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To cite this article: Gil Diesendruck, Dana Birnbaum, Inas Deeb & Gili Segall (2013) Learning What is Essential: Relative and Absolute Changes in Children's Beliefs about the Heritability of Ethnicity, Journal of Cognition and Development, 14:4, 546-560, DOI: 10.1080/15248372.2012.691142

To link to this article: http://dx.doi.org/10.1080/15248372.2012.691142
Learning What is Essential: Relative and Absolute Changes in Children’s Beliefs about the Heritability of Ethnicity

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There are conflicting findings regarding the development of essentialist beliefs about social categories. The present studies address these findings by differentiating between the developments of the relative versus absolute essentialist status of categories. Participants were Israeli Secular Jewish and Muslim Arab kindergarteners, second graders, and sixth graders. Study 1 asked children which among alternative properties of a parent was most likely to transfer to a child. Findings showed that while kindergarteners did not systematically discriminate among properties, second and sixth graders privileged ethnicity. Study 2 asked children whether membership in various social categories was biologically or environmentally determined. Findings showed that kindergarteners and second graders, but not sixth graders, believed ethnicity to be biologically inherited. These results are discussed vis-à-vis different theories about the origins of social essentialism.

Adults around the globe essentialize various human categories; they believe categories are inductively powerful and that category membership is permanent and determined by causal, inherent, and inherited properties (Rothbart & Taylor, 1992). This type of belief has been found in various cultures, with respect to race (Haslam, Rothschild, & Ernst, 2000), gender (Keller, 2005), ethnicity (Gil-White, 2001), and caste (Mahalingam, 2003). Not only is this ‘social’ essentialism ubiquitous, it may also be pernicious (Prentice & Miller, 2007). Social essentialism has been linked to adults’ difficulty with switching frames of mind (Chao, Chen, Roisman, & Hong, 2007), stereotypes (Bastian & Haslam, 2006), prejudice (Leyens et al., 2003), disinterest in intergroup interaction (Williams & Eberhardt, 2008), and justifications for social stratification (Morton, Postmes, Haslam, & Hornsey, 2009; Yzerbyt, Corneille, & Estrada, 2001).

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Given the above characterization of social essentialism, of central theoretical and practical interest is the question of how social essentialism develops. The fact that different human categories are essentialized in different societies and the fact that essentialism seems so tied to ideological motives intimates that culture plays some role in the emergence of such beliefs (Fodor, 1998; Fuss, 1989; Sidanius & Pratto, 2001). In turn, the finding that social essentialism is manifest already by kindergarten age, and across cultures, suggests that it may be an intuitive belief that does not require learning (Hirschfeld, 1996). One sensible way to address this question is developmentally. Namely, do children become essentialists about a given culturally central human dimension as they gain exposure to their culture’s values, or do they start off as essentialists about various human dimensions and learn to maintain this belief only toward a particular one? The present studies address this question.

Although numerous studies on children’s social essentialism have been conducted, the developmental pattern revealed by them is not definitive. Some studies found that children’s tendency to essentialize a culturally central human category increases with age. For instance, Hirschfeld (1995) found that American children view race—when contrasted with body build or profession—as a developmentally stable and parentally transmitted characteristic. This was true among 3-year-olds, but even more so among 7-year-olds. Using a similar task, Kinzler and Dautel (2012) found that European American children’s reliance on race, as opposed to language, also increased from 5 to 10 years of age. Analogously, Birnbaum and colleagues found that when asked to draw novel inferences about people’s preferences and behaviors based on people’s social category membership, Israeli children preferred doing so by ethnicity, and this tendency became stronger from kindergarten to sixth grade (Birnbaum, Deeb, Segall, Ben-Eliyahu, & Diesendruck, 2010).

In contrast, other studies have reported a decrease with age in children’s social essentialism. Using variations of a switched-at-birth paradigm—in which children have to decide the category membership of a baby born to parents of Category A but raised in an environment of Category B—researchers have found that by age 5, North American children consistently determine gender characteristics and membership by one’s biological sex rather than by environment (Taylor, 1996; Taylor, Rhodes, & Gelman, 2009). A similar tendency to select birth parents was found among children in Madagascar, when deciding whether a child will be of Vezo or Karany ethnicity (Astuti, Solomon, & Carey, 2004). On these and other measures, the essentialist bias has been found to decline by the teen years (e.g., Astuti et al.; Rhodes & Gelman, 2009; Taylor et al.).

In sum, the developmental studies present a mixed picture as to whether social essentialism increases or declines with age. In fact, given the variety of populations, social categories, and particular components of essentialism assessed in the studies reviewed, any attempt to explain this pattern has to be tentative. For instance, innumerable factors might explain the difference between how ethnicity is treated by children in Madagascar and how race is treated by children in the United States (e.g., differences in status or cultural discourse regarding the relevant social groups), making any firm conclusions about the development of essentialism from the comparison of these data problematic. Moreover, the fact that studies tackled different components of essentialism (e.g., inheritability vs. inductive potential) might further hinder drawing firm conclusions, given that these components might not cohere in young children’s minds (Gelman, Heyman, & Legare, 2007).

The present two studies will attempt to provide a more conclusive definition of the development of social essentialism by systematically controlling for the various confounds alluded to
earlier. In particular, the studies were designed based on a possible solution to the seeming contradictory developmental patterns, which has to do with a structural difference between the tasks assessing essentialism. Namely, some of the tasks—primarily those reporting increases with age—evaluated children’s essentialist thinking by analyzing how children conceived of one social category when directly contrasted with another. For instance, in Birnbaum et al. (2010), children had to decide whether a character described as a “Jewish boy” would have the same preference as a “Jewish girl” or an “Arab boy” (i.e., the question assessed the inductive potential of ethnicity vs. gender). In general, these tasks provided a measure of the relative essentialist status of any given category. In turn, other tasks—primarily those reporting declines with age—evaluated children’s essentialist thinking by analyzing how children responded to a given social category in isolation. For instance, in the study by Rhodes and Gelman (2009), children were asked whether considering a man as being of the same kind as a woman was wrong (i.e., the question assessed solely children’s concept of the category of gender). In general, these tasks measured categories’ absolute essentialist status.

In this light, the combined pattern of developmental findings intimates that although children may start off as highly essentialist about certain social categories emphasized in their cultures (e.g., ethnicity in Israel), with development, they learn to maintain this bias particularly toward these culturally relevant categories. That is, the increase with age in relative essentialism about culturally relevant categories may result not from children’s learning of essentialism per se, but rather from them focusing essentialism primarily toward these categories.

The present studies address this interpretation head-on, by investigating children’s beliefs about the transmission of category membership. To address this goal, we controlled—as best as possible—for the various confounding factors that characterize the diverse literature on social essentialism. First, samples of children from the same two populations (Jews and Arabs), and thus subjected to the same respective cultural discourse about various social groups, participated in both studies: Study 1 assessing relative essentialism and Study 2 on absolute essentialism. Second, both studies assessed children’s beliefs about similar social categories. Third, the focal social category is one that previous studies have documented children holding essentialist beliefs about (i.e., ethnicity among Jewish and Muslim Arab children living in Israel; Birnbaum et al., 2010; Diesendruck & haLevi, 2006). Fourth, the studies focus on a single aspect of essentialist thinking, namely beliefs about the transmission of category membership. Fifth and finally, both studies adopted experimental tasks that have been previously used with children as young as the youngest group tested here.

To capture developmental changes, we tested three age groups that have been previously shown as marking interesting transitions in children’s essentialist thinking: kindergarteners, second graders, and sixth graders (Astuti et al., 2004; Deeb, Segall, Birnbaum, Ben-Eliyahu, & Diesendruck, 2011). We hoped that by taking the listed methodological precautions, the two studies would provide a more reliable representation of the developmental changes in the relative versus absolute essentialist status of social categories.

STUDY 1

Study 1 provides an assessment of the relative essentialist status of ethnicity. We adapted Hirschfeld’s (1995) triad task, which assessed young children’s (3- to 7-year-olds) belief about parent–child resemblance regarding a number of categories, pitting one against the other.
Children were presented with picture triads depicting an adult and two children. Each child character matched the adult on only one of the two categories assigned to the adult. Participants were asked which of the child characters was the adult’s son or daughter.

Method

Participants. Ninety-six children (54 girls)—48 Secular Jews and 48 Muslim Arabs—participated in this study. Jewish children were sampled from Jewish-only schools and lived in almost exclusively Jewish midsize cities. Similarly, Arab children were sampled from Arab-only schools and lived in almost exclusively Arab midsize cities. It is important to clarify that although there is a clear and lexically marked distinction within the Jewish population between “secular” and “religious” Jews, no such marked distinction exists within the Muslim Arab population. We selected Secular Jews because they constitute the majority population in Israel. We selected Muslim Arabs (e.g., as opposed to Christian Arabs), because they constitute the largest minority group in Israel. Sixteen children in each sector attended kindergarten ($M_{\text{age}} = 5;5; \ SD = 7 \text{ months}$), 16 attended second grade ($M_{\text{age}} = 7;7; \ SD = 5 \text{ months}$), and 16 attended sixth grade ($M_{\text{age}} = 11;5; \ SD = 6 \text{ months}$). Only children with signed parental permission participated.

Design and materials. In each trial, participants were shown a triad of line-drawn characters: an adult and two children. Each character belonged to two out of five possible human categories: Ethnicity (Jewish/Arab), Religiosity (Religious/Secular), Social Status (Rich/Poor), Profession (Doctor/Teacher), and Body Build (Fat/Thin). To assist children’s identification of each character’s social categories, the characters were professionally drawn with visual markers representative of the pertinent social categories. For instance, Jewish religious men were drawn with yarmulkes, Arab men were drawn with head shawls (kaffiahs), doctors were portrayed in uniform, and teachers were drawn next to a blackboard. All characters within one triad were of the same gender (half of all triads depicted males, half females). In each triad, each of the child characters resembled the adult character on one category but differed on the other. For example, in a triad contrasting the categories Body Build and Ethnicity, the adult was a fat Arab man, one of the children was a fat Jewish boy, and the other child was a thin Arab boy (see Figure 1).

Each combination of categories appeared on only one triad for each participant; thus: a) Each category appeared on 4 trials (i.e., paired with each of the other four categories), and b) there was a total of 10 trials. Across participants, the following attributes were counterbalanced: a) the values of the social categories assigned to the adult character (e.g., Fat Jewish, Fat Arabic, Thin Jewish, Thin Arabic); b) the order of presentation of the social category labels within a trial (e.g., Body Build or Ethnicity first); c) the order of presentation of the child characters in each trial (e.g., Body Build or Ethnicity match first); and d) the order of the triads.

Procedure. A female experimenter tested participants individually in a quiet area of their kindergarten or school. To make children as comfortable as possible, Jewish experimenters tested the Jewish children in Hebrew, and Arab experimenters tested the Arab children in Arabic. The tasks here, as well as in Study 2, were written in cooperation with Hebrew-Arabic
bilinguals. The procedure started with the experimenter placing the picture of the adult character of the first trial in front of the participant and describing the adult’s two social categories. For example: “Look at this man; he is fat, he is Arabic.” Next, the experimenter placed the pictures of the child characters below the adult character, describing them accordingly (e.g., “This child is thin; he is Arabic.” and “This child is fat; he is Jewish.”) Finally, the experimenter asked the child: “Which of these children is the son of this man?” Once children pointed to one of the child characters, the experimenter removed all pictures and brought out the next triad of pictures.
Children’s responses were coded separately for each triad according to the category match the participant selected. For analyses on the frequency of selection of each category, we counted the number of children selecting each type of category match in each triad type. For analyses comparing across ages, genders, and sectors, we calculated a “General Score” for each category, by adding the number of trials (0–4) in which any given category was chosen.

Results and Discussion

Given that participants had to decide between two possible social categories on each triad, children’s scores regarding one given category were partially dependent on their scores regarding another category. Thus, to assess children’s reliance on the various social categories while avoiding violating an assumption of independence of measurements, we conducted binomial tests comparing against chance the distribution of children at each age group selecting each of the two options in all 10 different triad types. Given that there were 32 children in each age group, a chance distribution on any given triad would be represented by 16 children selecting each of the two options.

As indicated in Table 1, the distribution of kindergarteners did not differ from chance on any triad type ($ps > .3$). In other words, kindergarteners were not selectively essentialists about ethnicity, and in fact, they did not systematically select any human dimension over any other dimension. In contrast, second graders selected Ethnicity over both Body Build and Religiosity, selected Social Status over Body Build, Religiosity, and Profession, and selected Religiosity over Profession ($ps < .05$). Sixth graders selected both Ethnicity and Social Status over Profession, Body Build, and Religiosity, and selected Religiosity over Profession and Body Build ($ps < .05$). In other words, by second grade, and even more markedly by sixth grade,

<table>
<thead>
<tr>
<th>Triad type</th>
<th>Kindergarteners</th>
<th>Second graders</th>
<th>Sixth graders</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethnicity/Profession</td>
<td>41/59</td>
<td>66/34</td>
<td>88/12*</td>
</tr>
<tr>
<td>Ethnicity/Body Build</td>
<td>44/56</td>
<td>78/22*</td>
<td>88/12*</td>
</tr>
<tr>
<td>Ethnicity/Religiosity</td>
<td>53/47</td>
<td>84/16*</td>
<td>78/22*</td>
</tr>
<tr>
<td>Ethnicity/Social Status</td>
<td>47/53</td>
<td>44/56</td>
<td>56/44</td>
</tr>
<tr>
<td>Social Status/Profession</td>
<td>50/50</td>
<td>69/31*</td>
<td>81/19*</td>
</tr>
<tr>
<td>Social Status/Body Build</td>
<td>47/53</td>
<td>81/19*</td>
<td>94/6*</td>
</tr>
<tr>
<td>Social Status/Religiosity</td>
<td>59/41</td>
<td>75/25*</td>
<td>81/19*</td>
</tr>
<tr>
<td>Profession/Body Build</td>
<td>50/50</td>
<td>50/50</td>
<td>66/34</td>
</tr>
<tr>
<td>Profession/Religiosity</td>
<td>59/41</td>
<td>28/72*</td>
<td>22/78*</td>
</tr>
<tr>
<td>Body Build/Religiosity</td>
<td>59/41</td>
<td>41/59</td>
<td>31/69*</td>
</tr>
</tbody>
</table>

*Significant at $p < .05$, against a binomial distribution of 50/50.
two social categories were consistently selected by participants as categories by which children resemble their parents: ethnicity and social status.

To directly assess potential developmental changes in children’s beliefs, we conducted separate analyses of variance on children’s General Scores on each category type, including age group (kindergarten, second grade, and sixth grade), sector (Jews, Muslim Arabs), and gender (girls, boys) as between-subjects factors. These analyses revealed significant effects only of age group. These were true of all categories except Religiosity: on Ethnicity, $F(2, 84) = 9.71, p < .001$, $\eta^2 = .19$; on Social Status, $F(2, 84) = 6.63, p < .005$, $\eta^2 = .14$; on Profession, $F(2, 84) = 6.21, p < .005$, $\eta^2 = .13$; and on Body Build, $F(2, 84) = 12.81, p < .001$, $\eta^2 = .23$. Importantly, while the selection of Ethnicity and Social Status increased with age, the selection of Profession and Body Build decreased with age. Post-hoc Scheffe tests (at $p < .05$) revealed that the developmental changes in all four categories occurred from kindergarten to second grade, with no further significant change from second grade to sixth grade (see Figure 2 for the means).

In sum, the findings show that at kindergarten, none of the categories assessed here stands out in terms of its relative essentialist status. Given that the structure of the task required children to select between two categories, one could argue that kindergarteners were simply confused by the complexity of the task. While the processing load of the task possibly contributed to kindergartners’ inconclusive performance, other studies found that kindergarteners were capable of making

![Figure 2](image-url)

*Note.* Error bars represent 95% confidence interval.

FIGURE 2 Mean number of selections of the different categories, across ages, in Study 1.
systematic choices when weighting the relative inductive potential of alternative categories (Birnbaum et al., 2010; Heyman & Gelman, 2000b). Thus, we take the fact that kindergarteners selected randomly as possibly resulting from two other theoretically interesting alternative processes: a) They treat all five categories as similarly inheritable, or b) they treat all five categories as similarly noninheritable. One way to decide between these alternatives is by assessing each social category in isolation. Study 2 does that.

By second grade, and even more so by sixth grade, the relative essentialist status of ethnicity and social status increased considerably, such that these two categories were thought to be inheritable more so than the other three categories assessed. That ethnicity was conceived by older children in this essentialist-like fashion is consistent with other findings among adults (Gil-White, 2001) and children (Astuti et al., 2004) from various cultures. It is also consistent with the finding that ethnicity is treated by Israeli children and adults as the most inductively powerful social category among a variety of human dimensions (Birnbaum et al., 2010; Diesendruck & haLevi, 2006). The relative strength of social status is perhaps a bit more surprising. Nonetheless, there is evidence for an essentialist construal of social status (caste) among Indian adults (Mahalingam, 2003) and Chilean kindergarteners (del Rio & Strasser, 2010). Moreover, the studies mentioned earlier among Israeli children and adults also found that the second most inductively powerful social category (after Ethnicity) examined was Social Status.

Having shown that the relative status of culturally relevant social categories increases with age, in Study 2, we verified whether or not this change in relative status was accompanied by a change in these categories’ absolute status.

STUDY 2

Study 2 assessed the absolute essentialist status of various social categories in terms of beliefs about membership transmission. For this purpose, we used an adaptation of the “switched-at-birth” task described earlier. The task allows us to evaluate more directly the extent to which beliefs about intergenerational transmission of membership include a notion of biological inheritance—as opposed to environmental learning—a trademark of children’s essentialist construal of natural kinds (Gelman & Wellman, 1991). Here, children were told about a baby born to a couple from Category A, but who was taken care of by a couple from Category B. Children were asked to which category the baby would belong when he/she grew up. The rationale was that if children hold an essentialist belief that category membership is determined biologically and is immune to environmental influences, then they should respond that the baby will belong to the same category as his/her biological parents. Notice that the present version of the task is slightly different from a typical “switched-at-birth” task in which the target baby actually moves in with alternative parents (Solomon, Johnson, Zaitchik, & Carey, 1996). This was done due to requirements made by the Ministry of Education. However, as we report in our results, we believe this task was effective in capturing children’s differential beliefs on this matter.

The present study assessed children’s responses to scenarios involving the three most significant social categories assessed in Study 1 (Ethnicity, Social Status, and Religiosity), two types of physical properties, and two types of psychological properties. Physical and
psychological properties were included to provide comparison points for the social categories. Some studies found that kindergarteners overestimate the power of biological inheritance with regards to various human properties, even extending it to arbitrary properties (Solomon, 2002). By second grade, children start differentiating between psychological and physical properties, limiting biological inheritance to the latter (Heyman & Gelman, 2000a). The present design allowed us to compare the developmental path of social categories to that of psychological and physical properties, and assess whether all three social categories have a similar absolute essentialist status.

**Method**

**Participants.** One hundred and eight children (56 girls)—54 Secular Jews and 54 Muslim Arabs—participated in this study. Children were from the same schools and cities as those tested in Study 1. Eighteen children in each sector attended kindergarten (M<sub>age</sub> = 5.5; SD = 4.5 months), 18 attended second grade (M<sub>age</sub> = 7.5; SD = 4.5 months), and 18 attended sixth grade (M<sub>age</sub> = 11.5; SD = 5 months). Only children with signed parental permission participated. None of the children had participated in Study 1.

**Design and materials.** All children received seven stories, each involving one of the following categories/properties: Ethnicity (Jewish/Arab), Religiosity (Religious/Secular), Social Status (Rich/Poor), Height (Tall/Short), Hair Type (Curly/Flat), Entertainment Preference (like watching TV/like reading books), and Pet Preference (like cats/like dogs). For mnemonic purposes, schematic drawings of two couples and a baby, with no distinctive category visual markers, accompanied the stories.

All stories had the same structure. Children were told about a couple of a given category/property value (e.g., Jews) who gave birth to a baby. Due to the fact that the couple worked long hours, they took the baby to be taken care of by another couple from the contrasting category/property value (e.g., Arabs). The caretakers fed, played, and loved the baby. The test question asked participants who the baby will be like when he/she grows up, in terms of the relevant category/property. Children’s forced-choice responses were recorded. At the end of all stories, children were asked to explain their choices. (See the Appendix for a full story on the category of Ethnicity.)

We counterbalanced the following details of each story across participants: a) which category/property values were assigned to the biological parents and caretakers; b) which couple was mentioned first at the test question; c) the gender of the baby; and d) the order of the stories. On this latter point, for all children, the first and last two stories revolved around a psychological and a physical property, in counterbalanced order. The middle three stories revolved around the social categories, presented in random order.

**Procedure.** A female experimenter tested participants individually in a quiet area of their kindergarten or school, either in Hebrew or Arabic according to the participant’s sector. The experimenter told children she was going to tell them a few short stories and then ask them a few questions. She presented the stories one at a time. Participants’ responses to the forced-choice part were coded separately for each story according to whether children said the baby would resemble the biological parents or not (the complementary code constitutes choices of caretakers). No feedback was provided to participants. Participants’ explanations were
coded into the following two theoretically significant types: inheritance (e.g., the child said that the baby is like the birth parents), and nurture (e.g., the child said that the baby learned from or was influenced by the caretaking couple). More than 83% of children’s explanations were of one of these two types. A third type of explanations included reference to a preference for the property or category (e.g., “It is more fun to watch TV”).

Results and Discussion

The main question of Study 2 was whether there were developmental differences in children’s selection of birth parents for the various properties. Given the nonparametric nature of the social category data, we conducted binomial tests comparing the distribution of children selecting biological parents versus caretakers for each social category, at each age, against chance (chance = 50% choice of biological parents). Analogously, we combined the scores on the two psychological properties and the two physical properties and compared these scores (0–2 choices of biological parents) against chance (chance = 1) by means of t-tests. Table 2 displays these data.

We found that overall, kindergarteners had a tendency to pick the biological parents for all properties and categories (i.e., more than 50% of kindergarteners did so on all five categories and properties). Nonetheless, kindergarteners selected biological parents significantly more often than expected by chance only on physical properties, \( t(35) = 2.31, p < .05 \), and ethnicity, \( p < .05 \). Second graders too selected biological parents significantly more often than expected by chance on physical properties, \( t(35) = 3.85, p < .001 \), and ethnicity, \( p < .01 \). They also selected caretakers significantly more often than expected by chance on psychological properties, \( t(35) = 2.52, p < .05 \). Finally, sixth graders selected biological parents significantly more often than expected by chance only on physical properties, \( t(35) = 9.63, p < .001 \), but selected caretakers significantly more often than expected by chance on psychological properties, \( t(35) = 5.62, p < .001 \), and religiosity, \( p < .005 \).

These developmental findings reveal that although kindergarteners do not yet systematically believe that psychological properties might be environmentally determined, they are systematic in their belief that physical properties are determined by one’s biological parents (see Heyman &

<table>
<thead>
<tr>
<th>TABLE 2</th>
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<tbody>
<tr>
<td>Percentage Selections of Biological Parents in Study 2</td>
</tr>
<tr>
<td>Kindergarteners</td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>Ethnicity</td>
</tr>
<tr>
<td>Social Status</td>
</tr>
<tr>
<td>Religiosity</td>
</tr>
<tr>
<td>Psychological Properties</td>
</tr>
<tr>
<td>Physical Properties</td>
</tr>
</tbody>
</table>

*Note. For social categories, numbers represent the percentage of children selecting biological parents on each story type. There, *Significant at \( p < .05 \), against a Binomial distribution of 50/50.

For ease of visualization in the table, the 0–2 scores used in the analyses of Psychological and Physical Properties were converted into percentage of trials by dividing the raw scores by 2. There, *Significant at \( p < .05 \) on t-tests against chance.
Gelman, 2000a; Springer, 1996, for similar findings). In general, these results confirm that the present variation on the switched-at-birth task was effective in generating distinctive patterns of responding in children, consistent with the previous literature. A further interesting pattern in Study 2 was that in general, children tended toward treating all three social categories as inheritable.

Most importantly, the only social category producing the essentialist-like pattern among kindergarteners was ethnicity—a finding consistent with Astuti et al.’s (2004) results on ethnicity, Taylor et al.’s (2009) results on gender, and Hirschfeld’s (1996) findings on race. This belief in the heritability of ethnicity remained up to second grade, an age at which children started treating psychological properties as nurture-based. By sixth grade, children abandoned a strictly biological construal of ethnicity, though they did not switch toward an environmental one—something they manifested with regards to both religiosity and psychological properties.

Further evidence for this change in children’s reasoning was manifest in the finding that 88% of kindergarteners and 75% of second graders gave inheritance, rather than nurture, explanations on ethnicity stories—both patterns significantly different from chance ($p < .01$, binomial). Analogously, Gelman (2003) reported that in a similar task, children provided birth explanations for their determination of the heritability of physical traits more than 95% of the time. By sixth grade, we found that children’s biological construal of ethnicity tapered off, such that the distribution of inheritance and nurture explanations was exactly 50/50.

A final interesting pattern revealed in the data was an interaction between children’s sector and the composition of the ethnicity trial (i.e., whether the biological parents were described as Jews or Arabs). We found that 74% of Jewish children made biological-parent selections when they were described as Jews ($p < .05$ against chance), but only 62% of Jewish children did so when the parents were described as Arabs ($p > .3$). Analogously, 74% of Arab children made biological-parent selections when they were described as Arabs ($p < .05$ against chance), but only 59% of Arab children did so when the parents were described as Jews ($p > .4$). In other words, children were more likely to believe their own ethnicity is inherited than they were to believe other ethnicities are. This finding implicates the role of self-identity in the process of essentialization, showing symmetric relationships among both majority and minority children (for a discussion, see Ellemers, Spears, & Doosje, 2002).

**GENERAL DISCUSSION**

The goal of the present studies was to provide a novel assessment of the development of social essentialism, by controlling for crucial factors confounded in previous developmental studies. In particular, the present studies evaluated the possibility that previous findings might have resulted from a theoretically important distinction between the absolute and relative essentialist construal of a category. Focusing on a single aspect of essentialism (namely, the belief in the cross-generational transmission of category membership) and one particularly salient social category (namely, ethnicity) within the same cultural context (Jewish and Muslim Arab Israeli children), we found that while an absolute essentialist construal of ethnicity starts off at a high level and declines with age, the relative essentialist status of ethnicity exhibits the opposite developmental trend. Figure 3 displays this combined pattern.
This developmental pattern intimates that at kindergarten, children are already highly essentialists about certain culturally relevant social categories. With development, two further cultural processes occur: First, children seem to learn that social categories are not necessarily biologically determined, and thus, even their conceptualization of the most culturally central social categories become less essentialistic. Second, children come to fine-tune their appreciation of the comparative status of various social categories. In the case portrayed here, while Israeli sixth graders moved towards understanding ethnicity less as a physical characteristic and more as a psychological characteristic (Study 2), at the same time, they appreciated that ethnicity is regarded as more cross-generationally transferable than other social categories (Study 1).

These developmental changes are likely a product of children’s immersion into their cultural environments. In fact, a growing body of work suggests that Israeli children are exposed in numerous ways to the relative salience of ethnicity in Israeli society (Birnbaum et al., 2010; Deeb et al., 2011; Diesendruck & Haber, 2009; Segall & Diesendruck, 2011). This cultural input likely contributes to the focusing of essentialism onto that particular social category—a phenomenon evident already at kindergarten and continuing throughout development—and to the discounting of other categories as targets of essentialism. Analogously, as they grow, North American children might learn that race is more essential than other social categories, as found by Hirschfeld (1995), but at the same time, they understand that it is not a natural category, as reported by Rhodes and Gelman (2009).

This conclusion has potential implications for debates about the origins of essentialism. The fact that absolute essentialism toward ethnicity was at its peak in kindergarten, declining as children advanced to sixth grade, suggests that immersion into their cultures’ narratives—via

Note. The Relative curve displays the percentage of trials (out of four) in which children selected the Ethnicity match in Study 1. The absolute curve displays the percentage of children who selected the biological parents on the ethnicity story in Study 2. The 50% line represents chance.

FIGURE 3 Comparison of the relative (Study 1) and absolute (Study 2) heritability of ethnicity across development.
schooling, for instance—did not intensify children’s essentialist thinking. This finding somewhat challenges the idea that essentialism per se is strictly an acquired belief (Fodor, 1998). The finding that kindergarteners did not systematically discriminate among the relative status of various social categories but sixth graders did suggests that what children do seem to learn is which human categories to keep essentializing (Hirschfeld, 1996). Resonating with Medin and Ortony’s (1989) original discussion of essentialism, the argument is that one may be biased to believe that an essence exists, but what that essence is and what specific categories are essentialized need both be defined by interaction with cultural factors.

The developmental argument, then, is that through linguistic forms (Gelman & Heyman, 1999), parental speech (Gelman, Taylor, & Nguyen, 2004), modulation of salience (Bigler & Liben, 2007), and ideological values (Diesendruck & Haber, 2009), cultures mark to children which human categories are essentialized. The effects of these factors can be seen already at kindergarten, with the high absolute status of culturally central categories. Complementarily, the absence of such markers leads children to withhold an essentialist construal of culturally irrelevant categories. Thus, in a process analogous to how infants unlearn to discriminate between phonetic differences absent in their speech community (Kuhl, 1993) or spatial categories unmarked by their language (Hespos & Spelke, 2004), an intuitive bias to essentialize may get fine-tuned through development, with children maintaining it only toward culturally relevant categories.

This conclusion is not only of theoretical importance, but possibly also of practical importance. Allport (1954) already cautioned about the potential of essentialism to encourage prejudice and justify discrimination. If, as argued here, essentialism is an intuitive conceptualization of human groups, then attempts at remedying Allport’s caution may be best directed not so much at preventing the very development of essentialism, but instead at the cultural processes that promote negative attitudes toward essentialized kinds.

ACKNOWLEDGMENTS

This research was supported by Grant No. 621/05 from the Israel Science Foundation and a Rector’s Grant to Gil Diesendruck.

We thank the principals, teachers, parents, and especially children for their participation in the studies. We are grateful to the following research assistants for their help with data collection (in alphabetical order): Alaa Abu-Mouck, Huda Abu-Mouck, Rabea Alian, Huda Atamna, Hadas Detelkremer, Tali Krupkin, Michal Levinsky, Salam Mousa, Shira Nadal, Kiram QAadan, Mona Sachneny, Haneen Wattad, and Einav Yavlon.

REFERENCES


APPENDIX

Example of an ‘Ethnicity’ Story Used in Study 2

“Once upon a time there were a Jewish man and a Jewish woman [the experimenter places a picture of a man and a woman to the right of the participant], and a baby was born to them [the experimenter places a picture of a baby next to the biological parents’ picture]. The Jewish man and woman worked many hours away from home and had to leave the baby with people to take care of him. Those people were Arabs [the experimenter places pictures of the caretakers to the left of the participant]. The Arab couple took care of the baby that was born to the Jewish man and woman [the experimenter moves the picture of the baby and places it next to the caretaking couple]. They fed him, played with him, took care of all that he needed and wanted. They loved the baby and the baby loved them. [The experimenter takes the picture of the baby and puts it away]. Do you think that when the baby grows up he will be Jewish like the man and woman to whom he was born? [Experimenter points to the biological parents’ picture.] Or he will be Arabic like the people who took care of him? [Experimenter points to the picture of the caretaking couple.]”