 was to explore the reason for the age-related change in children’s reasoning. We hypothesized that it is related to children’s understanding of social desirability. Specifically, as children get older they may become more aware that individuals are sometimes motivated to provide misleading information about evaluative traits in order to influence how they are perceived by others. The explanations of children in Study 2 were generally consistent with this interpretation, but they raise other possibilities as well. For example, it could be that as children get older they become more skeptical about whether individuals have the ability to accurately assess how smart or honest they are. Another possibility is that older children are less likely to ask others about their traits not because they question the reliability of self-report information, but because of interpersonal dynamics. For example, older children may be more likely than younger children to think that it is rude to ask people how smart or how honest they are. In Study 3 we examined these possibilities.

Method

Participants. Participants were 70 children in a 6- to 7-year-old group (n = 35, mean age = 7 years 1 month, range = 6 years 2 months to 8 years 0 months, 19 boys and 16 girls) and a 10- to 11-year-old group (n = 35, mean age = 10 years 7 months, range = 9 years 10 months to 12 years 0 months, 13 boys and 22 girls) who were recruited from elementary schools in a large southwestern city. The sample was approximately 61% European American, 23% Asian American, 11% Hispanic American, and 4% African American.

Procedure. Children were asked two sets of questions about the traits smart, honest, outgoing, and nervous. The two question sets and the four traits within each question set were presented in random order. One set of questions was the self-report endorsement measure, which was identical to that of Study 1 except that the response option “maybe” was not offered, leaving the response options “no” (scored as 0) and “yes” (scored as 1). The other set of questions concerned self-report problem assessment. For each trait, children were first presented with the trait definition (identical to those used in the self-report endorsement measure) and were then asked a series of three questions, in random order, that involved possible problems associated with assessing sources of information about traits. These three questions appear below, as they were asked concerning the trait nervous:

Do you think people might lie about how nervous they are?
Is it rude to ask someone how nervous they are?
Do most people know how nervous they are?

The response options for each of these questions were “yes” (coded as 1 for the questions concerning lying and rudeness and as 0 for the question concerning knowledge) and “no” (coded as 0 for the questions concerning lying and rudeness and as 1 for the question concerning knowledge).

Results and Discussion

Self-report endorsement. The results for the self-report endorsement measure, which are shown in Table 2, indicate that older children were more skeptical about the value of self-report with respect to evaluative traits than were younger children. This was confirmed by a 2 (age) by 2 (trait type: evaluative or comparison) ANOVA on mean self-report endorsement scores, F(1, 68) = 8.47, p < .01. Separate analyses for each age group indicated no significant differences between the two trait types in the younger children’s tendency to be skeptical about self-report and indicated that older children were more skeptical about self-report for evaluative traits, t(34) = 3.97, p < .01, 95% CI = 0.05–0.29. Separate analyses for each trait type showed an age-related decrease in the tendency to endorse self-report as a reliable source of information about the evaluative traits (mean self-report endorsement scores for younger and older children were 0.64 and 0.34, respectively), t(68) = 3.33, p < .01, 95% CI = 0.12–0.48, but no corresponding difference for the comparison traits. These results replicate the key finding of age-related change in Study 2 and confirm that older children differentiate between evaluative and comparison traits when assessing the credibility of self-report information.

Self-report problem assessment. The results of the self-report problem assessment measure are presented in Table 3. A 2 (age: younger or older) by 2 (trait type: evaluative or comparison) ANOVA was conducted on children’s responses to each of the problem assessment measures. Results revealed an Age X Trait Type interaction, F(1, 68) = 8.02, p < .01, concerning children’s awareness that people might lie about traits. Separate analyses for each trait type revealed that for evaluative traits, older children were more likely than younger children to endorse this possibility, t(68) = 3.91, p < .01, 95% CI = 0.12–0.58, with no significant differences seen for comparison traits.

A 2 (age) by 2 (trait type) ANOVA was also conducted on mean responses to each of the other problem assessment measures. There were no significant effects for the questions concerning whether it is rude to ask about traits. Questions concerning knowledge about traits yielded a significant interaction, F(1, 68) = 6.82, p < .05. Separate analyses for each trait type revealed that older children were more likely than younger children to expect people to be

<table>
<thead>
<tr>
<th>Problem</th>
<th>Evaluative traits</th>
<th>Comparison traits</th>
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<tbody>
<tr>
<td></td>
<td>Smart</td>
<td>Honesty</td>
</tr>
<tr>
<td>Younger children</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Might lie</td>
<td>49</td>
<td>43</td>
</tr>
<tr>
<td>Rude to ask</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>Might not know</td>
<td>49</td>
<td>26</td>
</tr>
<tr>
<td>Older children</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Might lie</td>
<td>83</td>
<td>86</td>
</tr>
<tr>
<td>Rude to ask</td>
<td>49</td>
<td>34</td>
</tr>
<tr>
<td>Might not know</td>
<td>46</td>
<td>37</td>
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</table>

Note. Values indicate the percentage of children who identified each of several possible problems with using self-report as a source of information.
knowledgeable about how outgoing or nervous they are, *t*(68) = 2.01, *p* < .05, CI_{95%} = 0.002–0.4, but there were no significant differences for evaluative traits. The findings concerning the comparison traits are generally consistent with the results of Burton and Mitchell (2003), who found that between the ages of 5 and 10, children increasingly come to view themselves as experts about themselves.

**Study 4**

Study 4 was designed to investigate the extent to which children perceive self-report to be a valuable source of information about the traits of others, as compared with three other possible sources of trait information: direct observation, teacher report, and peer report.

**Method**

*Participants.* Participants were 84 children in a 6- to 7-year-old group (*n* = 42, mean age = 7 years 1 month, range = 6 years 1 month to 8 years 0 months, 19 boys and 23 girls) and a 10- to 11-year-old group (*n* = 42, mean age = 10 years 10 months, range = 10 years 2 months to 12 years 0 months, 20 boys and 22 girls) who were recruited from elementary schools in a large southwestern city. The sample was approximately 73% European American, 2% Asian American, 21% Hispanic American, and 4% African American.

*Procedure.* Children were asked a source preference question about each of the traits smart, honest, outgoing, and nervous, in a random order that was determined separately for each participant. For each trait, children were presented with a trait definition (e.g., “Honest people tell the truth and keep their promises”) and were then asked to identify which of four sources of information would be optimal (e.g., “Which would be the best way to find out how honest someone really is?”). Children were asked to select from the following sources of information, which were presented in random order: ask themselves if they are honest, watch what they do, ask a teacher, ask a kid in their class.

**Results and Discussion**

*Source preference.* The results of the source preference measure are summarized in Figure 1. Younger children were more likely than older children to endorse self-report as a means to learn about evaluative traits. This was confirmed by separate 2 (age) by 2 (preferred source: self-report or other) chi-square tests for each trait. For the two evaluative traits, young children were significantly more likely than older children to identify self-report as the preferred source of information: for smart, *χ²*(1, *N* = 84) = 5.51, *p* < .05; for honest, *χ²*(1, *N* = 84) = 7.71, *p* < .01. In contrast, the chi-square tests on the two comparison traits showed no significant effects. These results parallel the key findings from the absolute measures of self-report endorsement that were used in Studies 2 and 3.

Both the younger and the older children perceived teacher report to be more valuable as a source of information about how smart someone is than as a source of information about other traits (*p* < .01 for both younger and older children, by a randomization test). This is consistent with evidence that children perceive teachers to have particular expertise in the academic domain (Bar-Tal, Raviv, Raviv, & Brosh, 1990). Also of note is the relatively infrequent selection of peer report: Across age groups and traits, peer report was selected less than 15% of the time, with the exception of older children’s preference concerning the trait honest, for which peer report was selected 36% of the time.

**Study 5**

The results of Studies 2, 3, and 4 suggest that there is an age-related difference in skepticism about self-report as a means for learning about the evaluative traits smart and honest but not the comparison traits outgoing and nervous. However, because the same set of traits was used in each of the studies, it is possible that the findings apply to these particular traits only. In addition, the children in Study 1 judged the comparison traits outgoing and nervous to be somewhat evaluative in absolute terms, although far less so than smart and honest. We sought to address these issues in Study 5 by using new traits and characteristics, which we assessed with a pilot testing procedure similar to that used in Study 1. The new evaluative traits were prosocial tendencies (i.e., is nice) and social competence (i.e., gets along with people). Because of the difficulty of finding comparison traits that were familiar to young children and that were less evaluative than outgoing and nervous, we chose the preferences likes salty foods and likes the color red as comparison characteristics.

**Method**

*Participants.* Participants were 60 children (30 boys and 30 girls) in a 6- to 7-year-old group (*n* = 30, mean age = 7 years 4 months, range = 6 years 0 months to 8 years 0 months, 17 boys and 13 girls) and a 10- to 11-year-old group (*n* = 30, mean age = 10 years 10 months, range = 9 years 10 months to 11 years 9 months, 13 girls and 17 boys) who were recruited from elementary schools in a large southwestern city. The sample was approximately 37% European American, 5% Asian American, 42% Hispanic American, and 17% African American.

*Procedure.* Children were asked a set of self-report endorsement questions about the new evaluative traits and comparison characteristics. As in

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3 Participants were also asked to explain their answers. Responses to the explanation measure tended to be quite vague (e.g., “Then you could understand their personality more”), and consequently it was not possible to code most responses into informative categories.
the previous studies, the four characteristics appeared in a random order that was determined separately for each participant. The descriptions and questions (with response options “no” and “yes” scored as 0 and 1, respectively) for the four characteristics were as follows:

Some people do nice things for other people, and some people don’t. Is asking someone a good way to find out if they do nice things for other people?

Some people are good at getting along with other people, and some people are not. Is asking someone a good way to find out if they are good at getting along with other people?

Some people like to eat foods that are very salty, and some people don’t. Is asking someone a good way to find out if they like to eat foods that are very salty?

Some people like the color red, and some people don’t. Is asking someone a good way to find out if they like the color red?

Results and Discussion

Self-report endorsement. The results of the self-report endorsement measure appear in Table 2. A 2 (age) by 2 (characteristic type: evaluative or comparison) ANOVA revealed the same type of interaction that was seen in Studies 2 and 3, indicating that older children were more skeptical than younger children about self-report as a means to learn about evaluative traits as compared with comparison characteristics, $F(1, 58) = 12.41, p < .01$. In contrast to the results of the previous studies, there were also main effects of trait type, $F(1, 58) = 8.88, p < .01$, CI$_{95} = 0.06–0.31$, with greater skepticism concerning evaluative traits, and age, $F(1, 58) = 13.47, p < .01$, CI$_{95} = 0.09–0.31$, with older children showing more skepticism.

Separate analyses for each age group revealed that younger children made no significant distinction between the evaluative traits and comparison characteristics, whereas older children were significantly more skeptical about self-report as a means to gather information about the evaluative traits (mean self-report endorsement scores for younger and older children were .83 and .42, respectively), $t(29) = 4.56, p < .01$, CI$_{95} = 0.22–0.58$. Separate analyses for each trait type revealed an age-related decrease in the tendency to endorse self-report as a reliable source of information about the evaluative traits (mean self-report endorsement scores for younger and older children were .83 and .42, respectively), $t(29) = 4.93, p < .01$, CI$_{95} = 0.25–0.59$, but no significant differences in endorsement of self-report for the comparison characteristics. These results replicate the key findings of Studies 2 and 3 and show that the age-related change in reasoning about traits seen is not likely to be a function of idiosyncratic factors associated with the particular traits used in those studies.

General Discussion

Across the four studies that addressed children’s reasoning about sources of information, older children were significantly more skeptical about the value of self-report information for evaluative traits than were younger children. In Studies 2 and 3, this pattern of results took the form of an age-related increase in skepticism about the value of self-report for the traits smart and honest. In Study 4, the pattern took the form of an age-related decrease in preference for self-report, compared with other sources of information, concerning the traits smart and honest. Across these three studies, no corresponding pattern of results was seen for the comparison traits outgoing and nervous. Study 5 replicated the findings of Studies 1 and 2 with a new set of psychological characteristics.

There is evidence that the age-related increase in skepticism about self-report for evaluative traits can be understood in relation to changes in children’s reasoning about self-presentation and social desirability. Some of this evidence came from the explanations of young children in Study 2, who often explained that they expect people to be truthful in their self-reports. For example, one young child responded, “If you ask them to tell the truth, then they better tell the truth, otherwise it would be a lie.” Another said that self-report is useful because “they’ll tell the truth.” In contrast, older children were likely to refer to the possibility that information can be distorted. As one explained, a person “could be lying about being honest if they were not honest.” Another commented that “You cannot always trust people by what they say because sometimes people make up what they talk about.” More systematic evidence for age-related differences in the understanding of social desirability comes from Study 3, in which children were asked about potential problems associated with gathering self-report information. Older children were more aware that people might be motivated to lie about evaluative traits, but there was no age-related difference for two other potential problems with obtaining information about evaluative traits: limits in individuals’ knowledge of their own traits, and the social appropriateness of asking about such information. Taken together, these findings suggest that 10- to 11-year-olds are more aware of the potential for individuals to manipulate self-presentation when demand characteristics are high than are 6- to 7-year-olds.

Interpreting the Late Shift in Reasoning

One might assume that the uncritical acceptance in 6- to 7-year-olds of self-report as a means to learn about evaluative traits results from an inability to understand that others have the potential to present themselves in deceptive ways. However, a number of findings from the cognitive development literature suggest that this is not the case. At around age 4, children are able to make systematic distinctions between appearance and reality when reporting on how objects appear and what they really are (Flavell et al., 1986). There is evidence that children learn to apply this distinction to the social world by age 6, if not earlier. Harris, Donnelly, Guz, and Pitt-Watson (1986) and Gross and Harris (1988) found that 4-year-olds had difficulty reasoning about expressed emotion in contexts in which it was likely to differ from real emotion but that 6-year-olds were quite skilled at making this distinction. Joshi and MacLean (1994) found that young Indian girls were able to successfully reason about the distinction between real and apparent emotion at a younger age than were English girls, which suggests that cultures that emphasize control over public displays of emotion may promote an earlier understanding of this distinction (but see Gardner, Harris, Ohmoto, & Hamazaki, 1988). There is also evidence that young children show more sophisticated reasoning about real versus apparent emotion in contexts in which inferences are minimized (Friend & Davis, 1993).
hold some intuitive understanding of the concept. For example, by age 3 children are capable of engaging in a range of deceptive practices (Chandler, Fritz, & Hala, 1989; Cole, 1986; Hala, Chandler, & Fritz, 1991; Lewis, Stanger, & Sullivan, 1989; Polak & Harris, 1999; Talwar & Lee, 2002). Cole (1986) found that girls as young as 3 years of age were able to use display rules when opening an undesirable gift by hiding their disappointment in the presence of the giver but not when alone. Lewis et al. (1989) found that 3-year-olds commonly denied having peeked at a toy after they had been told not to peek but had done so anyway. Chandler et al. (1989) found that children as young as 2 years of age engaged in a range of deceptive practices on a novel hide-and-seek task.

Given that children’s capacity to reason about deception in both implicit and explicit ways is firmly in place by the time they reach age 6, it is somewhat surprising that the 6- to 7-year-olds in the present study did not show more sophistication in their reasoning about self-report information concerning evaluative traits. One possible interpretation is that the results reflect a shift in children’s beliefs about what traits individuals hold, rather than a shift in their beliefs about sources of information. For example, one might argue that young children are unaware that people can hold negative traits such as dishonesty. This possibility, although generally consistent with arguments that young children tend to focus on the positive and to expect the best in people (see Lockhart, Chang, & Story, 2002), is unlikely in light of evidence of young children’s strong interest in the moral–evaluative nature of behavior (Heyman, Dweck, & Cain, 1992; Paley, 1981; Ruble & Dweck, 1995) and their systematic patterns of reasoning about antisocial behavior and motives (Giles & Heyman, in press-a; Heyman & Gelman, 1998; see Giles, 2003).

A related possibility is that young children tend to assume the best about people in the absence of evidence to the contrary, which would lead to the prediction that younger children will show more advanced reasoning about the potential for deception if they are asked to reason about negative traits. This possibility is consistent with evidence that young children show more sophisticated reasoning about negative outcomes and emotions than about positive outcomes and emotions (Banerjee & Yuill, 1999b; Harris et al., 1986; Lagattuta & Wellman, 2001). Young children find motives to avoid negative judgments easier to understand than motives to gain positive judgments (Banerjee & Yuill, 1999b). Young children also find it easier to reason about concealing negative emotion than positive emotion (Harris et al., 1986) and are better able to explain unusual negative emotions than unusual positive emotions (Lagattuta & Wellman, 2001; see also Lagattuta & Wellman, 2002, for evidence that parents discuss negative emotions with their young children more frequently than positive emotions).

In the present research, children made judgments in which the information provided by sources was not specified, a task that may prove to be more challenging than simply evaluating information that is provided (see Baldwin & Moses, 1996, concerning the distinction between children as active seekers vs. passive consumers of information). Mills and Keil (2004) found that children as young as 7 years of age discounted statements in support of a speaker’s interests, which is consistent with the possibility that young children do better on tasks that involve evaluating specific information.

Young children sometimes show limitations in their ability to apply the appearance–reality distinction to people even in contexts that do not require them to actively seek out information. For example, it is not until age 10 that children become skilled at using paralinguistic cues to resolve conflicting verbal statements (Friend & Bryant, 2000), and as noted previously, children younger than 8 years of age show poor performance on many self-presentation tasks (Aloise-Young, 1993; Bennett & Yeeles, 1990a, 1990b).

Why might the timing of developmental change appear so varied across different studies that each relate to children’s understanding that there is no necessary one-to-one correspondence between people’s beliefs and their statements or behaviors? It may be that the differences are due to the role of social experience (see Banerjee & Yuill, 1999b, for related arguments). Young children are likely to first apply the appearance–reality distinction to people when they are taught to do so directly, such as when they are taught to protect the feelings of others by telling white lies (Talwar & Lee, 2002) or when they are motivated to do so by self-interest (e.g., when attempting to conceal a transgression; Lewis et al., 1989). In other situations, such as when children try to learn about the traits of others, sophisticated reasoning may require more extensive social experience. For example, a child who witnesses a peer bragging about achievements that turn out to have no factual basis may gain a more general understanding that individuals sometimes misrepresent information about themselves.

It is likely that even peripherally related social experiences can promote learning about ways in which sources of information can be unreliable by providing children with a larger set of relevant examples to apply to new situations. Peripherally related social experiences could also allow children to infer abstract rules that they can apply to new contexts and motivate them to think more about the ways in which statements and behaviors can be misleading. If so, the development of reasoning about people as sources of information would reflect an interplay between cognitive and social forces.

**Reasoning About Comparison Characteristics**

The present results show only minimal evidence of age-related changes in reasoning about the comparison characteristics, which were intended to be less inherently evaluative. This finding indicates that older children were not more skeptical about self-report as a means to learn about all traits, and it is consistent with the argument that researchers cannot assume that patterns of reasoning about a particular trait will generalize to other traits (see Yuill, 1992, 1997). The results for the comparison traits also help to ensure that the age-related changes in reasoning about evaluative traits are related to children’s understanding of the implications of social desirability. However, this conclusion cannot be considered definitive, because it was not possible to select comparison characteristics that were matched to the evaluative characteristics on all possible dimensions. In particular, the fact that the comparison characteristics in Study 5 were simple preferences rather than traits should be taken into account when interpreting the results.

The finding of minimal age-related differences in reasoning about comparison traits may seem obvious, particularly with regard to the preferences that were used as comparison characteristics in Study 5, which one might argue are difficult or even
impossible to learn about without appealing to self-report. However, there is evidence that points to other possibilities. Some researchers (e.g., Shantz, 1983) have argued that children younger than about 8 years of age tend to be oriented toward overt behavior rather than mental states, which is consistent with the possibility that children infer preferences from behavior (e.g., inferring food preferences from what someone eats) rather than from self-report. In addition, it is possible that older children and adults are skeptical about self-report even when they believe there is no better way to gather the information. For example, a person who wonders how frequently others dream about an embarrassing topic might conclude that self-report would be the only possible way to find out but might still place little trust in the resulting information.

The self-report problem assessment measure in Study 3 that concerned knowledge of traits was an exception to the general lack of age-related differences in reasoning about comparison characteristics. Older children were more likely than younger children to report that people have self-knowledge about the traits outgoing and nervous. This is consistent with the results of Burton and Mitchell (2003), who found an increase across the elementary school years in children’s belief that they know more about internal, psychological aspects of themselves (e.g., psychological states such as fear) than do others, including their parents.

**Future Directions**

The present research addresses children’s explicit beliefs about the value of self-report information. The results speak to important questions about children’s metacognitive awareness of the social world (see Flavell, 1979) and may have practical implications, such as when children consider whom to approach for information. The findings also raise new directions for future research. One topic concerns how children’s reasoning about self-report will generalize to different audiences. Banerjee (2002a) found that by age 6, children have some appreciation of the ways in which an individual might take the preferences of the audience into account when making self-descriptive statements to a new acquaintance. However, it is also clear that these skills continue to develop into adolescence. For example, Juvonen and Murdock (1995) found that it is not until after age 12 that children show a clear tendency to emphasize their own efforts on schoolwork to teachers but to downplay it to peers.

Given previous findings that children as young as 6 years of age believe that certain sources are more useful than others for gathering particular types of information (see also Baldwin & Moses, 1996; Lutz & Keil, 2002), another direction for future research would be to more fully examine how children reason about sources of information other than self-report, including the strengths and weaknesses of different potential sources of information. An adult who is trying to evaluate a source of information might consider a number of factors, including whether the source has the necessary knowledge, whether the source might be motivated to distort the information, whether it would seem socially appropriate to ask for the information, and whether the source would be able to communicate the information clearly. How might children weigh these factors? For example, might children stop relying on a source who does not provide age-appropriate explanations, even one who appears to be knowledgeable and interested in helping? One might also investigate children’s understanding of biases, which have implications for achievement motivation (e.g., stereotype threat; see Steele, 1997) and self-judgment (e.g., self-protective strategies; see Crocker, Voelkl, Testa, & Major, 1991), because such an understanding entails an awareness of others as potentially biased evaluators of the self. It may be that during middle childhood, children learn to associate specific biases with particular sources of information, as suggested by an 11-year-old in the present study who commented, “Parents are likely to tell their kids they’re smart to make them feel good.”

A final direction for future research concerns the role of the social environment. One approach would be to investigate whether individual differences in skepticism about self-report among children of the same age are related to their social context. For example, it may be that an emphasis on normative comparison in the classroom (see Stipek & Daniels, 1988) leads children to engage in a relatively high level of social comparison (see Ruble, 1985), which in turn helps them to develop insights into the self-presentation motives of others. It would also be useful to examine how the present pattern of results might extend to other cultures, such as those in which there is an emphasis on modesty norms (Bond & Cheung, 1983; Fu, Lee, Cameron, & Fu, 2001; Lee, Cameron, Xu, Fu, & Board, 1997; see also Markus & Kitayama, 1991). Elementary school children (Lee et al., 1997) and adults (Fu et al., 2001) in China are more approving of untruthful statements that are motivated by modesty than are age-matched counterparts in Canada. It may be that within cultures in which there is a strong emphasis on modesty, one would see similar age-related changes in skepticism about the value of self-report as a means for learning about evaluative traits, but the skepticism would not extend to positive information that individuals convey about themselves.

**Conclusions**

Children are often faced with the challenge of seeking out and evaluating social sources of information (see Flavell, 1979). The present research focused on how children reason about self-report information, which has implications for school learning, life decisions, interpersonal relations, and the development of self-conceptions. For example, a child may be faced with the task of deciding who is trustworthy or how to evaluate the statements of classmates who brag about how smart they are.

The present results suggest that 10- and 11-year-olds, but not 6- and 7-year-olds, tend to be skeptical about self-report as a source of information concerning characteristics for which individuals are likely to be motivated to present themselves in a socially desirable manner. It may be that young children would benefit from instruction on how to evaluate sources of information. Such training could have other benefits as well given that simply asking a child to consider the sources of his or her knowledge can help to inoculate against the effects of misleading suggestions (Giles, Gopnik, & Heyman, 2002). More broadly, the present research points to a challenge that faces not only children but all who seek to understand the psychology of others. Although self-report is the only available source for many types of information, it must be treated with an appropriate level of caution. This point was illustrated by
Funder (2000), who noted that the utility of self-report is limited, because “people are imperfectly trustworthy” (p. 213) and suggested that personality researchers should rely more on other sources of information, such as peer report and direct behavioral observation.

References


Appendix

Responses to the explanation measure from Study 2 were categorized by two independent raters (Cohen’s $\kappa = .80$). A substantial number of responses did not fit any of the coding categories. These included “I don’t know” and responses that were difficult to interpret, such as “When they’re smart and you catch up, you can” and “If you tell them they’ll be good.” The coding categories were as follows, and a summary of the results appears in Table A1.

**Self-presentation.** Responses were given this code if they included references to whether the individual presenting the information would accurately present what they know and were further coded as to the valence of the response. Examples of positive responses in this category are “You’ll know it because they said it” and “I don’t think they would lie about how they feel.” Examples of negative responses in this category are “Because they could be lying about being honest if they weren’t honest” and “Sometimes kids say things to brag or be ‘out there.’”

**Knowledge.** Responses were given this code if they included references to whether the individual presenting the information would have knowledge of the trait in question and were further coded as to the valence of the response. Examples of positive responses in this category are “They know if they like to get attention around them” and “They can know how smart they are.” Examples of negative responses in this category are “Some people don’t consider themselves outgoing but really are” and “If you’re smart you usually don’t think you are that smart.”

**Social dynamics.** Responses were given this code if they included references to the social dynamics of asking about the trait in question. The valence of each response in this category was negative. Examples are “Other people may think it’s rude to ask that question” and “It’s not polite to ask someone.”

**Quality of source.** Responses were given this code if they did not meet requirements of any other codes and made reference to the quality of the source in absolute or relative terms. Examples are “Because it will tell you how smart they are,” “Because you could just probably see it,” and “Because you would have to ask a real question to see. One that would demonstrate how smart they are.”

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