

The effect of racial primes on the test performance of African-American and European-American children

L'effet de l'amorçage de l'origine ethnique sur les performances d'enfants américains d'origine africaine ou européenne

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Abstract

There is now robust evidence that activating negative stereotypes can hinder the test performance of adults. Far less is known, however, about when children become susceptible to these effects. In the present study we examined the impact of a brief race salience manipulation on the test performance of African-American and European-American children in the second and third grade (7-9 years). Children first colored a picture depicting two White children, two Black children, or in a control condition two dogs, and then completed a challenging written test of verbal ability. Consistent with the possibility that children's test performance can be impacted

Résumé

Il existe maintenant des preuves solides que l'activation de stéréotypes négatifs peut entraver les performances des adultes aux tests standardisés. En revanche, on ne sait que peu de chose sur l'âge à partir duquel les enfants deviennent sensibles à ces effets. Dans la présente étude, nous avons examiné l'impact d'une brève manipulation de la saillance de l'origine ethnique sur les performances d'enfants américains (7-9 ans) d'origine africaine ou européenne. Les enfants devaient colorier une image représentant soit deux enfants blancs, soit deux enfants noirs, soit deux chiens dans la condition contrôle, puis passaient une épreuve écrite difficile de capacité

Key-words

Stereotype activation, stereotype threat, prime-to-behavior, priming, test performance, race, children

Mots-clés

Activation des stéréotypes, menace du stéréotype, lien amorçage-comportement, amorçage, performance, race, enfants

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in stereotype-consistent ways by subtle racial primes, children of both races performed better in the White prime condition and worse in the Black prime condition relative to those in the neutral prime condition. The implications of these findings for our understanding of stereotype activation in childhood are discussed.

verbale. Conformément à la possibilité que la performance au test des enfants puisse être affectée de façon consistante avec les stéréotypes par un amorçage subtil de la race, les enfants des deux origines ethniques ont obtenu de meilleurs résultats dans la condition d'amorçage de l'ethnie européenne et des résultats plus mauvais dans la condition d'amorçage de l'ethnie africaine, comparativement à la condition contrôle. Les implications de ces résultats pour notre compréhension de l'activation des stéréotypes durant l'enfance sont discutées.

Extensive research with adults has demonstrated that the subtle activation of stereotypes can negatively impact people's behavior and performance. For example, in a seminal paper, C. M. Steele and Aronson (1995) showed that African-American college students perform more poorly on a challenging test of verbal ability after being subtly reminded of their negatively stereotyped racial identity (C. M. Steele & Aronson, 1995; C. M. Steele, 1997). This initial demonstration has been replicated and extended in a number of different domains and with a variety of target groups (see Inzlicht & Schmader, 2012, for a review). Both theory and research suggest that *stereotype threat* effects can occur when people feel at risk of confirming negative self-relevant stereotypes. This concern can increase arousal and consume and/or deplete cognitive resources leading to stereotype-consistent behavior, including decreased test performance (Schmader & Beilock, 2012).

Separate but related lines of research have similarly shown that the activation of both positive and negative stereotypes can affect people's performance in stereotype-consistent ways (Shih, Pittinsky, & Ambady, 1999) and these effects can even emerge among people who are not members of the stereotyped group

(see Marx, 2012; Smeesters, Wheeler, & Kay, 2010; Wheeler, DeMarree, & Petty, 2007, for reviews). For instance, in one study, non-African-Americans who were primed with African-American stereotypes subsequently performed significantly worse on a math test than those in a control condition (Wheeler, Jarvis, & Petty, 2001). According to Wheeler and his colleagues, these prime-to-behavior effects emerge because activated stereotypes can become temporarily integrated into a person's working self-concept. Unlike stereotype threat effects that arise from concerns about confirming a negative self-relevant group stereotype, prime-to-behavior effects emerge because racial primes activate stereotypes (such as "bad at school") that change people's self-perception, goals, and/or spontaneous behavior without their awareness or intention. Together, these lines of research suggest that both stereotyped and non-stereotyped group members' test performance can be affected by racial primes that activate positive or negative sociocultural stereotypes.

Children's susceptibility to stereotypes

Despite the wealth of research demonstrating stereotype threat and stereotype priming effects among adults, and recent studies examining stereotype threat effects on girls' math test performance (see Régner, J. R. Steele, Ambady, Thinus-Blanc, & Huguet, 2014, for a review), few published studies have examined how activating racial stereotypes can affect children's academic performance. The limited studies that have been conducted provide some initial evidence that children's test performance can be affected by the subtle activation of stereotypes. For example, Ambady, Shih, Kim, and Pittinsky (2001) found that, consistent with sociocultural stereotypes, Asian-American girls aged 5-7 years and 11-13 years performed better on a challenging math test after being subtly reminded of their positively stereotyped Asian identity, and worse after being subtly reminded of their negatively stereotyped female identity, relative to a neutral prime condition. In addition, research by McKown and colleagues has provided evidence that by mid- to late-childhood both minority and majority children begin to develop stereotype consciousness, defined as an awareness of others' stereotypes (McKown & Weinstein, 2003; McKown & Strambler,

2009). These researchers found that the test performance of African-American and Latino students who were aware of broadly held stereotypes was hindered by an experimental manipulation of test diagnosticity designed to induce stereotype threat (see also Shelvin, Rivadeneyra, & Zimmerman, 2014). However, it is unclear from this research whether the test performance of African-American and European-American students would be similarly affected by a prime designed to subtly activate self-relevant or non-self-relevant racial stereotypes.

The present research

The present research was designed to contribute to our understanding of how self-relevant and non-self-relevant stereotypes affect the test performance of African-American and European-American children in the second and third grade (aged 7 to 9 years). We selected this age because previous research suggests that around middle childhood stereotype consciousness emerges and some minority children become susceptible to test-based manipulations of stereotype threat (McKown & Weinstein, 2003; McKown & Strambler, 2009; Shelvin et al., 2014). Building on previous findings, we anticipated that racial primes would automatically activate stereotypes for both African-American and European-American children that would lead to stereotype-consistent test performance.

To examine this possibility we used a method similar to that used by Ambady et al. (2001) to subtly activate racial stereotypes. Children were randomly assigned to color a picture containing either two White children, two Black children, or in a control condition two dogs. After completing this race salience manipulation, children completed a challenging written test of verbal ability administered by two White experimenters. Consistent with previous theory and research examining priming-to-behavior effects with adults (see Marx, 2012; Smeesters et al., 2010; Wheeler et al., 2007, for reviews) and current sociocultural stereotypes, we hypothesized that both African-American and European-American children would have higher test performance in the White prime condition, and lower test performance in the Black prime condition, relative to children in a neutral prime condition.

Method

Participants

Participants consisted of 73 African-American and 87 European-American children who were recruited from second ($n = 92$) and third ($n = 68$) grade classrooms from elementary schools in the Cambridge and Boston Public School System. Eight children were excluded from our analyses either because they left the classroom during the test ($n = 3$), became overly distracted during the test ($n = 2$), were new to English ($n = 2$), or were developmentally delayed ($n = 1$), leaving a total of 152 children (82 girls and 70 boys). Consent was obtained from the school boards, principals, teachers, parents, and children, respectively. Each child who returned a permission form, either accepting or declining participation, was given a small gift and a certificate. The school received \$5 for each returned permission form.

Materials

Priming Manipulation

The priming manipulation was designed to subtly elicit the concept of race without explicitly priming expectations and stereotypes. Each prime consisted of one of three pictures depicting a park scene with a picnic table. In the White prime condition two White children (one boy and one girl) were seated at the picnic table, in the Black prime condition two Black children (one boy and one girl) were seated at the table, and in the Neutral prime condition two dogs were seated, one on and one under the table¹ (see Appendix).

Verbal Test

The verbal test consisted of 60 multiple choice questions selected from the vocabulary section of the 1986 Iowa Achievement Test. In order to ensure that the test was challenging, each test spanned two grade levels. Children in the second grade received 30 second-grade questions followed by 30 third-grade questions,

1. Nine children received a neutral prime picture depicting the park and picnic table with no dogs. The dogs were added to ensure that this prime was more compatible with the experimental conditions.

whereas children in the third grade received 30 third-grade items followed by 30 fourth-grade items.

Procedure

Parental consent forms containing demographic information were collected prior to each testing session and children with parental consent were randomly assigned within race to one of three priming conditions. Each testing session took place during regular class time and was conducted by two White female experimenters. Children with parental consent were presented with a testing booklet and crayons; those without consent were given age-appropriate activity sheets. Participants were seated on the floor throughout each classroom and were asked to keep their booklets face down until otherwise instructed. Participants were told that they would be asked to color a picture, take a short test, and then answer some questions and were further instructed that they needed to work independently and raise their hand with any questions.

Once the testing session began, participants were given 5 minutes to color their picture, which served as our priming manipulation. When time had elapsed, children were asked to turn to the test. They were provided with brief instructions and were given 10 minutes to complete the test of verbal ability.

Results

Test Performance. Our dependent measure was children's performance on the verbal test. This was assessed in terms of accuracy, defined as the number of questions correctly answered divided by the number of questions attempted (Ambady et al., 2001; Shih et al., 1999; C. M. Steele & Aronson, 1995). A 2 (Race of Child: African-American or European-American) \times 3 (Condition: White prime, Black prime, or Neutral prime) between-subjects analysis of variance (ANOVA) revealed a main effect of Race of Child, $F(1, 146) = 75.70, p < .001, \eta_p^2 = .34$. African-American children ($M = .51, SD = .16$) had less accurate performance on the test relative to European-American children ($M = .72, SD = .16$).

In addition, a main effect of Condition emerged, $F(2, 146) = 6.41$, $p = .002$, $\eta_p^2 = .08$, that was not qualified by a significant interaction effect, $F(2, 146) = .43$, $p = .65$, $\eta_p^2 = .01$.² As can be seen in Figure 1, the means were in the anticipated direction. Participants in the White prime condition ($M = .67$, $SD = .16$) performed the best and participants in the Black prime condition ($M = .57$, $SD = .21$) performed the worst (Neutral prime condition, $M = .63$, $SD = .18$). A follow-up contrast analysis (using weights of +1, -1, and 0, respectively) was statistically significant, $t_{contrast}(146) = 3.54$, $p = .001$, $\eta_p^2 = .08$, confirming that, in line with our hypotheses, children in the White prime condition performed significantly better than participants in the Black prime condition. Importantly, this pattern of results was consistent for both African-American children (.57, .45, and .50, respectively), $t_{contrast}(67) = 2.70$, $p = .009$, $\eta_p^2 = .10$, and European-American children (.76, .67, .75, respectively), $t_{contrast}(79) = 2.29$, $p = .03$, $\eta_p^2 = .06$.

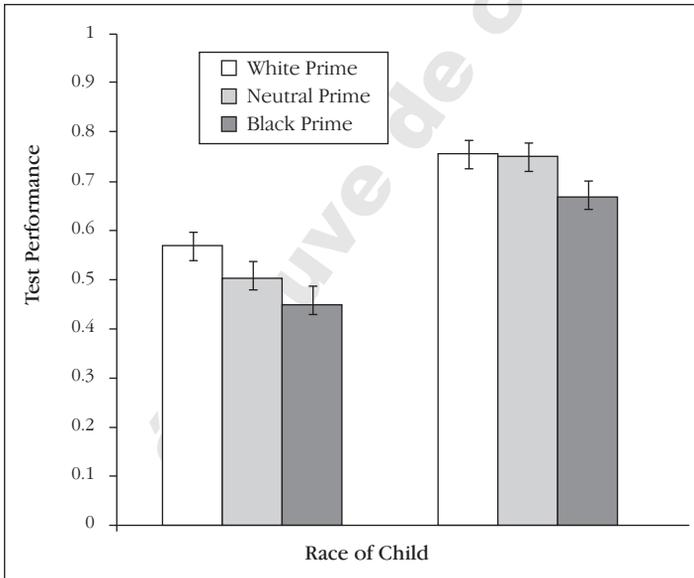


FIGURE 1: Test performance for African-American and European-American children. Accuracy is graphed separately for each of three priming conditions. Error bars represent standard error.

2. When this analysis was re-run with sex of child as a factor, we found comparable results, with no main effect of sex of child or interaction effects emerging.

Discussion

In the current study we examined whether the test performance of African-American and European-American children could be affected by racial primes. Consistent with this possibility, children in the White prime condition performed better on a challenging written test of verbal abilities and children in the Black prime condition performed worse, relative to those in the neutral prime condition. Importantly, children's race did not moderate this effect. The same pattern emerged for both African-American and European-American children, suggesting that the test performance of children from both of these racial groups can be affected in similar ways by racial primes. This finding is consistent with previous theory and research with adults (see Smeesters et al., 2010; Wheeler et al., 2007, for reviews) suggesting that primes need not be self-relevant (e.g., about a stereotyped in-group) in order to shift people's self-concept and subsequently affect behavior. Even the activation of out-group stereotypes can lead to stereotype-consistent behaviors (cf. Spears, Gordijn, Dijksterhuis, & Stapel, 2004). This finding also replicates some previous research with children in which social category priming affected test performance in stereotype consistent ways (Alter, Darley, Rodriguez, & Ruble, 2010; Ambady et al., 2001).

It is important to note that the test performance of African-American children might have also been affected by stereotype threat processes. Our manipulation was designed to subtly prime race, which is a typical prime-to-behavior manipulation, and was not designed to explicitly draw awareness to children's racial group and/or manipulate whether the test results would be viewed as diagnostic of their ability, which are more typical stereotype threat manipulations (see McKown & Weinstein, 2003; McKown & Strambler, 2009; Shelvin et al., 2014, for research with children). However, as a group, African-American children showed less accurate performance on this test relative to European-American children, regardless of their prime condition. This finding is consistent with the possibility that the testing environment alone was sufficient to induce stereotype threat for the African-American students who were being asked to complete a challenging test by two White experimenters. Given that

previous research suggests that African-American children are acquiring an awareness of others' stereotypes by this age (McKown & Weinstein, 2003; McKown & Strambler, 2009), it is possible that this type of testing environment was sufficient to elicit stereotype threat processes (Inzlicht & Schmader, 2012). Stereotype threat might have affected the test performance of the African-American students in our study by eliciting concerns about being negatively stereotyped and increasing the salience of the relevant stereotypes. This salience was likely to be particularly pronounced for children in the Black prime condition.

Limitations and future directions

Although we found the predicted effect of racial primes on children's test performance, these findings have several limitations. First, we have suggested that the primes affected test performance because they caused children to spontaneously activate group-based racial stereotypes. However, we do not have direct evidence for this proposed mediating process. Similarly, we are unable to examine the possibility that the effects found for African-American and European-American children were the result of different underlying processes. It is possible that the Black priming condition induced stereotype threat, as opposed to prime-to-behavior effects among African-American, but not European-American, children. Understanding the mechanism underlying these effects can help to inform future educational interventions designed to decrease the threat that stereotypes can impose. As such, future research should aim to replicate and extend our findings by assessing the activation of race-based stereotypes and threat-based concerns across conditions, as has been done with adults (Marx, 2012; Smeester et al., 2010; C. M. Steele, 1997; Wheeler et al., 2007). In addition, although we speculated that the performance gap between these two racial groups could be the result of stereotype threat, it is also possible that this discrepancy emerged because of other differences between the samples, such as divergent educational experiences, parenting practices, community environments, and/or children's own identification with school (Jencks & Phillips, 1998; Burchinal et al., 2011).

Despite these limitations, the main results and implications of these findings are disconcerting. Our findings suggest that by middle childhood both African-American and European-American children may not only have an awareness of racial categories and stereotypes (Pauker, Williams, & J. R. Steele, in press), but that once subtly activated, these stereotypes can significantly impact test performance. Being presented with race-specific pictures just prior to a challenging test led both African-American and European-American children to perform in a way that was consistent with academic stereotypes about these racial groups.

The practical implications of the present findings might, at first blush, seem to suggest that introducing racially diverse classroom materials, such as coloring sheets or books containing African-Americans, could actually be harmful to the very students that they are intended to support (see Southard, Morgan, & Zeigler-Hill, 2014). Although this is possible, we believe that it is important to consider the context in which children, particularly African-American children, received the Black racial prime. Children understood that they were being tested by two White experimenters from a prestigious local university. Being presented with a picture containing two Black children might have made their race more salient and any concerns about confirming negative racial stereotypes more significant. Consistent with our findings we believe that in some contexts, such as in classroom environments where there is a lack of trust or some uncertainty about teacher motivations, the introduction of racially diverse classroom materials could be detrimental. However, consistent with findings with adults, we feel confident that in typical classroom settings having teaching materials that reflect the increasingly diverse nature of classrooms and communities will only help to foster a sense of equality and inclusivity while simultaneously decreasing belonging uncertainty (Murphy & Taylor, 2012; Walton & Cohen, 2007).

In conclusion, the current research provides initial evidence that the test performance of both African-American and European-American children, aged 7 to 9 years, can be affected by racial primes. Through future research it will be important to identify whether the mechanisms underlying these effects in children are

comparable to those found with adults. In addition, future research should continue to identify ways to prevent the negative consequences of racial stereotypes in childhood and optimize academic performance among all children, regardless of race.

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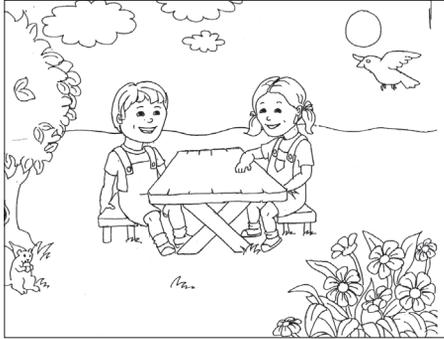
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Appendix

Priming manipulation

White Prime



Black Prime



Neutral Prime

