

Not So Fast: Reassessing Gender Essentialism in Young Adults

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We examined young adults' essentialist reasoning about gender categories. Previous developmental results suggest that until age 9 or 10, children show marked essentialist reasoning about gender, but this disappears by early adulthood. In contrast, results from social cognition suggest that essentialist thinking about social categories persists into adulthood. To address this discrepancy, 69 undergraduates engaged in a switched-at-birth task under speeded or delayed conditions. Delayed participants made essentialist decisions about physical but not behavioral properties and replicated past findings. Speeded participants showed markedly higher essentialist responding for behavioral properties compared with delayed participants. These findings suggest that gender essentialism does not necessarily diminish in adulthood but instead may be suppressed by more explicit reasoning processes.

Conceptual development is the process by which children's conceptual systems come to resemble those of adults in their culture. As such, we cannot hope to understand the development of any cognitive process without accurately characterizing the adult end state (Coley, 2000). In this article, we reassess the degree to which adults' essentialist reasoning about social categories—and specifically the category of *gender*—truly changes from the essentialist reasoning exhibited by children. Although social categories may help to guide our inferences and reasoning about people in meaningful ways, especially at an early age when we have less knowledge about the social world, they may also lead us to stereotypical generalizations and prejudicial outcomes (Haslam, Rothschild, & Ernst, 2002). Indeed, even highly educated men and women who would presumably never endorse overt sexism nevertheless favor male over female job candidates with the same credentials (Moss-Racusin, Dovidio, Brescoll, Graham, & Handelsman, 2012). Understanding the extent to which adults are essentialist about gender may have important implications for our understanding of the development of essentialist reasoning about social categories in general and may provide insight into its possible consequences.

Psychological essentialism proposes that there is more to our categories than meets the eye. For many concepts, people believe that underlying nonobvious properties ultimately determine category membership and give rise to observable properties (e.g., Ahn et al., 2001; Gelman, 2003; Medin & Ortony, 1989). On this view, concepts are not mere representations of statistical regularities but also encompass beliefs about the origins of such regularities. This has a number

of consequences; for instance, it suggests that superficial changes should be judged as irrelevant to membership in essentialized categories. This is true for adults' living kind concepts (e.g., Keil, 1989; Rips, 1989) and for children's concepts as well (e.g., Gelman & Wellman, 1991). Another consequence of essentialist beliefs is the inductive potential of concepts; children, as well as adults, believe that members of the same category are likely to share novel and nonobvious properties despite superficial dissimilarities (Coley, 2012; Gelman & Coley, 1990; Gelman & Markman, 1987).

Another interesting implication of psychological essentialism is that to the degree that we essentialize concepts in a particular domain, we should believe that category membership conveys the innate potential for members to express important properties (Gelman & Coley, 1991). In other words, we should privilege nature over nurture in guiding predictions about such concepts. For example, Gelman and Wellman (1991) found evidence that children as young as 4 years old believed that various animals would retain and express their category-based behaviors and physical properties even after growing up in a different environment. Similarly, Solomon, Johnson, Zaitchik, and Carey (1996) found that by age 7, the majority of children consistently demonstrated a belief that physical properties were inherited from biological parents, not adoptive ones. This belief in innate potential is consistent with the idea that underlying essential properties cause surface properties and make their manifestation inevitable despite environmental variation.

Early belief in innate potential extends to social as well as biological categories. For instance, Taylor (1996) showed that children believe in the innate potential of gender categories. Using the switched-at-birth methodology developed by Gelman and Wellman (1991), Taylor asked children to consider a child who had grown up on an island with members of the opposite sex. Children were then asked whether the child would display gender-typical behavioral (e.g., wear dresses, like to play football) and physical properties (e.g., has a body like a girl's, grows up to be a daddy) later in life. Of main interest was whether children believed that the original category membership would give rise to gender-typed properties or if the environment would influence the expression of such properties. The former response pattern is taken as evidence of essentialism (i.e., that category membership conveys an innate potential for certain properties to be expressed). Results indicated that both children and adults held essentialist beliefs about gender-typical physical properties but differed with respect to behavioral properties. Up until age 9, children were strongly essentialist about behavioral properties—affirming, for example, that a girl raised with boys and men would still wear dresses. In contrast, older children and undergraduates were much more willing to acknowledge the importance of environmental influences on gender-typical behavioral properties.

Taylor, Rhodes, and Gelman (2009) expanded on this work by directly comparing developmental changes in essentialist beliefs about gender categories and animal categories. Their findings showed that both children and adults were relatively essentialist about both behavioral and physical aspects of animals, consistent with prior work. Responses to gender categories mirrored those of Taylor (1996), suggesting that between the ages of 5 and 8, children make gender-typed inferences about both behavioral and physical properties of people. However, by age 10, gender-typed inferences about behavioral properties are nearly completely replaced by environmentally based inferences.

Taken together, these results suggest that development involves an increasingly selective application of essentialist thinking, at least with respect to gender categories. Younger children are promiscuous essentialists; their inferences suggest a belief in the innate potential of gender

categories to predict a wide range of properties. In contrast, adults are selective essentialists; they retain an essentialist bias about gender-typed biological properties, but by acknowledging the importance of environment, they demonstrate a belief that gender-typed behaviors are not dictated by category essence alone. Taylor et al. (2009) attribute this to the emergence of a new conceptual framework for understanding gender, brought about by “knowledge, experiences, and evidence that facilitate conceptual change” (p. 478).

However, there is reason to believe that essentialist thinking about social categories may persist into adulthood. Haslam, Rothschild, and Ernst (2000) asked adult participants to rate a wide range of social categories on various dimensions thought to be relevant to essentialist thinking (e.g., uniformity of category members, inherence of category properties). Factor analysis of these ratings revealed two orthogonal components of adults’ essentialist beliefs about social categories. “Naturalness” refers to the extent to which a category is thought to be objective, immutable, stable, and discretely bounded; “entitativity” refers to the extent to which a category is seen as coherent, uniform, and informative. Haslam et al. (2000) found that the categories of male and female were both rated as highly natural and that female was also rated as highly entitative. This suggests that adults can and do apply some level of essentialist thinking to gender categories.

In turn, Bastian and Haslam (2006) found that adults with higher levels of essentialist beliefs were more likely to validate stereotypical properties of males and females. Similarly, Rhodes and Gelman (2009) found that rural adolescents displayed essentialist patterns of reasoning about gender categories similar to those observed for animal categories, whereas suburban adolescents did not. These results suggest that gender essentialism—and property inferences based on essentialist thinking—may be alive and well into adulthood.

Such evidence raises the possibility that an essentialist bias may not be replaced by a more nuanced view of gender categories. Rather, preschoolers’ essentialist bias about gender categories may merely be selectively suppressed in adults, either due to conscious and effortful utilization of other relevant knowledge (e.g., knowledge about variability in gender-typical properties) or due to other pragmatic considerations (e.g., a desire not to appear sexist). If so, adult reasoning should appear more essentialist when such overt, intentional reasoning processes are unavailable. Indeed, in an analogous line of work on early conceptual biases, Kelemen (1999) originally showed that during the course of development, the use of teleological explanations becomes more selective; children promiscuously apply teleology to living and nonliving kinds, whereas adults are much more selective in endorsing teleological explanations. However, Kelemen and Rosset (2009) found that undergraduates endorse more scientifically spurious teleological explanations for natural phenomena (e.g., “the sun makes light so that plants can photosynthesize”) when under time pressure than when allowed to respond at their own pace. This finding suggests that teleological thinking is suppressed rather than replaced in adults’ reasoning about natural phenomena. More generally, these findings are consistent with a dual-processing approach to reasoning (e.g., Kahneman, 2003; Sloman, 1996), in which slower, controlled reasoning processes may override faster, more automatic inferences.

In this study, we sought to investigate whether the essentialist bias for gender has truly been replaced in adults, or if it is simply buried beneath other reasoning strategies. To this end, we examined gender-based inferences about biological and behavioral properties among young, college-aged adults using the same switched-at-birth paradigm that has previously revealed

selective essentialist thinking about gender categories in children. Participants were tested in delayed and speeded conditions; we hypothesized that if time pressure limited participants' ability to use more explicit and effortful reasoning processes to override a general essentialist bias, then participants in the speeded condition should exhibit higher levels of essentialist reasoning than those in the delayed condition.

METHOD

Participants

The study included 69 young-adult participants (36 males, 33 females) recruited from Northeastern University's undergraduate psychology pool. All participants took part in the experiment for partial course credit. The experiment was approved by Northeastern University's Institutional Review Board.

Materials and Design

A switched-at-birth task (Gelman & Wellman, 1991; Taylor, 1996; Taylor et al., 2009) was used to contrast nature (in this case, the sex of a baby) with nurture (the gender of those with whom the baby grows up). Each participant was presented with four scenarios (drawn directly from Taylor et al.). Two were gender-consistent (i.e., a baby boy raised with men and a baby girl raised with women), and two were gender-inconsistent (i.e., a baby boy raised with women and a baby girl raised with men). Scenarios were presented in one of eight counterbalanced orders; here is a sample scenario:

As a baby girl, shortly after she was born, Zillah was sent to live with her uncle on an island. On this island, there were only boys and men. Zillah was the only girl. Zillah's uncle loved her and took very good care of her. Zillah lived with her uncle and became part of the uncle's family. Zillah grew up on the island with only boys and men and had a happy life, but Zillah never got to see another girl or woman.

Following each scenario, participants were randomly presented with 16 pairs of gender-stereotypical properties. Each pair contrasted a stereotypical male trait (e.g., plays with toy trucks) and stereotypical female trait (e.g., plays with tea sets) and was presented on alternating sides of the screen. Participants chose which property was most likely to apply to the child later in life. Property pairs were taken directly from Taylor et al (2009), who characterized them as behavioral, preference, physical, or "category-based" (see Table 1).

Critically, half of the participants were tested in a speeded condition, and half were tested in a delayed condition. Participants in the speeded condition read each scenario at their own pace but were required to respond within 2 seconds after the presentation of each pair of properties. Participants in the delayed condition also read the scenario at their own pace, but had to wait for 10 seconds after the presentation of each pair of properties before they could respond.

TABLE 1
Property Pairs Used in Switched-at-Birth Task

<i>Property type</i>	<i>Male property</i>	<i>Female property</i>
Behavioral	Play with a toy truck	Play with a tea set
	Play with baseball cards	Play dress-up
	Collect tools and nails	Collect dolls
	Will be a construction worker	Will be a nursery school teacher
Preference	Like to build things	Like to sew
	Like to go fishing	Like to put on makeup
	Want to be a firefighter	Want to be a nurse
	Want to be a football player	Want to be a ballet dancer
Physical	Have boy blood inside	Have girl blood inside
	Have a boy's body	Have a girl's body
	Have a boy's brain	Have a girl's brain
	Have a boy's heart	Have a girl's heart
Category-Based	Grow up to be a daddy	Grow up to be a mommy
	Grow up to be a husband	Grow up to be a wife
	Grow up to have a beard	Grow up to have breasts
	Have a deep and low voice	Have the same voice

Thus, the independent variables were property type (manipulated within subjects) and condition (manipulated between subjects). The dependent measure was the number of categorical (i.e., stereotypical/gender-consistent) property choices.

Procedure

Participants were seated in front of a computer screen and read instructions for the task. They then answered sample questions intended to familiarize them with the format of the speeded or delayed conditions; these were similar to the test questions in format but were unrelated in content. After completing the examples and instructions, the first scenario appeared on the screen. Participants read the scenario at their own pace, indicating via key press when they were ready to proceed. Once they had indicated readiness to move on, participants were presented with the first pair of properties and were asked to choose which was most likely to characterize the child described in the scenario. For example:

When Zillah is older, will she . . .
 Play with a tea set _____ Play with a toy truck

For each pair, participants chose either the option on the left side of the screen or the right side of the screen using the “f” and “j” keys, respectively. In the delayed condition, the property pair was colored red until 10 seconds had elapsed, at which point the pair turned green signaling to participants that they could make a choice. In the speeded condition, the property pair was presented in green and remained on the screen for 2 seconds. If participants did not respond in 2 seconds, the prompt “Please answer faster!” appeared in red on the screen, and the property pair was presented again after all other pairs for that scenario. After each choice,

the participant was prompted to press the spacebar to continue; this initiated the presentation of the next property pair. This continued for all 16 pairs for each scenario. Participants then had a short break, after which they moved on to read the next vignette.

RESULTS

Scoring and Preliminary Analyses

Choices were scored as “essentialist” if they were consistent with the target child’s sex.¹ For behaviors and preferences, this consistency was determined on the basis of presumptive cultural stereotypes (e.g., for a female target, “play with a tea set” was scored as essentialist, whereas for a male target, “play with a truck” was considered essentialist). Responses in the gender-consistent scenarios (i.e., a girl raised among women, a boy raised among men) confirmed the validity of this scoring; mean percentages of essentialist responses were 98% for male targets raised among men and 94% for female targets raised among women.

As in Taylor et al. (2009), preliminary analyses revealed no differences in essentialist responding for behaviors versus preferences or physical traits versus “category-based” traits. As such, we collapsed properties into behavioral (including behaviors and preferences) and physical (including physical traits and category-based traits) properties. Thus, in the following, we analyzed the frequency of essentialist judgments for behavioral versus physical traits in speeded versus delayed conditions. Scores could range from 0 to 8, with higher scores representing more essentialist reasoning.

Effects of Time Pressure

Frequency of essentialist responses. The main goal of this experiment was to see if participants responded differently in the speeded condition than in the delayed condition. To test this hypothesis, we conducted a 2 (condition: delayed/speeded) \times 2 (property: behavioral/physical) mixed analysis of variance (ANOVA) on the frequency of essentialist choices. We focused on the inconsistent conditions (i.e., a boy raised with women and a girl raised with men) and averaged across target and participant gender (analyses of these variables can be found in “Gender Differences” below).

As can be seen in Figure 1, participants made more essentialist decisions about physical properties ($M = 6.49$, $SD = 1.89$) than behavioral properties ($M = 2.71$, $SD = 2.44$), $F(1, 67) = 190.30$, $p < .001$, $\eta_p^2 = .74$, replicating the findings of Taylor et al. (2009). Overall there was no difference between speeded and delayed participants’ essentialist responding, $F(1, 67) = 0.62$, $p = .432$. However, critically for our hypothesis, there was a property \times condition interaction, $F(1, 67) = 8.83$, $p = .004$, $\eta_p^2 = .12$. Specifically, planned t -tests showed that essentialist responses for behavioral properties were more frequent in the speeded condition ($M = 3.30$,

¹A note on terminology: Although describing responses as “categorical” rather than “essentialist” would be less theory-laden, the precedent in previous work has been to interpret categorical responses (i.e., those consistent with the child’s sex) as evidence for essentialist reasoning. Therefore, we have opted to utilize the more descriptive term.

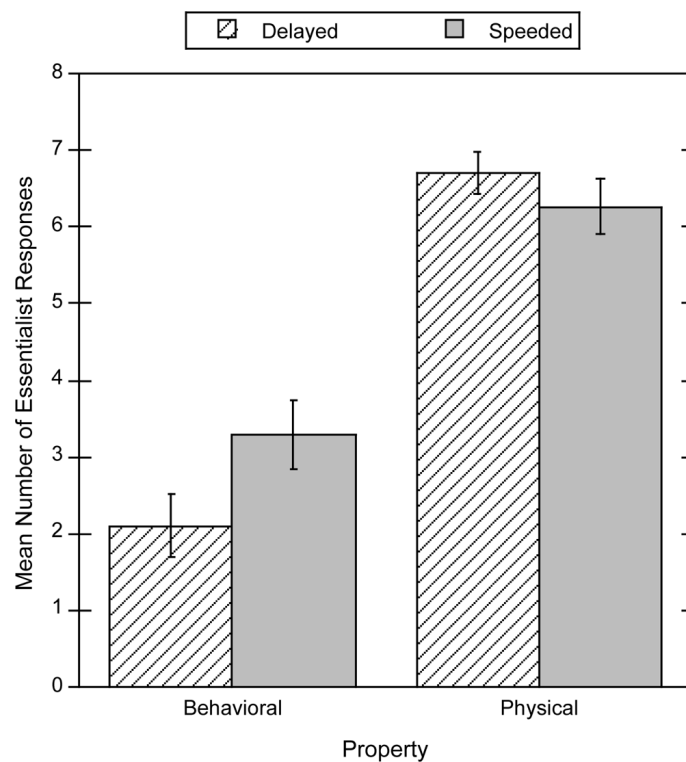


FIGURE 1 Mean frequency of essentialist responses for behavioral and physical properties in speeded and delayed conditions.

$SD = 2.66$) than in the delayed condition ($M = 2.10$, $SD = 2.06$), $t(1, 67) = 2.09$, $p = .04$. In contrast, frequency of essentialist responses for physical properties did not differ by condition.

Individual response patterns. Overall, essentialist choices about behaviors were more common among speeded participants. Another way to measure the effects of time pressure on essentialist reasoning is to examine individual response patterns. To do this, we summed essentialist responses for both gender-inconsistent scenarios, yielding 0 to 16 possible essentialist responses. We classified participants who made 12 or more essentialist responses as essentialist and classified those with 4 or fewer as environmentalist (binomial $p = .038$). Participants who made between 4 and 12 essentialist responses were classified as mixed. Results are presented in Figure 2.

As seen in Figure 2, the distribution of individual response patterns differed for speeded versus delayed conditions, $\chi^2(2, N = 69) = 6.04$, $p = .049$. In the speeded condition, more participants were consistently essentialist—and fewer were consistently environmentalist or mixed—than in the delayed condition. Examination of standardized residuals suggests that the effect is driven primarily by the different frequencies of consistent essentialist responses. This result strengthens the conclusions of the first set of analyses and suggests that the effect of time pressure is robust at both the group level and individual level.

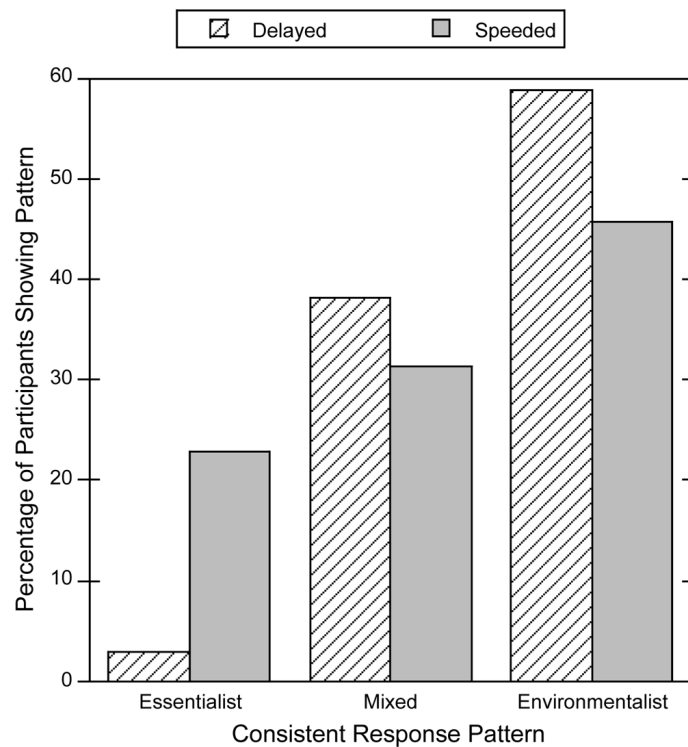


FIGURE 2 Percentage of participants in each condition showing essentialist, mixed, and environmentalist response patterns. *Note.* Essentialist reasoners made 12 or more essentialist responses, environmentalist reasoners made 4 or fewer essentialist responses, and mixed reasoners made between 4 and 12 essentialist responses out of a possible 16 essentialist responses (binomial $p = .038$).

Gender Differences

Although our main hypothesis was concerned with participants' responses about the category of gender generally, analyses were also conducted to determine if participants made differential responses about male and female targets and if participants' own gender affected their responding. Given that responses about physical properties were highly essentialist and did not differ by condition, analyses were only conducted on behavioral properties. Thus, a 2 (target gender: male/female) \times 2 (participant gender: male/female) \times 2 (condition: delayed/speeded) mixed ANOVA was performed with target gender as a within-subjects variable, participant gender and condition as between-subjects variables, and number of essentialist responses about behaviors as the dependent variable.

As reported earlier, participants made more essentialist decisions about behaviors when speeded than when delayed. Interestingly, participants made more essentialist choices about behaviors of male targets ($M = 3.17$, $SD = 2.81$) than they did about female targets ($M = 2.22$, $SD = 2.64$), $F(1, 65) = 11.31$, $p = .001$, $\eta_p^2 = .15$. Moreover, male participants ($M = 3.25$, $SD = 2.62$) made more essentialist decisions than did female participants ($M = 2.12$, $SD = 2.11$), $F(1, 65) = 4.87$, $p = .031$, $\eta_p^2 = .07$. No higher-order interactions between target gender,

participant gender, and condition were observed. These findings are consistent with previous research that male gender roles are generally viewed as less flexible (e.g., Berndt & Heller, 1986) and that male participants tend to allow less flexibility in gender roles (Levy, Taylor, & Gelman, 1995). However, they do not qualify the overall finding of differentially essentialist responding under time pressure.

DISCUSSION

The goal of this study was to revisit the nature of adult essentialist thinking about gender on switched-at-birth tasks reported in the developmental literature (e.g., Taylor, 1996; Taylor et al., 2009). Past results suggest that undergraduates believe that gender carries innate potential with respect to physical properties, but not behavioral properties. Given findings from the social cognition literature about essentialism with respect to gender categories (e.g., Haslam et al., 2000), we presented undergraduates with a switched-at-birth task under speeded and delayed conditions to probe whether essentialist thinking about gender was replaced or merely suppressed in young adults.

The results from the delayed condition precisely replicated the findings of Taylor et al. (2009); adults responded that gender predicts biological properties, but not behavioral properties. However, speeded participants made significantly more essentialist responses about behaviors than did their delayed counterparts. Moreover, speeded participants were more likely to show consistent essentialist response patterns—and less likely to show mixed or environmentalist response patterns—compared with delayed participants. This indicates a genuine increase in essentialist responding under time pressure both at the group level and at the individual level.

These results suggest that the developmental trajectory of essentialism must be reconsidered. Previous studies tend to report a developmental decrease in essentialist reasoning about social categories starting around age 10 (Solomon et al., 1996; Taylor, 1996; Taylor et al., 2009). Such work suggests that adults are selective essentialists; they maintain an essentialist bias for physical properties, but not for behavioral properties. In turn, these findings have been taken as evidence for relatively deep conceptual change in the structure of gender categories during the second decade of life (e.g., Taylor et al.). However, we have shown that under time pressure—presumably when they do not have time to engage in explicit reasoning processes—young adults' responses more closely resemble those of young children. Thus, our results suggest that essentialist bias about gender categories may be inhibited with development, but it is not entirely discarded.

This is consistent with the dual-processing framework mentioned earlier; under dual-processing accounts, two systems interact to affect reasoning and decision making. Although specific versions differ in detail, dual-processing theorists agree in general that System 1 reasoning is fast, automatic, effortless, heuristic, and potentially biased, while System 2 reasoning is slow, deliberate, effortful, and knowledge-based (see Evans, 2008, for a detailed review). Because System 2 may override the output of System 1, when System 2 processing is compromised, the output of System 1 may exert a larger influence on reasoning. When framed in this way, our results suggest that essentialist thinking may be a feature of System 1. As such, development may involve the selective use of System 2 processes to moderate essentialist inferences, rather than a decrease in essentialist bias per se. This account would suggest children apply the

output of System 1 essentialist thinking in an unexamined way about gender—hence their relatively promiscuous essentialist responses. In contrast, adults' conceptual systems generate the very same essentialist output, but intervening cognitive processes edit the output, leading to a selectively essentialist response profile. If so, the question arises as to what processes may intervene on essentialist System 1 reasoning. Two possibilities appear likely.

The first possibility is that gender essentialism in adults is overridden by more explicit knowledge. As we grow older and interact with the social world, we may become akin to “people experts,” gaining knowledge about group variability and relying on contextual cues to more accurately make inferences about an individual's behaviors or appearance. If such knowledge requires effortful access, time pressure could prevent its deployment and thereby increase essentialism in speeded adults. Children lacking such knowledge may rely more heavily on essentialist output of System 1 to make inferences. On this view, development involves accretion of knowledge about diversity in the social world and selective deployment of that knowledge to override essentialist inferences.

The second possibility is that gender essentialism in adults is overridden by pragmatic social editing. Essentialist inferences about gender would likely seem stereotypical, and possibly sexist. Given that sexism is generally deemed unacceptable, participants might utilize System 2 to curb essentialist inferences about gender—especially in an experimental setting when a participant knows their responses are under scrutiny—to be more in line with perceived social standards. Because inhibiting automatic inferences requires effort, time pressure could reduce the ability to engage in this “editing” process and thereby increase essentialist responding in adults under time pressure. Children lacking knowledge of such social norms may not be motivated to inhibit the essentialist output of System 1 at all. On this view, development might take on a much more metacognitive flavor and involve an increase in the ability to understand, monitor, and respond to contextual demands of social desirability. Of course, these possibilities need not be mutually exclusive; System 2 reasoning may involve evaluation of both explicit statistical knowledge and external social context when monitoring System 1 essentialist output.

Overall, our results show that time pressure markedly increased young adults' essentialist reasoning about gender. This suggests that essentialism for social categories is merely suppressed, not replaced into adulthood. These findings suggest that conceptual development may not involve a change in essentialist thinking per se, but rather a change in the cognitive processes that occur between essentialist thinking and response generation. Thus, the decrease in promiscuous essentialism throughout development must be reexamined not as a deep conceptual change but rather as an interaction of an entrenched essentialist bias with other more controlled cognitive processes. More generally, these results highlight the fact that understanding the adult end state is absolutely critical for understanding the trajectory and therefore the mechanisms of conceptual development.

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