

The Impact of Children's Static versus Dynamic Conceptions of People on Stereotype Formation

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Recent cognitive-developmental research has contributed much to our understanding of children's stereotyping. The present research identified another factor influencing stereotyping—children's theories about the malleability of human attributes. In two studies, 122 sixth graders learned about several different students' behaviors in unknown schools. In Study 1, they judged a school characterized by mostly negative behaviors, and in Study 2 they judged two schools (characterized by either mostly negative or positive behaviors). Across studies, children with a fixed view of personality (relative to those with a more malleable view of personality) made more extreme trait ratings of both the "positive" and "negative" schools, generalized their trait judgments to an unknown student, perceived greater within-school similarity and between-school differences, and showed less desire to interact with students in the "negative" school. Ways in which examining these theories may broaden our understanding of the origins of stereotyping and how to lessen it are discussed.

INTRODUCTION

What determines the extent to which children stereotype? Several theoretical accounts have been advanced, each highlighting a different mechanism, such as social learning (Allport, 1954; Branch & Newcombe, 1986; Williams, Best, & Boswell, 1975), individual motives or personality factors (Adorno, Frenkel-Brunswick, Levinson, & Sanford, 1950; Miller & Bugelski, 1948), and cognitive factors (Aboud, 1988; Bigler & Liben, 1992, 1993; Katz, 1976; Piaget & Weil, 1951). Over the past decade, the cognitive-developmental orientation has become the dominant view as accumulating evidence has implicated emerging cognitive factors in both gender stereotyping (Bigler & Liben, 1990, 1992; Martin, Wood, & Little, 1990; Stangor & Ruble, 1987; see also Kohlberg, 1966) and racial stereotyping (Bigler & Liben, 1993; Black-Gutman & Hickson, 1996; Clark, Hocevar, & Dembo, 1980; Doyle & Aboud, 1995; Katz & Zalk, 1978).

According to the cognitive-developmental approach, originally inspired by Piaget (Inhelder & Piaget, 1969; Piaget & Weil, 1951), children's social attitudes are critically affected by their cognitive abilities. In this view, the rigid social attitudes that children tend to have when they become aware of group differences become more flexible as their cognitive skills mature. In one line of research, studies have documented age-related changes in children's social attitudes, showing a developmental decline in prejudice from early to middle childhood (Bigler & Liben, 1993; Doyle & Aboud, 1995; Doyle, Beaudet, & Aboud, 1988; Katz & Zalk, 1978; Williams, Best, & Boswell, 1975). Another line of research has demonstrated that these age-related changes indeed reflect the influence of specific

cognitive skills such as conservation skills (Clark et al., 1980), classification skills (Bigler, 1995; Bigler & Liben, 1992, 1993), perspective-taking skills (Aboud, 1981; Black-Gutman & Hickson, 1996; Doyle & Aboud, 1995), the ability to perceive similarity between different groups (Aboud & Mitchell, 1977; Black-Gutman & Hickson, 1996; Doyle & Aboud, 1995), and the ability to perceive differences within the same group (Black-Gutman & Hickson, 1996; Doyle & Aboud, 1995; Katz, Sohn, & Zalk, 1975).

Despite this impressive set of findings, the cognitive-developmental theory as it is currently defined has not addressed individual differences in stereotyping among young children who exhibit roughly the same level of cognitive skill (see Black-Gutman & Hickson, 1996), or individual differences in stereotyping among older children who have attained relatively mature levels of the relevant cognitive skills. To address these unresolved issues, some researchers (e.g., Black-Gutman & Hickson, 1996) suggest that the influence of environmental-learning factors, in addition to cognitive factors, be given more serious research consideration. This would mean, for example, taking into account the fact that on the basis of their differing exposure to group information, children form different schemata (cognitive structures containing information about groups; e.g., Bem, 1981). Once formed, the schema associated with a particular group can then influence how children perceive and process information about that group, thereby, in part explaining individual differences in social attitudes (e.g., Carter & Levy, 1988; Martin, Eisenbud, & Rose,

1995). Although such schemata undoubtedly play a role in within-age differences in children's social attitudes toward specific groups, children also may come to possess more general, overarching ways of thinking about others and interpreting social information that are not specific to particular groups but still affect the extent to which they stereotype.

Indeed, Piaget alluded to this possibility. Piaget and Garcia (1983/1989) noted that during development children come to possess conceptions of their world, and that these "ideologies" contribute to variation in children's interpretations of events in their world. Specifically, Piaget and Garcia posited that "... when the fundamental logical structures that will constitute the basic instruments for her future cognitive development have been fully developed, the subject has at her disposal, in addition to these instruments, a conception of the world (*Weltanschauung*), which determines the future assimilation of any experience" (1989, p. 252).

The notion that people form theories about their world that can profoundly influence their social understanding was discussed earlier by social psychologists, but they did not spell out specific theories (e.g., Heider, 1958; Kelly, 1955). Piaget and Garcia, however, highlighted two specific conceptions by contrasting the impact of the Greeks' "static" view on perceptions of the world with the impact of the Chinese "dynamic" view. This distinction can be applied to individuals' social understanding: If people assume that they live in a relatively static social reality where individuals have fixed qualities, they are likely to approach that reality differently from the way they would if they thought they lived in a social reality where personal qualities are more dynamic.

We will propose that such fundamentally different views of human nature are likely to create very different interpretative frameworks for understanding, judging, and reacting to groups and their members, and thus are likely to create different probabilities of stereotyping among children.

Static versus Dynamic Conceptions and Stereotyping

Accumulating evidence suggests that static versus dynamic conceptions are linked to individual differences in stereotyping. Levy, Stroessner, and Dweck (1998) examined college students' conceptions about the malleability or fixedness of human attributes and found that individuals who conceived of people's traits as fixed exhibited higher levels of stereotyping than those who conceived of traits as more dynamic, malleable qualities. That is, those individuals who believed in fixed traits more readily and strongly

assigned them to groups of people than those who did not.

Levy et al.'s research evolved from previous research on adults' and children's conceptions of intelligence and their influences on self-judgments (for reviews, see Dweck, Chiu, & Hong, 1995; Dweck & Leggett, 1988). These conceptions were termed "implicit" theories because although people can indicate their assumptions about the nature of intelligence when prompted to do so, they are typically unaware of their views and how these views influence their social understanding (see Dweck & Leggett, 1988; cf. Kelly, 1955). In this work, Dweck and her colleagues found that in the face of failure, individuals holding an entity (fixed) conception of intelligence tend to become concerned about their level of intelligence, readily draw global judgments of their ability, and show decrements in performance. In contrast, individuals holding an incremental (malleable) conception of intelligence are instead concerned about how to expand their abilities. Because they are focused on learning versus measuring their intelligence, they do not tend to blame their underlying ability with the onset of failure, but rather tend to make more dynamic attributions for their performance (e.g., to processes such as the amount of effort exerted) and maintain or improve their performance on subsequent tasks. Interestingly, these differences in ability inferences and reactions to failure are observed despite the fact that entity and incremental theorists display equal ability at a task before encountering setbacks. Thus, in the domain of intelligence, Dweck and colleagues have provided evidence for Piaget and Garcia's notion that psychological factors such as people's conceptions of their social reality can explain differences in their perceptions even after their ability has been taken into account.

Erdley and Dweck (1993) then considered whether, just as people have entity versus incremental theories of intelligence, they may have entity versus incremental theories of personality. Moreover, they reasoned that, just as entity theorists draw more global inferences about their own abilities from a few instances of performance information, they might draw more global inferences about others' characteristics from small samples of their behavior than would incremental theorists. In other words, those who believe in fixed traits may see judging those traits as the way to understand people and their behavior. To address this, Erdley and Dweck showed late grade school children a slide show depicting some negative behaviors of a new boy at school (e.g., he lied about his family, copied from a classmate's paper), and found that, compared with incremental theorists, en-

tivity theorists made significantly stronger inferences about the boy's global moral traits (e.g., bad, mean, nasty). In addition, when asked how they expected the boy to be in the future, entity theorists believed that the boy would be pretty much the same whereas incremental theorists predicted that he might well be different. Therefore, entity theorists not only made relatively more extreme person judgments, but also expected little variability in behavior over time (see also Chiu, Hong, & Dweck, 1997).

Levy, Stroessner, and Dweck (1998), in turn, reasoned that entity-incremental conceptions might also influence perceptions and judgments of groups. More specifically, Levy et al. predicted that entity theorists would place more stock in stereotypes because (1) they seem to invest traits with considerable meaning, and (2) stereotyping is essentially attributing a fixed set of traits to groups. Moreover, just as entity theorists believe they can judge an individual's traits from a small sample of behavior, they also may believe they can judge the traits of a group from a small sample of individual group members' behaviors. Finally, just as entity theorists expect low variability in an individual's behavior, they also may expect greater homogeneity in the behavior of persons within a group. They may therefore not only judge the group from individual members' behaviors, but also may, once they have rendered a judgment of the group, readily apply this expectation to new group members. In contrast, incremental theorists may see dynamic factors (e.g., a person's goals and needs) as better explanations for an individual's and a group's behavior, not believe they can judge individuals or groups from a small sample of behavior, and expect greater variability for a group's behavior as they do for individual's.

As a first step in relating theories to group perception, Levy et al. (1998) provided evidence that an entity view is associated with more extreme group judgments both in terms of stronger stereotype endorsement, and of lower expectations of variability in group behavior than an incremental view. For example, they found that although entity and incremental theorists were equally knowledgeable about societal stereotypes (cf. Devine, 1989), entity theorists, relative to incremental theorists, expressed greater agreement with the stereotypes (both positive and negative) of ethnic groups such as African Americans and Asians, and of occupational groups such as lawyers and politicians (Experiments 1, 2, and 5). By (temporarily) manipulating students' theories, Levy et al. also demonstrated that theories about traits play a causal role in creating these stereotyping differences (Experiment 4).

In addition, Levy et al. (1998) examined differences in the judgments entity and incremental theorists initially form of groups that they have never before encountered (cf. Ford & Stangor, 1992; Park & Hastie, 1987). When forming an impression of a novel group based on information about positive or negative actions of a few group members, college students holding an entity theory made more extreme and more rapid judgments of the groups' attributes (e.g., evil-virtuous, inconsiderate-considerate) and saw group members as more similar to each other with respect to the attributes (Experiment 3). These findings suggest that for entity theorists, the behavior of a few group members is indicative of the traits of the entire group.

The present investigation seeks to replicate and extend Levy et al.'s (1998) investigation of the role of theories about the malleability of traits in stereotype formation. Given that stereotypes develop in childhood, our chief purpose was to assess whether children's theories about traits are indeed linked to their level of stereotyping. These studies also were conducted with children because, relative to research conducted with college students, less research with late grade school students has focused on individual differences in stereotyping (see Levy, *in press*). Additionally, because there have been relatively more advances in the development of stereotype measures for adults (for notable exceptions, see Bigler, Liben, Lobliner, & Yekel, 1997; Doyle et al., 1988), a secondary purpose of the subsequent studies was to assess whether the basic methodology Levy et al. (1998) used in their adult stereotype work on novel groups (e.g., Ford & Stangor, 1992; Park & Hastie, 1987) could be adapted for children (with the addition of several new dependent measures). Thus, the current investigation may help identify points of convergence in findings with adults and children and, in turn, contribute to an integration of developmental and social-psychological theory on stereotyping and prejudice (e.g., Bigler, Jones, & Lobliner, 1997; Ruble & Stangor, 1986).

We present two studies designed to examine individual differences in the stereotypes children form of groups. In Study 1, children learned about several negative and neutral behaviors performed by different students in an unknown school. Children holding entity theories, compared with those holding incremental theories, were predicted to more strongly associate negative attributes with the group, judging them more extremely on those traits and perceiving group members to be more similar on those traits. Entity and incremental theorists' differing assumptions about human nature also were expected to be revealed by their differing explanations of the group

members' actions and the differing amounts of interaction they wished to have with group members.

In Study 2, children were asked to judge two schools (one that was characterized by mostly negative behaviors and the other by mostly positive behaviors). Based on Levy et al.'s (1998) findings, we expected entity theorists to form more extreme positive and negative stereotypes. We also investigated some implications of children's newly formed beliefs such as their judgments of a completely unknown group member and their tendency to make inferences about aspects of group members that went beyond the behavioral information they received.

In summary, this research explored how children's basic assumptions about the nature of human attributes relate to their tendency to stereotype. By exploring the relation between these static versus dynamic conceptions and stereotyping, we may better understand one of the reasons that some children tend to believe in stereotypes more than others.

STUDY 1: STEREOTYPE FORMATION

This study examined differences in children's formation of stereotypes of an unknown group based on relatively sparse behavioral information. Specifically, children were told that they would be learning about a few students their age from an unfamiliar school and then would be asked to give their impression. Children were then given information about a subset of students who exhibited mostly negative behaviors. First, we had them rate the group on relevant trait dimensions, with the prediction that compared to children holding incremental theories, children holding entity theories would draw stronger trait inferences and judge greater within-school similarity. Second, to gain insight into the judgment processes of the two theory groups, we explored their explanations for the group's behavior, asking: Do entity theorists draw stronger trait inferences because they see a one-to-one correspondence between people's traits and their behaviors, viewing traits as causing behaviors and behaviors as reflecting underlying traits? How can incremental theorists' weaker trait inferences be understood? In trying to understand others from their behavior, do they consider more dynamic explanations such as mediating psychological processes (e.g., a person's goals and needs) and environmental influences on a target?

In addition, behavioral consequences of the children's newly-formed impressions of the students at the novel school were assessed with the hypothesis that entity theorists would be less willing to socialize with group members than would incremental theorists.

Method

Participants

A total of 78 sixth graders (35 boys and 43 girls) between the ages of 11 and 13 years ($M = 11.62$) attending a large public middle school in New York City participated. Participants were recruited from three classrooms and included those students whose parents or guardians had provided written consent and who themselves agreed to participate. The sample was predominately Latino/Hispanic American (71.8%), with 14.1% African American, 5.1% Asian American, 6.4% European American, and 2.6% other.

Late grade school children were selected because past work indicates that by this age children have developed theories about others' attributes (e.g., Erdley & Dweck, 1993), and have already acquired skills necessary for understanding similarity and differences among groups (e.g., Aboud, 1993; Katz, Sohn, & Zalk, 1975) and for classifying a group of people on more than one dimension (e.g., Bigler & Liben, 1993).

Stimulus Materials

Children read about several different students from a fictitious school who generally behaved in an undesirable manner. The stimulus materials were constructed based on behavioral ratings collected in a pilot study. Children in a pilot study ($N = 41$ sixth graders) were presented with 24 one-sentence descriptions of behavior intended to reflect varying degrees of niceness and meanness. They were asked to evaluate each behavior on a 9-point scale ($-4 =$ very, very mean, $-3 =$ very mean, $-2 =$ mean, $-1 =$ a little mean, $0 =$ not nice, not mean, . . . $4 =$ very, very nice).

To construct the set of students' behaviors from the fictitious school, six "mean" behaviors ($M = -2.62$) and three "neutral" behaviors ($M = .14$) were selected. The task was made more age-appropriate by selecting 9 behaviors to describe the fictitious group members, as opposed to 18 behaviors that are typically presented to college-age students (see Ford & Stangor, 1992; Levy et al., 1998; Park & Hastie, 1987). The specific set of behaviors can be found in the top portion of Table 1.

Theories about the malleability of traits also were assessed in the pilot study to examine whether entity and incremental theorists evaluated the behaviors differently. Univariate tests conducted on each of the behaviors revealed no differences between entity and incremental theorists' ratings (all $ps > .23$; for a similar finding with college students, see Chiu et al., 1997, Experiment 3; Levy et al., 1998, Experiment 3). These data suggest that any differences in entity and incremental theorists' judgments of the novel school cannot be eas-

Table 1 Ratings of the Behaviors Comprising the More Negative-Behaving and More Positive-Behaving Schools, Pilot Study

	M	SD
"Negative" school		
Negative behaviors		
One kid told a classmate not to sit with her at the lunch table	-2.39	1.06
One kid would not take turns playing the video game with a classmate	-2.44	.73
One kid would not help a classmate pick up the stack of papers he dropped	-2.61	1.00
One kid would not loan his extra pencil to a classmate who needed one	-2.63	1.09
One kid told a classmate that her picture in the class art show was ugly	-2.80	1.05
One kid borrowed one of his classmate's favorite CDs and never returned it	-2.85	.88
Subtotal	-2.62	.97
Neutral behaviors		
One kid looked at a poster on the wall	.12	1.00
After school, one kid went to a video store and looked through some videos on a rack	.15	.92
One kid got a drink of water from a water fountain	.15	1.05
Subtotal	.14	.99
Total	-1.70	1.39
"Positive" school		
Positive behaviors		
One kid shared some candy with a classmate	2.51	1.22
One kid returned the money she saw a classmate drop on the floor	2.54	1.23
One kid told a classmate that her hair looked pretty	2.54	1.29
One kid let a classmate borrow his favorite baseball hat	2.61	1.10
One kid helped a kindergartner who dropped a box full of crayons	2.63	1.02
One kid offered to let the new kid take his place as captain of the team	2.78	.85
Subtotal	2.60	1.12
Neutral behaviors		
One kid took a pen out of the front pocket of his knapsack	0	1.08
After school, one kid walked into a record store and looked at the CD section	.24	1.11
One kid looked at a picture on the bulletin board	.56	1.01
Subtotal	.27	1.07
Total	1.82	1.18

Note: The set of "negative" school behaviors were used in Studies 1 and 2.

ily attributed to differences in each theory group's tendency to evaluate behaviors themselves differently.

Measures

Theory about traits measure. Using a recent measure of adult's theories of traits as a model (see Levy et al.,

1998), we created a new theory scale for use in the present study (for a previous version of this scale with children, see Erdley & Dweck, 1993). To select items for the new scale, we conducted a pilot study in which children were asked to decide how much they agreed or disagreed with a pool of entity and incremental statements, and to explain their answers to each statement. We then chose the two entity and two incremental items that had the highest intercorrelations and that, based on the children's free responses, appeared to be the most clearly understood by them. The entity items were: "People can't really change what kind of personality they have. Some people have a good personality and some people don't, and that can't change much"; "Someone's personality is a part of them that they can't change very much." The incremental items are: "No matter who somebody is and how they act, they can always change their ways"; "Anybody can change their personality a lot." Children rated these items on a 6-point scale from 1 (very strongly disagree), 2 (strongly disagree), 3 (disagree), to 6 (very strongly agree). Because piloting showed that children were confused when the contradictory entity and incremental items were interspersed, we put entity and incremental items on different pages, with entity items appearing first.

A theory about traits score was calculated by averaging responses to the two incremental items and reverse-scored responses to the two entity items. Students were then divided into two distinct groups (entity and incremental theorists) based on whether on average they tended to agree with the entity versus incremental theory items (scores below 3.5) or the incremental versus entity theory items (scores above 3.5). Children whose average theory score was at the midpoint (3.5) were omitted from subsequent analyses because they had registered equal agreement with the two theories and thus no clear predictions could be made for them. Theory about traits also is considered to be a dichotomous variable, as once an individual has indicated agreement with a particular theory, the degree of agreement typically does not provide additional information. (For a more extensive discussion of the theoretical and empirical bases of this conceptualization, see Dweck et al., 1995, and Dweck & Leggett, 1988.)

In the present study, the measure had moderate internal reliability (Cronbach's $\alpha = .62$). and test-retest reliability over a one-week period ($r = .70$). Regarding the validity of theory measures typically used, Dweck et al. (1995) provide evidence indicating that the measures are unrelated to respondents' sex and age and to measures of self-esteem and optimism or confidence in other people and the world. Most ger-

mane to the present investigation, Levy et al. (1998) found that responses to the adult form of the theory measure were independent of responses to Paulhus (1984) Social Desirability Scale, Marlowe-Crowne Social Desirability Scale (Crowne & Marlowe, 1960), and Motivation to Control Prejudiced Reactions Scale (Dunton & Fazio, 1997). These findings indicate that differences in socially desirable responding do not appear to be an alternative explanation for differences in entity and incremental theorists' level of stereotyping.

Novel Group Perception Measures

Trait judgments. After reading about behaviors performed by nine different students from the novel school, children were asked to consider the extent to which a series of traits described the students from the school. Specifically, they were asked to rate the school on five global and specific attribute dimensions related to the set of behavioral stimulus sentences (nice–mean, honest–dishonest, friendly–unfriendly, generous–stingy, good–bad). For example, they were asked to decide, “How nice or mean do you think the kids from the school are?” on an 8-point scale from –4 (very, very mean), –3 (very mean), –2 (mean), –1 (a little mean) to 4 (very, very nice).

Within-school trait variability judgments. Trait judgments capture one dimension of impression formation, that is, the perceived central tendency of a group on a given attribute. Another important component of impression formation is perception of variability, that is, how dispersed a group is viewed on a given attribute (see Ford & Stangor, 1992; Park & Hastie, 1987; Park & Judd, 1990).

To tap perceptions of within-school trait variability, children were asked how many students in the novel school were characterized by each trait dimension used in the trait rating task. Adopting a measure from Bigler (1995; Bigler, Jones, & Lobliner, 1997), children were asked, “How many of the kids from the school do you think are nice?” (1 = none, 2 = some, 3 = most, 4 = all). They evaluated five positive traits (nice, honest, friendly, generous, good) and then the five corresponding negative traits (mean, dishonest, unfriendly, stingy, bad). Within-school trait variability scores were created by summing the number of positive and negative traits they assigned to the extreme ends of the scale (e.g., none or all). Higher scores would indicate that children saw the school as less variable.

Willingness to interact with group members. To assess possible behavioral consequences of the impressions children formed of the students at the novel school,

children were asked three questions about their willingness to socialize with them (see Katz et al., 1975): “How much would you like to have kids from the school [go to a party with you and your friends; as your friend; as a best friend]?” (1 = not at all, 2 = a little, 3 = some, 4 = very much, 5 = very, very much).

Explanations for the group's behavior. As a means of understanding their group judgments, children were asked to explain the group members' actions. We were particularly interested in determining whether entity and incremental theorists differed on trait versus situational explanations, because of research showing that people's failure to take into account the impact of social environments can contribute to the formation of stereotypes (e.g., Schaller, Boyd, Yohannes, & O'Brien, 1995; Schaller & O'Brien, 1992). Accordingly, children were asked to complete the following open-ended question: “Why do you think the kids from the school acted the way they did?”

Procedure

Each class (approximately 25 students per class) was tested as a group during one class period. Three experimenters coordinated the study. At the beginning of the class period, one of the experimenters (the first author) told the class that their help was needed in a large project concerning students' daily activities. They then were informed that they would be learning about a few students their age from an unfamiliar school (ostensibly one of the schools observed earlier in the year as part of the “large project”) and then they would be asked for their impression of the *entire* school. Before the experimental materials were distributed, children received some training in using rating scales. It was emphasized that there were no right or wrong and no good or bad answers.

Immediately following the training, children were given a booklet in which a behavior performed by a different student from the novel school was printed in the center of each page (e.g., “One kid would not take turns playing the video game with a classmate”). The order of the behaviors varied from booklet to booklet. After they read the nine behaviors, children raised their hands and were given a questionnaire packet containing the dependent measures. The packet included, in order, measures of trait ratings, within-school trait variability, willingness to interact with students from the school, and attributions for students' behaviors. Children reported their trait judgments before their variability judgments because we expected that this order would create the least interference between the measures. In addition, Park and Judd (1990, Experiment 1) found that the pattern of

effects was not affected by this same ordering of tasks. After all the group perception measures, children completed a short, unrelated questionnaire as a distractor and then the theory about traits measure. The order in which the theory measure is administered does not appear to be important. For example, across the series of studies conducted by Levy et al. (1998) on stereotyping, the same pattern of results emerged whether the measure was administered before or after the primary dependent measures.

Results and Discussion

Responses to the Theory about Traits Measure

To reiterate, a theory about traits score was calculated by averaging responses to the two incremental items and reverse-scored responses to the two entity items, with a higher score indicating an incremental theory. Children with an average theory score below the midpoint of the scale (3.5) were classified as entity theorists ($n = 30$), and children with average scores above the midpoint of the scale were classified as incremental theorists ($n = 28$). Because our predictions were made only for children with a preference for one theory or the other, children with theory scores of 3.5 (indicating equal agreement with both entity and incremental items) were unclassifiable and were excluded from the data analyses ($n = 20$).

In a preliminary analysis, we examined whether entity and incremental theorists in our sample differed in their general intellectual performance, as indexed by their school grades. We did not expect them to differ since in previous studies, grade school children with entity and incremental theories of intelligence earned similar school grades and scores on achievement tests, and performed similarly on conception formation tasks (see Dweck et al., 1995; Dweck & Leggett, 1988). We obtained students' final grades in English, social studies, science, and math. Entity and incremental theorists' performance in each of these courses did not differ significantly ($ps > .13$); if anything, it was entity theorists who slightly outperformed incremental theorists.

Responses to the Novel Group Perception Measures

A series of analyses of variance (ANOVAs) on the main dependent measures did not indicate any systematic differences between the responses of males and females. Thus, gender was not included in subsequent analyses. Repeated measures ANOVAs were conducted to assess how robust or consistent entity-incremental differences were across similar dependent measures.

Trait judgments. Our first hypothesis that entity theorists would more readily and strongly draw a link between behavior and corresponding traits received strong support. A 2 (theory) \times 5 (traits) analysis of variance (ANOVA) with repeated measures on the last factor was conducted. This analysis yielded only one significant effect, the predicted theory main effect. Entity theorists made significantly less favorable trait ratings of the students from the school than did incremental theorists, $F(1, 57) = 5.95, p < .05$. On average, entity theorists rated the school as "mean" ($M = -2.03$), whereas incremental theorists rated the school as approximately "a little mean" ($M = -1.21$).

This result is consistent with findings from previous studies with college students on stereotype formation showing that entity theorists reach more extreme trait conclusions about an entire group from sparse behavioral information about a few group members than do incremental theorists (Levy et al., 1998, Experiment 3), even though both theory groups tend to give similar ratings to the behaviors on which those judgments are based.

Within-school trait variability judgments. In line with the above findings, it was hypothesized that entity theorists would see group members as more similar to one another with respect to traits. To review, variability scores were created by summing the number of traits (both positive and negative) children assigned to the extreme ends of the scale (e.g., none or all).

Scores were analyzed using a 2 (theory) \times 10 (trait variability score) ANOVA with repeated measures on the last factor. This analysis yielded a significant main effect with no interactions, indicating that entity theorists ($M = 2.63$) made a greater number of "none" and "all" responses than did incremental theorists ($M = 1.18$), $F(1, 57) = 4.50, p < .05$. Thus, not only did entity theorists affix stronger traits to the group, but they also saw the group as a whole as more similar with respect to those traits.¹

Willingness to interact with group members. We expected that the children's judgments would be accompanied by different preferences for group contact, with entity theorists preferring to associate less with members of a group they had labeled negatively. The three questions asking children how willing they would be to have contact with the students from the novel school were submitted to a 2 (theory) \times 3 (contact) ANOVA with repeated measures on the last fac-

¹ Some children used the "none" response for negative traits and the "all" response for the positive traits. Given that these responses were not anticipated, we conducted an analysis in which these responses were removed and an analysis in which children giving these responses were removed. Entity-incremental differences remained significant in both cases.

tor. This analysis revealed the predicted main effect, $F(1, 57) = 5.39, p < .05$. Although both groups reported that they did not want to socialize much with the group members, entity theorists ($M = 1.51$) wanted to do so even less than incremental theorists ($M = 1.96$). This finding suggests that differences in trait and variability judgments are meaningful differences with possible behavioral consequences.

Explanations for the group's behavior. Two judges who were blind to children's theories about traits coded open-ended explanations for the group members' behavior. Children's responses contained traits (e.g., "they are mean"; "they are dishonest"), psychological processes (such as goals, needs, current mood states: e.g., "to get attention"; "they wanted to be mean"; "they didn't feel like being nice"), and external factors (such as situational and environmental-learning factors: e.g., "the picture was ugly"; "others were acting that way"; "because the teacher doesn't teach them right or their parents don't teach them right"; "their friends taught them how to be bad"). Each explanation was coded into only one category.

The reliability of the coding was calculated as the number of agreements divided by the total number of agreements and disagreements. The judges agreed on 90.6% of their codings (100% trait, 85.7% process, and 83.3% external factors). Discrepancies were resolved by a third judge (one of the authors) who was also blind to children's theory. Five children did not respond to this question.

Table 2 contains the percentage of entity and incremental theorists who listed each explanation. Using as a dependent measure the number of children employing either of the three explanations (trait versus process versus external) as a function of their theory (entity versus incremental), a χ^2 analysis indicated that entity and incremental theorists significantly differed in their explanations, $\chi^2(2, N = 53) = 19.22, p < .005$. These findings are consistent with the results of a study with college students on person perception. In that study, college students were asked to provide brief causal explanations for positive and negative be-

haviors performed by different target persons (e.g., "Arthur brought his colleagues some souvenirs from a trip"). Hong (1994) found that incremental theorists made significantly more external (to situation) attributions for people's behaviors than did entity theorists, and that entity theorists made more internal (to trait) attributions than did incremental theorists.

Taken together, findings from these studies give us some insight into the meaning of entity and incremental theorists' trait inferences. For entity theorists, traits appear to be the major causes of behaviors. Therefore, when they label a group as possessing a trait, they also believe the group acted that way because of the trait. Incremental theorists certainly made trait ratings, but ones that were relatively weaker. Here, we see that incremental theorists view the groups' behaviors as determined in large part by the situation or environment they were in. This has several implications. First, the reason incremental theorists make relatively weaker trait ratings may be that they accord a greater role to the environment. Second, it may be that even when they affix traits, they are describing a behavioral pattern in a situation and not deep-seated attributes (for discussions of different meanings of traits, see Trope, 1989; Uleman, Newman, & Moskowitz, 1996). It should be noted that, although the correspondence between the findings of this study and Hong's study were similar, it will be nonetheless important in future work to trace the similarities and differences between perceiver's judgments (children versus adults) of targets (persons versus groups; see Hamilton & Sherman, 1996, for a discussion of judgments of groups versus individuals; also see Levy & Dweck, 1998).

On a final note, the difference between entity and incremental theorists' explanations has implications for work on the "fundamental attribution error" that has documented a general tendency among people to overestimate the role of people's dispositions and underestimate situational factors in explaining others' behaviors (e.g., Jones & Davis, 1965; for a review see Ross & Nisbett, 1991). Because of their greater recognition of situational versus dispositional factors, incremental theorists may be less prone to the fundamental attribution error than are entity theorists.

In sum, the results from this study indicate that when forming an impression of a school characterized by a few negative behaviors, children with a fixed conception of traits formed more extreme trait judgments of the group than those children with a more dynamic conception of traits. Besides attaching different trait labels, entity and incremental theorists had different ideas about the composition of the schools. Compared with incremental theorists, entity theorists saw less variability within the school, sug-

Table 2 Percentage of Entity and Incremental Theorists Who Used Each Category of Explanation for the Group's Behavior, Study 1

Explanations	Entity Theorists	Incremental Theorists
Internal explanations		
Trait	64.3	16.0
Psychological process	10.7	16.0
External factors	25.0	68.0

gesting that they may extrapolate from a few observations of several different group members to an entire group. In other words, they may more readily see group members as representative of an entire group. Entity and incremental theorists' differing impressions also were revealed by the differing amount of interaction they wished to have with group members. Finally, evidence was offered for meaningful differences in entity and incremental theorists' interpretations of the group's behaviors, with entity theorists focusing primarily on traits as the underlying causes of the group's behavior and with incremental theorists focusing primarily on context-sensitive situational factors. Thus, these data show how children's conceptions about the malleability of personality are associated with different important aspects of how they form impressions of groups when some group members behave moderately negatively.

STUDY 2: STEREOTYPE FORMATION AND GROUP DIFFERENTIATION

In Study 1, children received information about a single group and differed in the stereotypes they formed. Stereotypes, however, are often defined in terms of attributes that differentiate one group from another (e.g., Ford & Stangor, 1992; McCauley, Stitt, & Segal, 1980). Moreover, research indicates that when people are forming stereotypes, they often tend to process information in such a way as to maximize mean differences between groups (e.g., Hamilton & Gifford, 1976; Krueger, Rothbart, & Sriram, 1989).

To address this, in Study 2 children judged two groups. They were given information about the same school characterized by mostly negative behaviors as in Study 1, and a group characterized by mostly positive behaviors. In this way, we could examine whether entity and incremental theorists (1) differ in judgment processes related to social categorization of more than one group (e.g., Sherif & Sherif, 1953; Tajfel, 1970), and (2) differ in newly formed judgments of a school characterized by several positive behaviors. To explore the extent to which the children differentiated the groups, their judgments were compared on trait dimensions implied by the behaviors as well as on characteristics (e.g., preferences and concerns) further removed from the information provided. To examine children's impressions of each school, some of the measures from the first study were used with the addition of measures of the extent to which their impressions generalized to an unknown student at the school and to a trait that was irrelevant to the set of behaviors they read. Furthermore, children completed a behavior recognition task

to examine whether any differences in their group judgments could be attributed to differences in their attention to the information.

Method

Participants

A total of 44 sixth graders (20 boys and 24 girls) between the ages of 11 and 13 years ($M = 11.80$) attending a small public middle school in New York City participated. Children were recruited from two classrooms and included those students whose parents or guardians had provided written consent and who themselves agreed to participate. The sample was ethnically diverse: 27.3% African American, 2.3% Asian American, 34.1% European American, and 36.3% Latino/Hispanic American.

Stimulus Materials

In Study 2, children read about students from two hypothetical schools—students from one school generally behaved in a desirable manner, whereas students from the other school generally behaved in an undesirable manner. The stimulus materials were constructed based on data collected in the pilot study described in Study 1. The students in the school characterized by mostly negative behaviors ("negative" school) exhibited the same nine behaviors (six "mean" and three neutral behaviors) used in Study 1. The students from the school characterized by mostly positive behaviors ("positive" school) exhibited six "nice" behaviors ($M = 2.60$) and three different "neutral" behaviors ($M = .27$). As indicated in Table 1, the "positive" and "negative" sets of behavioral sentences were selected so that the schools would have roughly similar within-school variability ($SD = 1.39$ for the "negative" school and 1.18 for the "positive" school) and means that were roughly equidistant from the scale midpoint ($=0$; $M = -1.70$ for the "negative" school and 1.82 for the "positive" school).²

Measures

Theory about Traits Measure

Children completed the same theory about traits measure described in Study 1.

² For simplicity, in the method and results section of Study 2, we employed shorthand phrases such as "negative school" and "positive school" (instead of "school characterized by mostly negative (positive) behaviors"). These are simply conveniences and should not be taken to imply that all of the students in the school acted positively or negatively.

Novel Group Perception Measures

Trait judgments. As in Study 1, using an 8-point bipolar scale, children rated the students at each school on five attribute dimensions implicated in the set of stimulus sentences (nice–mean, honest–dishonest, friendly–unfriendly, generous–stingy, good–bad).

Trait judgments of an unknown group member. To assess the generality of the children's judgments, they were asked to judge a student who was absent the day of the experimenter's observation.

The children were told, "Chris (Sam) is a student at School No. 1 (No. 2). Chris (Sam) was absent the day we visited School No. 1 (No. 2) so we don't know anything about Chris (Sam)." They were then asked to judge the unfamiliar student on two trait dimensions (nice–mean, good–bad): "How nice or mean do you think Chris (Sam) is?" ($-4 =$ very, very mean, $-3 =$ very mean, $-2 =$ mean, $-1 =$ a little mean, to $4 =$ very, very nice).

Within-school trait variability judgments. Using the same measure as in Study 1, children were asked to make separate variability judgments of each school.

Between-school differentiation judgments. Research indicates that when forming attitudes about more than one group at a time, people not only tend to see members of a group as more similar, but they also tend to see each group as quite different from the other group(s) (e.g., Ford & Stangor, 1992). Because entity theorists tend to understand groups in terms of traits, they were expected to be more likely to differentiate groups in these terms. This was assessed by recoding the measure of within-school variability to provide a measure of between-school differentiation. Using Bigler's procedure (Bigler, 1995; Bigler et al., 1997), positive and negative between-school difference scores were separately calculated. Ratings were calculated so that for each difference score, a higher score would indicate greater differentiation between the schools. The positive trait difference scores were created by subtracting children's rating of the "negative" school (School No. 2) on each positive trait from their rating of the "positive" school (School No. 1) on the same trait (e.g., $nice_{\text{School 2}} - nice_{\text{School 1}}$). Negative trait difference scores were computed in the same manner, but in this case, children's rating of the "positive" school on each negative trait was subtracted from their rating of the "negative" school on the same trait (e.g., $mean_{\text{School 1}} - mean_{\text{School 2}}$).

Activities and concerns. Would entity theorists, to a greater degree than their incremental counterparts, expect the groups to differ on dimensions that went beyond the provided information? To examine the extent to which they would contrast the two groups,

children were asked: "Do you think the kids from School No. 1 ("like to play the same games"; "like to go to the same movies"; "worry about the same things"; "wish or dream for the same kinds of things") as the kids from School No. 2?" (1 = none of the same [games], 2 = some of the same [games], 3 = most of the same [games], 4 = all of the same [games]).

Behavioral recognition. We also had children complete a behavior recognition task to examine whether any differences in entity and incremental theorists' group judgments could be attributed to differences in their attention to the provided information. They were presented with the six "positive" behaviors and six "negative" behaviors that represented each school, as well as three filler positive and negative behaviors. Children were instructed to try to remember exactly what the students from each school did and then decide whether they had read each behavior earlier in the experimental session (1 = yes, 0 = no).

Procedure

As in the previous study, children were tested as a class during one class period. Two experimenters coordinated the study.

The study was introduced in the same manner as in Study 1. After becoming familiar with the use of rating scales, children were given a booklet containing the behaviors performed by students at the "positive" school. They then raised their hands to hand back the booklet and to receive the questionnaire packet concerning School No. 1 (in order, trait judgments of the groups as a whole, trait judgments of an unfamiliar group member, and within-school variability judgments). Next, they completed the same materials concerning School No. 2 (the "negative" school). The order of the schools was not counter-balanced because results from pilot work indicated that when children read about the "negative" school first, there was a ceiling effect on their ratings of the "positive" school.

Finally, children were given the last questionnaire packet. They were asked to judge the extent to which the groups shared similar activities and concerns and to recognize the behaviors about which they read. Last, as a distractor, children completed a filler questionnaire before the theory about traits measure.

Results and Discussion

Responses to the Theory about Traits Measure

The measure had high internal reliability (Cronbach's $\alpha = .84$). Using the same classification criteria

as in Study 1, entity theorists ($n = 19$), incremental theorists ($n = 17$), and unclassified children ($n = 8$) were identified. The unclassified children were excluded from all subsequent analyses.

Responses to the Group Perception Measures

As in Study 1, there were no systematic differences based on gender; thus all analyses are collapsed across this variable. All analyses were performed first with School No. 1 versus School No. 2 as a factor. These analyses showed that children rated the schools differently (in the expected direction) on every dependent measure. Thus, for simplicity, the analyses are presented separately for Schools No. 1 and No. 2.

Trait judgments. To examine children's trait judgments of School No. 1 as a function of theories, a 2 (theory) \times 5 (traits) ANOVA with repeated measures on last factor was conducted. This analysis revealed a significant main effect, indicating that entity theorists made significantly more favorable trait judgments of the school than did incremental theorists ($M = 3.19$ versus 2.76 , respectively), $F(1, 35) = 4.13$, $p = .05$. No other effects were significant. A similar analysis conducted on ratings of School No. 2 also revealed one significant effect, in this case, indicating that entity theorists made significantly less favorable trait judgments of the school than did incremental theorists ($M = -2.43$ versus -1.46 , respectively), $F(1, 34) = 7.90$, $p < .01$. Therefore, consistent with findings from previous studies (Levy et al., 1998), entity theorists formed more extreme trait judgments of groups characterized by mostly negative or positive behaviors than did incremental theorists.

Trait judgments of an unknown group member. A 2 (theory) \times 2 (traits) (nice-mean, good-bad) ANOVA on the ratings of the unknown student at the "positive" school, with repeated measures on the last factor, revealed no theory effects. A similar analysis on ratings of the unknown student at the "negative" school, however, produced the predicted significant theory main effect, $F(1, 35) = 12.37$, $p = .001$. Entity theorists expected the unknown student to be relatively *mean* and *bad* ($M = -1.95$), whereas incremental theorists' ratings of the unknown student indicated that their expectation was a neutral one ($M = -0.03$). Therefore, the impression that entity theorists formed of the group characterized by mostly negative behaviors was extended to the entire group, even to students who were not present for the experimenter's observational visit to the school. In contrast, it seems that the trait judgments incremental theorists made of the "negative" group were specific to the set of students about which they read. Thus, entity theorists

readily used a stereotype-based expectancy as a basis for evaluating a group member of a "negative" group, whereas incremental theorists did not.

Within-school trait variability judgments. As in Study 1, within-school trait variability scores were created by summing the number of positive and negative traits that children assigned to the extreme ends of the scale (e.g., *none* or *all*). A 2 (theory) \times 10 (trait variability score) ANOVA with repeated measure on the last factor was conducted on ratings of the "negative" school. This analysis yielded only one significant effect, the predicted main effect. Replicating the finding from Study 1, entity theorists ($M = 4.11$) saw the school as more homogeneous than did incremental theorists ($M = 0.83$), $F(1, 35) = 8.25$, $p < .01$.

A similar 2 \times 10 ANOVA conducted on ratings of the "positive" school variability again revealed only one significant effect. As predicted, entity theorists ($M = 5.50$) judged the "positive" school to be more homogeneous than did incremental theorists ($M = 2.25$), $F(1, 35) = 5.50$, $p < .05$. (In light of this finding, it is puzzling that we did not find entity-incremental differences in judgments of an unknown student at the "positive" school.) In short, whether judging a group characterized by mostly negative or positive behaviors, entity theorists expect group members to be more similar to one another.

Between-school differentiation judgments. To reiterate, between-school difference scores were created by subtracting trait variability for School No. 2 (the "negative" school) from those for School No. 1 (the "positive" school) (e.g., $nice_{\text{School 2}} - nice_{\text{School 1}}$). A 2 (theory) \times 5 (positive trait score) ANOVA with repeated measure on the last factor revealed a significant main effect, indicating that entity theorists ($M = 1.69$) saw the schools as differing to a greater extent on positive traits than did incremental theorists ($M = 0.95$), $F(1, 35) = 14.89$, $p < .001$. This effect was qualified by a theory \times positive traits interaction, $F(4, 136) = 4.66$, $p < .001$. Univariate tests indicated the effect was significant for all traits except *honest*, $p < .14$. Between-school differences on the negative traits were analyzed using a similar 2 \times 5 ANOVA. This analysis yielded the predicted main effect, indicating that entity theorists ($M = 1.86$) saw the groups as more different from one another on the negative traits than did incremental theorists ($M = 1.12$), $F(1, 34) = 9.29$, $p < .004$.

Given the within-group variability finding that entity theorists used the more extreme ends of the scale, it was not surprising to find that entity theorists saw the novel schools as differing to a greater extent on the traits. These findings, however, help us understand how group differences may come to be exaggerated.

The pattern of entity theorists' between school judgments across all traits is roughly represented as a 2-point difference, which suggests that they tended to either assign a trait to "none" of the students of one school and "most" at the other school or "all" at one school and "some" at the other school. In contrast, the 1-point between-group difference of incremental theorists suggests that they tended to assign traits to "some" students at one school and "most" students at the other school. Thus, whereas entity theorists saw the schools as differing on traits, incremental theorists saw the schools as sharing some of the same traits.

Activities and concerns. Our prediction that entity theorists would distinguish the two groups on characteristics further removed from the group information also received support. Children's responses to the two questions concerning activities were submitted to a 2 (theory) \times 2 (activities: games, movies) ANOVA with repeated measures on the last factor. This analysis revealed a significant main effect, indicating that entity theorists ($M = 1.79$) perceived the groups as having fewer activities in common than did incremental theorists ($M = 2.15$), $F(1, 35) = 4.57, p < .05$. Moreover, a similar ANOVA conducted on concerns (worries, wishes) indicated that entity theorists ($M = 1.61$) also saw the schools as sharing fewer of the same concerns than did incremental theorists ($M = 2.03$), $F(1, 35) = 4.06, p = .05$. These findings suggest that once entity theorists see groups as differing on character traits, they begin to think of them as different in other important ways—as people who share less of the same basic likes and goals.

Behavioral recognition. Our findings thus far indicate that entity and incremental theorists differed in the kinds of judgments they formed. Could this be due to a difference in retention of the behavioral information? For example, could it be that entity theorists drew more extreme judgments because they forgot the neutral behaviors of the group? Univariate tests revealed that entity and incremental theorists did not differ in their recognition of the neutral behaviors (all $ps > .36$) or valenced behaviors (all $ps > .12$) associated with each school as well as recognition of filler behaviors (all $ps > .22$). Differences in entity and incremental theorists' group judgments then are not likely to be a result of differences in their knowledge of the provided information.

To summarize the findings from this study, children with a fixed view of traits formed more extreme impressions about a group, whether judging it in isolation or in relation to another group, and whether a sampling of group members behaved mostly positively or negatively. Therefore, it is not simply the case that entity theorists have a general tendency to

think negatively about others, because here we see that they can also think more positively about others. Findings from this study also indicate that the stronger negative labels entity theorists attach to a group appear to refer not only to the specific subset of the group about which they learned, but also to unknown members who could not have been included in the observations. Moreover, entity theorists, compared with incremental theorists, appear to take differences between a subset of group members on one attribute dimension and create greater differences between the groups on other dimensions.

GENERAL DISCUSSION

Our results demonstrate that most children (over two thirds in the first study and over three fourths in the second study) held either a static or dynamic person conception and that these conceptions were related to clear differences in group perception. Conceptions about the malleability of traits differentially predicted the conclusions the children reached about unfamiliar groups of children based on the same information—the actions displayed by a subsample of a group.

Differences emerged on several key aspects of stereotyping. First, children subscribing to an entity view rated the school children more extremely than did children subscribing to an incremental view. That is, on average, entity theorists' ratings of the school with six negative-behaving students fell between the "mean" and "very mean" scale points, whereas incremental theorists' responses fell between the scale points—"a little mean" and "mean." The same basic pattern of findings emerged for the school with six positive-behaving students, with entity theorists' responses falling between "very nice" and "very, very nice" and incremental theorists' responses falling between "nice" and "very nice." It should be borne in mind that the children in our studies were in fairly large classrooms ($M = 24.4$ students), so for them information about six students for an unfamiliar school represents not only a small subset of the total number of students in the school, but also of students in a particular classroom.

Besides attaching different trait labels, entity and incremental theorists had different ideas about the composition of the schools. Compared with incremental theorists, entity theorists saw less variability within the schools with respect to traits, suggesting that they may extrapolate from a few observations of several different group members to an entire group. In other words, they may more readily see group members as sharing traits and thus representative of the entire group.

Entity theorists also saw less overlap between the schools not just in terms of the attributes that were related to the provided information. Entity theorists reported that they thought that the children from the two schools would share “none” to “some” of the same concerns and likes/dislikes, whereas incremental theorists, on average, reported that the students would share “some” of these characteristics. This finding indicates that entity theorists thought of the students from these schools as basically different. It is unlikely this difference emerged because entity theorists were more sensitive to the possibility that the groups of students lived in different environments, for example, that one group of children lived in a more or less impoverished area and thus had different sets of concerns and different games at their disposal. Our findings from Study 1 suggest the opposite—that incremental theorists are the ones who are more sensitive to external factors and environmental causes of behavior patterns.

From our findings thus far, it does not seem that people who subscribe to a fixed view of traits are in some way less cognitively complex overall or less cognitively skilled. For example, in Study 1, we found that children holding entity and incremental theories earned equivalent school grades. Moreover, the differences in our adult sample emerged in a group of college students who were attending a top university and who scored similarly on a variety of tests of cognitive skills (see Dweck et al., 1995; Dweck & Leggett, 1988). Therefore, our findings raise the issue: Once children have acquired relevant cognitive skills, such as appreciating variability within a category and similarities between different categories, will they use them? As with adults, these children, in accord with their theories, showed differences in applying their skills to the social task at hand. We suggest this is because their static versus dynamic views called differentially upon those skills.

Taken together, the present research contributes to a growing body of research that has identified and tested the impact of different kinds of lay theories or belief systems that children (e.g., Gelman, Coley, & Gottfried, 1994; Gopnick & Meltzoff, 1997; Hirschfeld, 1995) and adults possess (e.g., Sternberg, 1985; Wegener & Petty, 1998). Specifically, our results provide evidence for Piaget and Garcia’s (1983/1989) suggestion that children’s “static” versus “dynamic” conceptions are important by showing that they can predict variation in degree of stereotyping among children who have attained relatively mature levels of the cognitive skills relevant to stereotyping. Future work with younger children will illuminate whether these conceptions describe stable individual differences in stereo-

typing over the course of childhood or whether these conceptions interact with social cognitive skills in early childhood in accounting for variation in stereotyping.

In addition to finding a clear link between theories about traits and stereotyping among children, this work illustrates that a commonly used adult research strategy (i.e., the use of novel groups) could be successfully adapted for children (e.g., Aboud, 1976; Ford & Stangor, 1992; Park & Hastie, 1987; Stangor & Duan, 1991). Although other methods that involve presentation of behavioral information (taped or read aloud) have been used in studies of how children form impressions of individuals (e.g., Dozier, 1991; Karniol & Ross, 1979) and although stereotype researchers have exposed children to novel groups of actual children (see Bigler et al., 1997; Katz & Zalk, 1978), to our knowledge, presenting behavioral information about novel groups of children has not been used in developmental research of group perception. The method we used has unique advantages in that it is an efficient and unobtrusive measure of stereotyping.

Using any kind of novel group paradigm has some clear advantages over studying the stereotyping process with existing groups. The novel group method completely controls for prior knowledge and exposure and raises fewer self-presentational issues (vis-à-vis judging a group negatively). This kind of methodology also can assist developmental researchers in studying the “processes” involved in acquiring stereotypes (e.g., encoding and organizing of group information in memory, integrating inconsistent group information), which the use of existing stereotypes makes more difficult (e.g., Carter & Levy, 1988; Martin et al., 1995). At the same time, adapting measures may serve as a way to integrate findings from the adult and child literatures (see Bigler et al., 1997; Ruble & Stangor, 1986).

How does stereotyping of artificial groups relate to stereotyping of existing groups? Similar results have been obtained whether using existing groups or novel ones. For example, in Levy et al.’s (1998) work with adults, the same pattern of stronger endorsement among entity than incremental theorists was found, whether the group was a novel one or an existing one (ethnic or occupational). In addition, in a study of novel groups, Ford and Stangor (1992) replicated Diehl and Jonas’s (1991) findings with existing national groups. In a recently-conducted study with grade school children, Levy (1998) directly tested the assumption that attitudes about artificial groups correspond to attitudes about existing groups. Levy found a significant relation between children’s level of gender stereotyping (using a measure developed by Bigler et al., 1997) and level of novel group stereotyping, thereby

supporting the validity of the novel group paradigm for assessing children's stereotyping.

Implications and Extensions

Intergroup relations. What might these relative differences mean for children's behavior? Based on similar experiences, entity and incremental theorists may think about their peers differently and shy away from certain groups after an initial negative experience with some members of the group.

Results from this investigation already point to this. Compared with the incremental theorists, entity theorists reported that they wanted to associate less with the children from the school in which a few students performed negative behaviors, perhaps not only because they believed them to be more negative people (in terms of their traits), but also because they believed them not to share the kinds of likes, hopes, and concerns that other children have. In studies with college students, Freitas, Levy, and Dweck (1997) have begun to document the behavioral consequences of the entity theory. For instance, they led college students to believe that they were playing a game against a law student or an unidentified opponent. As predicted, entity theorists played more competitively against the law student than did incremental theorists. Incremental theorists played equally competitively against both the law student and the unidentified opponent, indicating that they did not act on the societal stereotype of law students. Evidence is therefore building that theories about traits not only influence judgments of groups, but also expectancies for and interactions with specific group members. This means that differences in entity and incremental theorists' impressions of groups may be psychologically meaningful differences.

Stereotype change. A recent set of studies have begun to address whether the link between theories about traits and stereotyping can provide insight into how stereotyping can be altered. Specifically, Levy et al. (1998) manipulated college students' theories and found that after the manipulation, entity-induced participants agreed significantly more with positive and negative stereotypes of ethnic and occupational groups than did incremental-induced participants. In a related study (Levy, 1998), grade school children's theories were temporarily manipulated through exposure to extensive (fictitious) research attesting to either an entity or an incremental theory. It was found that those given an entity view formed more extreme novel group stereotypes than the children given an incremental view. In short, when theories about the malleability of traits are temporarily induced, indi-

viduals show similar patterns to those of individuals with pre-existing theories. Thus, although theories can be relatively stable individual differences, they also are malleable, indicating that they may represent knowledge structures that can be chronically accessible or situationally induced (see Anderson & Lindsay, 1998). These data then could suggest that entity and incremental theories do not belong to different types of people but rather are different belief systems that impact social perception when they are made salient.

Accordingly, the successful manipulation of incremental theories and its impact on subsequent evaluations of groups suggests an avenue for stereotype change. For example, an intervention or curriculum unit that (1) challenges children's reliance on fixed traits as a way of characterizing people and predicting their behavior, and (2) offers nontrait, dynamic explanations for people's behavior, could potentially decrease the probability that children will form new stereotypes and maintain existing ones. In current work, we are experimenting with several different approaches to teaching an incremental theory that could generalize to contexts beyond the experimental one, such as training children to make nontrait explanations for people's behavior, and providing vivid accounts of changes in people's behavior across situations and over time.

Attacking underlying assumptions about the nature of personality would be a somewhat new approach to reducing stereotyping (see Levy, in press). It is particularly compelling by virtue of the fact that it does not confront the stereotypes themselves, since interventions aimed at persuading individuals that stereotypes are inaccurate on a trait-by-trait, group-by-group basis have met with limited success with both children (for reviews, see Bigler, 1999; Katz, 1986; Liben & Bigler, 1987; Serbin & Unger, 1986) and adults (for a review, see Hewstone, 1996).

Origin of theories. Where do these theories about traits come from? As just noted, findings from studies in which theories were situationally induced (Levy, 1998; Levy et al., 1998; also see Chiu et al., 1997) indicate that one way theories arise is through social learning processes.

In addition, research on theories of intelligence among children from kindergarten through fifth grade suggests that the theories are sensitive to socialization practices (Kamins & Dweck, 1999; Mueller & Dweck, 1998; see also Dweck, 1991) and that by kindergarten the theories predict self- and person-judgments (Heyman, Dweck, & Cain, 1992; see Heyman & Dweck, 1999, for similar findings with second graders). In studies of how adult feedback practices affect children's theories, it was found for both kindergartners

(Kamins & Dweck, 1999) and fifth graders (Mueller & Dweck, 1998) that “judgmental” feedback—feedback that reflected on the child as a whole or on the child’s traits—promoted an entity theory. In contrast, feedback that referred to the child’s effort or strategy—“process” feedback—fostered an incremental theory. Here, it seems that focusing children on the mediating processes that cause behaviors and outcomes orients them toward personal qualities that can be changed. Through this focus on mediating processes they also may come to understand how such mediating processes can produce variations in behavior across situations. Recognizing that behavior can vary meaningfully across situations and over time, they may be less likely to form trait judgments from a small sample of behavior. These conceptions may not only be directly fostered by feedback given in the home or at school, but also may be emphasized more generally by one’s culture, as pointed out by Piaget and Garcia (1983/1989).

Is it possible that static versus dynamic conceptions of personality originate in part from motivation differences? For example, might some individuals be motivated to look for negative traits in others as a way to bolster their self-esteem? If a belief in fixed traits simply served one’s self-esteem, then we would expect entity theorists to strongly endorse negative group traits and to weakly endorse positive group traits. Yet entity theorists’ relatively stronger endorsement of stereotypes is consistent across both positive and negative stereotypes of existing groups (Levy et al., 1998) and novel groups (as in the present investigation, as well as Levy et al., 1998). It would be nonetheless interesting in future work to consider motivational or affective factors and examine whether they interact with children’s person theories. For example, we might begin with studies in which entity and incremental theorists are led to believe they are members of the groups they are evaluating (see Bigler et al., 1997). Do entity theorists judge their own group even more positively on “positive” traits than they do other groups? Do they judge their own group less negatively on “negative” traits than incremental theorists? Do entity theorists not only see “outgroups” as relatively homogenous, but do they also see their own group as more homogenous?

Conclusion

There is strong empirical support for the cognitive-developmental approach to stereotype formation. Yet, this approach has not provided a full account of individual differences within an age group or of stereotyping differences in cognitively mature individuals. Examining children’s conceptions about people

and their qualities may broaden our understanding of the origins of stereotyping and may in turn contribute to our understanding of how to lessen stereotyping.

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ADDRESSES AND AFFILIATIONS

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