Research Article

Anti-Black Stereotypes Demonstrated Relative to both White Faces and Neutral Stimuli – A Function Acquisition Speed Test Investigation

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Abstract

Studies have provided evidence of implicit preferences towards White over Black individuals, but have not shown whether this effect is due to pro-White or anti-Black bias. The goal of this study was to examine this question. In this mixed-factorial experiment 153 psychology undergraduate students, randomly allocated to one of two groups, took part in a Function Acquisition Speed Test. The Non-Relative condition included Black faces, negative words, neutral objects and neutral words. The Relative condition included Black faces, negative words, White faces and positive words. Both groups were presented with a Consistent and an Inconsistent block. In the Consistent block, the correct responses were consistent with the expected stereotypes towards Black faces whereas in the Inconsistent block, the correct responses were inconsistent with the expected stereotypes. The results showed that participants learned faster in the Consistent than in the Inconsistent block but there was no significant difference in learning rates between the Non-Relative and Relative groups. This indicated that anti-Black bias was present with similar magnitude relative to both White faces and neutral stimuli, which suggested that pro-White bias did not affect anti-Black bias.

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Introduction

Recent research has shown a significant decrease of expressed anti-Black attitudes (Martin, Carlson & Buskist, 2013). However, this may not be because prejudice and stereotypes have decreased but because they have changed their form and manifestation (Martin et al., 2013). In 2005, a high school student named Kiri Davis replicated Clark and Clark's (1939) study, which had shown that most Black children preferred White-skinned dolls over Black ones, and found similar results (Davis, 2005). This evidenced that stereotypes and prejudice had not been overcome and could be harmful to modern society. However both Davis (2005) and Clark and Clark (1939) measured explicit attitudes, which are attitudes of which we are aware and that we express freely. The problem with explicit attitude measurements is that participants may not want to express their true attitudes or may be unaware of some of their attitudes. Thus, methods for assessing implicit attitudes - attitudes that we are not aware of, are developed to address these issues.

Furthermore, there has been growing interest in developing implicit tests due to the limitations of existing methods for implicit attitude exploration (O'Reilly, Roche, Ruiz, Tyndall & Gavin, 2012). For example, the procedure of Watt, Keenan, Barnes, and Cairns (1991), which involved the learning of a series of stimulus relations, was thought to be capable of identifying implicit relations between stimuli in relation to social history. This procedure was problematic because it required considerable amount of time as well as focused attention and motivation (O'Reilly et al., 2012). Another example is the widely used Implicit Association Test (IAT), which was developed by Greenwald, McGhee and Schwartz (1998) and was said to measure implicit attitudes. The IAT's procedure paired pictures on the screen with either stereotype consistent or stereotype inconsistent responses and then compared the reaction times of participants (Nosek et al., 2007). However, the test has been widely criticised. Amongst these criticisms were the suggestions that the IAT was influenced by information from the stimuli (Govan, & Williams, 2004) and that the statistical inferences from the IAT were used inaccurately (Blanton & Jaccard, 2006).

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A recently developed alternative to the IAT is the Function Acquisition Speed Test (FAST), designed by O'Reilly et al. (2012). It was based on the findings of Watt et al. (1991) that past cultural learning could impair new learning. In contrast to the IAT, the FAST uses combined accuracy and speed as a measure of implicit attitudes and gives limited time for responding. This has resolved the IAT's problem which with calculation of response times (O'Reilly et al., 2012). Moreover, feedback in the FAST is given both after correct and incorrect responses whereas in the IAT it is given only after incorrect responses that can function as punishment (O'Reilly et al., 2012). Another difference is that the FAST measures learning rate whereas the IAT measures standardised reaction time.

Irrespective of these methodological issues, studies on stereotypes and prejudice have shown implicit and explicit preferences for White/light-skin individuals. For example, Nosek, Banaji and Greenwald (2002) gathered data from over 600,000 IATs via an Internet website with the aim to measure attitudes towards different social groups. Their investigation showed a general implicit preference for White over Black individuals. In relation to this, the study of Nosek et al. (2007) supported these findings. This study used a website to gather over 2.5 million datasets from IATs in order to examine preferences and stereotypes on 17 topics. The results revealed that the majority of the participants demonstrated both implicit and explicit preferences for White/light-skin over Black/dark-skin individuals. However, it is unclear whether these findings are due to pro-White or anti-Black bias.

The goal of this experiment is to investigate anti-Black bias relative to both White faces and neutral stimuli in order to understand whether participants' learning is due to pro-White bias or anti-Black bias. The study will use the recently developed FAST to measure participants' implicit attitudes in two blocks – Consistent and Inconsistent. In the Consistent block the "correct" answers will refer to answers which are consistent with the expected stereotypes whereas in the Inconsistent block the "correct" answers will refer to those inconsistent with the expected stereotypes. Furthermore, the stimuli will be presented in two conditions – Non-Relative and Relative. The Non-Relative condition will measure the association between Black faces and negative words in relation to neutral stimuli whereas the Relative condition will measure the associations between Black faces - negative words and White faces - positive words in relation to one another. Based on the literature,

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our first hypothesis is that participants will learn faster in the Consistent block than in the Inconsistent block. We base this hypothesis also on the fact that the answers in the Consistent block are referred to as "correct" if they are consistent with the expected stereotypes and the answers in the Inconsistent block are referred to as "correct" if they are inconsistent with the expected stereotypes. Our second hypothesis is that the difference in the rates of learning between blocks will be higher in the Relative group than in the Non-Relative group. We base this claim on the assumption that the Non-Relative condition measures the association between Black faces and negative words in relation to neutral stimuli whereas the Relative condition measures two associations (anti-Black and pro-White) in relation to one another.

Methods

Participants

Participants were 153 Psychology undergraduate students. There were 87 participants in the Non-Relative group and 66 participants in the Relative group. They all participated in the study as part of a module requirement. Participants were randomly assigned to one of the two groups.

Apparatus

The stimuli were presented on an iMac computer, with screen size 21.5" and resolution 1920 x 1080 pixels. The FAST was designed and delivered using Livecode Software. The data were collated via Google Forms.

Materials

The FAST consisted of two blocks – Consistent and Inconsistent. In the Consistent block the answers were referred to as "correct" if they were consistent with the expected stereotypes or prejudice – for example sorting Black faces with negative words. In the Inconsistent block the answers were referred to as "correct" if they were inconsistent with the expected stereotypes or prejudice – for example sorting Black faces with positive or neutral words. Each block consisted of 50 trials.

In this FAST experiment, different stimuli were presented in two conditions – the Non-Relative and the Relative condition. The Non-Relative condition included images of Black faces, negative words, neutral objects and neutral words. It measured the association between Black faces and negative words in relation to neutral stimuli and aimed to investigate anti-Black stereotypes in

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isolation. The Relative condition included images of Black faces, negative words, images of White faces and positive words. It measured two associations in relation to one another and aimed to investigate anti-Black stereotypes in relation to positive White stereotypes. The images of Black and White faces were taken from Cunningham, Preacher and Banaji (2001). All of the stimuli presented in the FAST can be viewed in Figure 1.

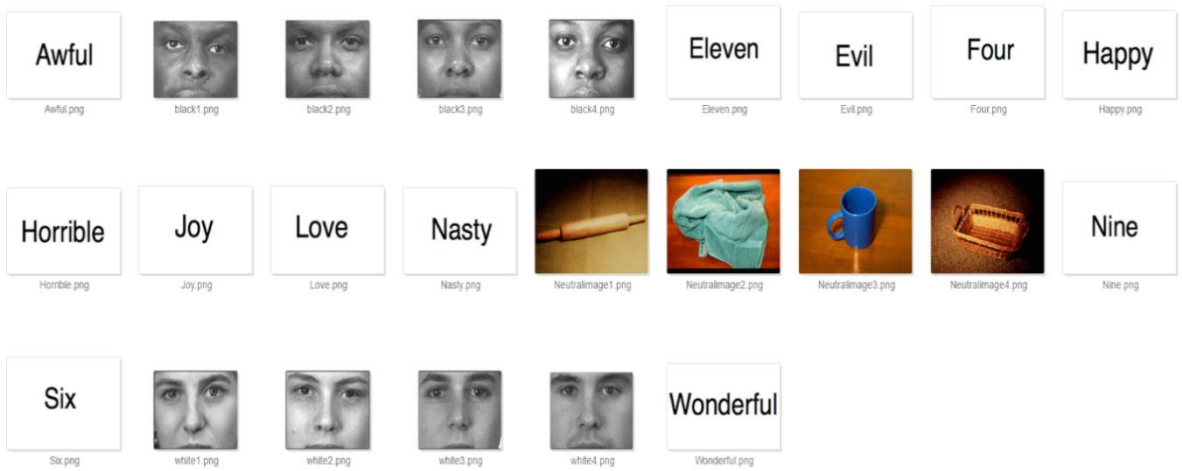

Figure 1 Stimuli presented in the experimental trials.

Design

The experiment had a mixed-factorial design. The independent within-subjects variable was: block (Consistent or Inconsistent). The between-subject variable was group (Non-Relative or Relative). The dependent variable was the FAST slope – the rate of learning.

Procedure

Participants signed a consent form and started the experiment. No practice trials were provided. The experimental trials began and the FAST instructions were displayed with black letters in the centre of a white screen. They stated that the participants' task was to learn which button to press when an image appeared on the screen. Participants had to press either the Z or the M key and were asked to locate them on the keyboard. It was pointed out that this part of the experiment would continue until the participants had learned the task and could respond without error. They would learn via feedback, which would inform them if they were correct or not. Participants were given the opportunity to ask the researcher any questions they may have had. They had to press any key to continue.

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Stimuli started appearing one by one in the centre of the white screen and participants had to sort them by pressing either Z or M. Participants in each group completed two blocks – Consistent and Inconsistent. The order of the blocks was randomised. Participants received feedback – "Correct" or "Wrong" in red colour, after every sorting. In the Consistent block, the answers were referred to as "correct" when participants sorted together Black faces and negative words and either White faces and positive words or neutral objects and neutral words depending on the condition. In the Inconsistent block, the answers were referred to as "correct" when participants sorted together Black faces with either positive or neutral words as well as negative words and either neutral objects or White faces depending on the condition. If participants took more than 3000 milliseconds to respond to a trial their response was recorded as wrong. They could not correct their responses at any time.

Results

Scores for rates of learning (Slope) in the Consistent and the Inconsistent block were calculated separately for each participant by dividing the change in the number of correct responses by the change in the elapsed time. Faster learning of correct responses was indicated by a higher slope. A score representing the difference between the Consistent and the Inconsistent Slope was also calculated for each participant. Faster learning in the Consistent block was indicated by a positive difference whereas faster learning in the Inconsistent block was indicated by a negative difference. A positive Slope Difference was referred to as a FAST effect.

Mean scores were obtained for the Consistent Slope, the Inconsistent Slope and the Slope Difference for the Non-Relative and the Relative condition. The means and standard deviations in the Non-Relative and Relative conditions are presented in Table 1. The effect size for the mean difference between the Consistent and the Inconsistent Slope in the Non-Relative condition was medium (d=0.48). The effect size for the mean difference between the Consistent and the Inconsistent Slope in the Relative condition was small (d=0.27).

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Table 1 The means and standard deviations (in parentheses) in the Non-Relative and in the Relative condition.

	Consistent Slope	Inconsistent Slope	Slope Difference
Non-Relative	0.70 (0.14)	0.63 (0.15)	0.06 (0.15)
Relative	0.68 (0.17)	0.64 (0.13)	0.04 (0.15)

For both conditions, the paired samples t-tests showed that there was a statistically significant mean difference between the Consistent and the Inconsistent Slope, $t(86)=3.90$, $p<.001$, 2-tailed (for the Non-Relative condition) and $t(65)=2.26$, $p=.027$, 2-tailed (for the Relative condition). Participants learned faster in the Consistent than in the Inconsistent block in both conditions. An independent samples t-test showed that there was no statistically significant mean Slope Difference between the Non-Relative and the Relative condition, $t(151)=0.84$, $p=.401$, 2-tailed. There was no difference in the learning rate between the Relative and Non-Relative groups.

Discussion

The study aimed to examine how much of the participants' performance in the experiment was due to pro-White bias. The results showed that participants learned faster when the "correct" responses were consistent with the expected stereotypes compared to when they were inconsistent. This supported our first hypothesis that participants would learn faster in the Consistent than in the Inconsistent block. However, the results showed that the difference in learning rate between blocks did not differ significantly across groups, which did not support our second hypothesis that the learning rate difference would be higher in the Relative group than in the Non-Relative. These findings indicated that anti-Black attitudes were demonstrated, with no significant difference in strength, relative to both White faces and neutral stimuli which suggested that learning performance was not influenced by pro-White bias.

The results of this study supported the findings of Nosek, Banaji et al. (2002) and Nosek et al. (2007) that there is a general preference for White over Black individuals. However, the findings indicated that these attitudes were not due to pro-White bias. The results further suggested that positive-White associations do not contribute to negative-Black associations as the negative-Black associations also occurred relative to neutral images with no significant change in strength. The

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present study also supported the results of Watt et al. (1991) that past verbal or cultural learning could interfere with new learning. The present study showed that participants took longer to learn a pairing of a stimulus and response when the pairing was inconsistent with the widely-held anti-Black stereotypes. This showed that the previously learned information that dark-skin people are associated with negative stimuli interfered with the new learning of associating dark-skin people with positive responses.

However, one limitation of this study which could account for the lack of support for the second hypothesis is the difficulty of finding strictly neutral stimuli. Thus, there is a possibility that the neutral stimuli used in the Non-Relative condition may not have been "neutral" for the participants. In some cultures, numbers have symbolic meanings. For example, 6 is thought to be the number of the devil and 7 is thought to be a sacred number in some societies. Furthermore, the presented "neutral" objects may have been associated with a particular event or sensation experienced by the participants. A new study should be conducted in order to address this problem by presenting the participants with the same experimental design and conditions but with one difference – asking them to rate separately each stimulus presented in the study on a scale ranging from "Very pleasant" to "Very unpleasant". This would reveal whether the neutral stimuli were truly "neutral".

Raising awareness about implicit anti-Black biases is the first step towards reducing them. For example, our findings can be directly applied in the educational setting as anecdotal evidence suggest that anti-Black attitudes are pervasive in schools but are not always explicit. School staff can use the provided knowledge to raise awareness amongst both teachers and students about implicit anti-Black biases. This may reduce the implicit anti-Black biases in schools due to the awareness of their existence. The findings can also be applied to the police and legal systems where implicit anti-Black attitudes can have terrible consequences. This may lead to creating special programs for police officers and judges which will aim to reduce implicit anti-Black bias. Another application would be in the field of the media. Although there are a lot of explicit negative attitudes towards dark-skin people in the media, some of the negative attitudes may be implicit. Raising awareness about this problem amongst both the people who work in the field and amongst the viewers will aid reducing implicit anti-Black stereotypes.

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In conclusion, the study showed that participants took longer to learn pairings that were inconsistent with previously learnt racial stereotypes. This suggests that pre-learnt stereotypes could interfere with present learning. In addition, the findings showed that anti-Black bias occurred relative to neutral images as well as relative to images of White-skin individuals. This suggests that anti-Black bias was not enhanced by pro-White bias. These findings are important because they provide knowledge that might aid raising awareness about implicit anti-Black biases. This could help reduce the anti-Black biases in society.

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