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# Implicit prejudice in eight-graders

Juliane Degner

Dirk Wentura

Saarland University, Saarbruecken, Germany

Burkhard Gniewosz

Peter Noack

Friedrich Schiller University Jena, Germany

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## Abstract

This study examines the automatic activation of negative prejudices towards Turks using a masked affective priming paradigm in a sample of German adolescents (aged 13 to 15). Pictures of Turks and Germans were used as masked primes; positive and negative adjectives conveying either other-relevant valence (e.g., honest, evil) or possessor-relevant valence (e.g., talented, dull) were used as targets. Results revealed that both explicit prejudices towards Turks living in Germany as well as prejudiced behaviour in a virtual ball-tossing game are meaningfully related to automatic prejudice activation. As expected, these correlations were found only for priming indices based on other-relevant targets, thereby emphasising the differentiation of implicit prejudice into (imputed) hostility and depreciation.

Over the past years, there has been extensive attention paid to ethnic prejudice in children and teenagers (Aboud & Amato, 2001; Fishbein, 1996) including the often repeated assumption that early development of negative intergroup attitudes is the basis for the broad and persistent use of stereotypes and prejudices in adulthood (e.g., Zemore, Fiske & Kim, 2000). A widely accepted claim (see, e.g., Devine, 1989) is that prejudice based on early socialisation experiences do not only remain mentally represented but are also highly accessible and more likely to be automatically activated as compared to more deliberate beliefs acquired in later years.

It has been found that ethnic attitudes are acquired by most children sometime between the age of three to five years, and become stronger until the age of seven (Aboud, 1988). There is a large body of research suggesting that prejudices are widespread among pre-school children, while the open expression of prejudice decreases for some children between age 7 and 12 (for reviews see, e.g., Aboud & Amato, 2001; Cameron, Alvarez, Ruble, & Fuligni, 2001; Nesdale, 2001). These interindividual differences remain rather stable during adolescence (Hoover & Fishbein, 1999; Noack, 2001). For example, it has been repeatedly shown that at least one third of German adolescents openly express negative attitudes towards ethnicity-related outgroups like Turks living in Germany (e.g., Fend, 1994; Boehnke, Hagen, & Hefner, 1998; Frindte, Funke, & Waldzus, 1996; Wagner, van Dick, Pettigrew, & Christ, 2003). If the broad and frequent use of

stereotypes and prejudice during childhood promotes their automation (Zemore et al., 2000; Devine 1989), automatic prejudice activation should already be found in teenagers that express negative attitudes towards ethnic groups. However, hitherto neither in children nor in adolescents has it been studied whether prejudices are already represented in memory as well-learnt associations that can be automatically activated. This stands in sharp contrast to recent research on prejudice and stereotypes in adults focussing on new methods to assess prejudice indirectly, that is, by adapting response-time based techniques from cognitive psychology. These methods do not only have the reputation of being unobtrusive, but they are also more closely linked to the theories underlying automatic prejudice (for a review, see Fazio & Olson, 2003). Moreover, discriminatory behaviour might be better predictable if both deliberate and automatic prejudices are taken into account, as has been shown for adult populations (Dovidio, Kawakami, & Johnson, 1997). Thus, it seems problematic that the majority of research with children and adolescents has been done using standard measures, dominantly questionnaires. Taking matters a step forward, our study aimed at investigating if negative ethnic prejudices openly expressed by adolescents aged 13 to 15 correspond to prejudices assessed by an indirect measure, the masked affective priming paradigm (Fazio, Sanbonmatsu, Powell, & Kardes, 1986; Fazio, Jackson, Dunton, & Williams, 1995).

The affective priming task permits assessment of the degree to which the presentation of attitude related stimuli automatically activates associated evaluative representations from memory. The task of the participant is to categorise positive and negative target words with regard to their valence. Shortly preceding each target, a prime stimulus is presented. It can be found that response times are lower if prime and target are congruent in valence compared to incongruent pairings. Thus, if the valence of prime stimuli is unknown, it can be inferred from the pattern of results (see, e.g., Fazio et al., 1995). There are two advantages of this technique that make it especially well suited for the assessment of automatic prejudice. In particular, it even works if the prime is presented very briefly and is immediately replaced by a mask so participants cannot even identify the prime event (e.g., Draine & Greenwald, 1998). In several studies, we have found the masked affective priming technique capable of revealing automatic attitudes (Frings & Wentura, 2003; Otten & Wentura, 1999; Wentura, Kulfanek, & Greve, in press).

A second advantage of the affective priming paradigm is its capability to differentiate between two types of automatic prejudice – imputed hostility and depreciation. Wentura, Rothermund, and Bak (2000) have shown that automatic evaluation depends on a second factor, termed possessor- vs. other-relevance (Peeters, 1983; Peeters & Czapinski, 1990).[1]Thus, the valence of an item can be subtyped according to the *kind* of positivity or

negativity it expresses. Every evaluation depends on the perspective of the evaluator — whether a trait is evaluated from the perspective of someone who interacts with the trait-holder or from the perspective of the trait-holder him/herself. Whereas brutality is primarily bad for the social environment of the brutal person (but not necessarily for the brutal person him-/herself), loneliness is primarily bad for those who are lonely (but not necessarily for their social environment). Whereas honesty is primarily good for those who interact with the honest person (but not necessarily for the honest person him-/herself), intelligence is primarily good for intelligent persons themselves (but not necessarily for the social environment). Adjectives like *brutal* or *honest* are called other-relevant, whereas words like *depressive* or *intelligent* are called possessor-relevant. Most importantly, Wentura and Degner (2005a) found that masked affective priming effects depend on the match of the type of valence activated by prime and target.

The distinction of possessor- vs. other-relevance seems to be applicable to negative prejudice. An outgroup that is associated with negative valence might either be seen as worthless, implying a possessor-relevant negativity (e.g., the elderly) or as socially threatening, implying an other-relevant negativity (e.g., Turks living in Germany; e.g., Kahraman & Knoblich, 2000; Neumann & Seibt, 2001, Wagner, Hewstone, & Machleit, 1989). The perception of Turks as being hostile and threatening makes it seem likely that prejudice towards Turks living in Germany should be more closely

linked to other-relevant than to possessor-relevant valence at the level of automatic evaluation. Thus, it can be hypothesised that explicit prejudice towards Turks will depend especially on other-relevant priming effects. In fact, Wentura and Degner (2005b) found that explicit prejudice towards Turks (in an adult sample) could only be predicted by other- and not by possessor-relevant priming effects.

Our study comprised three components. First, participants worked through a masked affective priming task, using pictures of young men of Turkish and German origin as primes, to obtain an index of automatic prejudice. Second, participants filled out a series of questionnaires to assess the amount of explicit prejudice. Our main hypothesis is concerned with the relationship between the affective priming measure and explicit prejudice. The affective priming procedure yields two indices: A measure of (relative) possessor-relevant negativity and a measure of (relative) other-relevant negativity of Turks. We hypothesised that significant correlations of explicit prejudice with the priming measure should be found especially for the other-relevant index.

Third, as an exploratory part of our study we introduced a potentially useful new behavioural measure, derived from research on ostracism (Williams, Cheung, & Choi, 2000). Participants took part in a short computer game ("Cyberball") involving the tossing around of a ball. Each participant played with two co-players of different ethnic identities. We

analysed whether the behaviour of participants was related to their level of prejudice.

## Method

### *Participants*

Fifty-nine eight-graders (38 females and 21 males) of a high school in a middle-sized town near Berlin, Germany, participated in the study. All were native speakers of German.[2] Median age was 14 with a range from 13 to 15 years. The data of four additional participants were excluded from analyses, in three cases because of their extremely slow or extremely fast mean response latencies (more than 2 SD above or below the overall mean), indicating low compliance with instructions, in the fourth case because of a tantrum during data collection (which deterred the participant from concentrating on the tasks).

### *Materials*

*Priming measure.* The priming task conformed to a 2 x 2 x 2 within-subject design made up by the factorial combination of target valence (positive vs. negative), target type (other- vs. possessor-relevant) and prime type (Turkish vs. German). Two sets of primes were used in a balanced design, each consisting of pictures of four Turkish and four German young men. Pictures were selected from a large pool of 200 portrait pictures according to pretests. Raters (N=35) categorised the faces, which were presented for 150 ms on a computer screen, as being of Turkish or German

origin. In addition, ratings of intraethnic prototypicality, attractiveness, and emotionality of facial expression were obtained for all pictures (scales were 1 to 5 [for prototypicality] and 1 to 7 [for attractiveness and emotionality] with higher values indicating more prototypicality, higher attractiveness, and a more positive facial expression, respectively). On the basis of categorisation accuracy, speed of categorisation, and ratings, eight pairs of pictures of Turkish young men and German young men, respectively, were selected (see Table 1). Pictures of both groups did not show any significant differences on any of these pre-ratings (all *t*'s <1, *n.s.*). Faces were in frontal view against a white background. They were in black and white and app. 75 mm high and app. 50 mm wide. A monochrome picture of a fractal was used as the forward mask; a black oval in the size of the prime faces was used as the backward mask. To obtain a reference effect with standard positive and negative stimuli, two grey schematic faces ("*smileys"*) were used as additional primes, showing a positive or negative facial expression (i.e., mouth up- or downwards), respectively.

The target set consisted of 12 positively and 12 negatively valenced German adjectives with a word-length of five to eight letters and absolute pleasantness values of 50 or more on a scale ranging from -100 to +100 (Hager, Mecklenbräuker, Möller, & Westermann, 1985; Möller & Hager, 1991). Within each valence set, six adjectives were other-relevant (e.g., "honest", "evil") and six adjectives were possessor-relevant (e.g.,

"talented", "dull") according to norm data (Wentura, Rothermund, & Bak, 1998). Target words were presented in black on a white background using an Arial type font 8 mm in height.

*Explicit measures.* To assess participants' explicit prejudices towards Turkish people, the Subtle and Blatant Prejudice Scale (Pettigrew & Meertens, 1995; German version adopted from Neumann & Seibt, 2001) was modified to match teenagers' language use. Furthermore, two scales were adapted from earlier research (Balke, El-Menouar, & Rastetter, 2002; Dicke, Edinger, & Schmitt, 2000; Kracke & Held, 1994) to detect anti-foreigner attitudes with six items (e.g., "*Foreigners take away our jobs*.") and antidemocratic attitudes with three items (e.g., *"A dictatorship can be the better form of government."*).

*Behavioural measures*. We adapted the "*Cyberball*"-game (Williams et al., 2000) to serve as a measure of discriminatory behaviour. On the computer screen two co-players were shown, represented by moving manikins, a portrait, and a name, respectively. The participant him- or herself was represented by a moving hand that could catch and throw balls, and the word "ICH" ("I") instead of a name. Participants were instructed that whenever they received the ball they had to throw it to one of the other players as fast as possible by pressing one of the response keys (1 and 2 on the number pad for the left and right player, respectively). Participants were prompted to try to imagine a real-life situation in which they might be

playing such a game (see Williams at al., 2000). The game included 80 pitches between the three players and took about three minutes. In accordance with the exploratory character of this part of our study, we developed two different versions of the game. In the first version, participants played with one Turkish and one German co-player, represented by pictures and names of high prototypicality. Position (right or left) of the Turkish co-player was counterbalanced. Each of the virtual co-players threw the ball to the participant with a probability of .5. An index of the participants' relative preference for tossing the ball to the Turkish versus the German co-player was obtained in this version of the game.

In the second version, participants were instructed to play with the virtual person "Paul" represented by a schematic face ("smiley") and a second "real person". For half of those participants the real person was a Turk, for the other half it was a German (see above). The "virtual person" threw the ball with probability of .5 to the participant, whereas the "real person" ostracised the participant by never throwing the ball to the participant. In the course of playing the game, we expected participants to recognise this pattern of "behaviour" and respond to it.

*Procedure*

Participants were tested in groups of 6 to 14 and were seated separately in the computer class room of their school. Students were informed that they would accomplish a series of tasks on the computer.

The affective priming task was introduced as a test of reading and comprehension abilities. Students were informed that adjectives would be presented very briefly on the computer screen. Their task was to quickly categorise the words according to their valence by pressing one of the response keys (5 [on the number pad] = positive, A = negative). The experiment was run on 75 Hz monitors controlled by IBM-compatible personal computers using Inquisit 1.33 software (Inquisit 1.33, 2002). The beginning of a trial was indicated by a black cross that remained in the middle of the white screen for 387 ms. It was followed by the forward mask that remained on the screen for 93 ms and was immediately replaced by the prime. The prime was presented for 27 ms and directly replaced by a backward mask that remained on the screen. The subjective impression of the presentation sequence was a brief flicker. Finally, with a delay of 13 ms, the target word appeared in the centre of the backward mask for 650 ms. The priming task followed a response-deadline technique.[3] Participants were instructed to press the correct key within the span of target presentation. If the participant did not respond within this time span, the target was replaced by a blue sign, thereby giving feedback that the response was too slow. The inter-trial interval was 1300 ms following the response.

At the beginning of the priming task, participants worked through a block of 20 practice trials consisting in ten presentations of the schematic faces as targets (without primes),. Participants were instructed to press the

positive key for a positive face and the negative key for a negative face. An error message appeared when participants pressed the wrong key. A summarised feedback of percentage of correct responses and mean response time was additionally given at the end of the block. To ensure compliance with speed instructions, students were informed that the participant (of each group) with the lowest mean RT (but an error rate below 20%) would be given a reward of € 10 (approx. $12,50). Then, participants worked through two further practice blocks of 24 trials each, now with the valence adjectives as targets and the pictures as primes. Again, participants were prompted to react as fast as possible. When the experimenter was absolutely sure that all participants had understood the instructions the experiment started.

The main part of the affective priming task consisted of four blocks of 48 trials each. Within a block, each prime was presented once in each target condition. Each target was therefore presented twice within a given block. During the experimental blocks participants did not receive instantaneous error feedback, but still received feedback at the end of each block (i.e., mean response times and percentage of correct responses) with the following message added: *"Try to react as fast as possible."* Participants were instructed to note down the feedback and to continue the experiment by pressing a key. At the end of the fourth block the instruction on the screen asked the students to remain quiet and to wait for further instructions.

After the priming task participants played the "*Cyberball*"-game (with random assignment of version, see *Materials*). Thereafter the experimenter handed out the questionnaires and instructed participants to fill them in quietly without comment. Afterwards, a direct test of prime recognition was administered. Participants were informed that the sequence of flickers during the priming task had included schematic faces. They were instructed to try to identify the faces during subsequent trials and to categorise them with regard to facial expression (smiling vs. sad). In a second block, participants were informed that masked pictures of Turkish and German men would be presented. Now, they were asked to categorise these pictures with regard to ethnicity (Turkish vs. German). In the two blocks, each prime was presented six times. Finally, participants were asked to fill in a questionnaire on demographic issues and were then informed about the objectives of the study; the reward was given to the winner and they were thanked for their participation.

## Results

### *Explicit measures*

Table 2 shows internal consistencies and inter scale correlations of the explicit measures. All of them, except the subtle prejudice scale, are in the range of expectations. The modification of the subtle prejudice scale for school children was not very successful as indicated by low internal consistency.

Significant gender differences were only found for the blatant prejudice scale with, as expected, boys expressing higher blatant prejudice ($M$ = 3.40, $SD$ = 1.24) than girls ($M$=2.88, $SD$ = .93), $t(58) = 1.84$, $p < .05$ (one-sided).[4]

*Prime awareness*

In informal interviews after the experiment no participant reported having recognised any prime at all. With the data of the direct test, we computed the non-parametric signal detection sensitivity index *A'* (Pollack, 1970) for the categorisations of the masked primes, with hits being correctly identified pictures and false alarms being incorrectly identified pictures.[5] Mean *A'* were $M$ = .64 ($SD$ = .25) for the categorisation of schematic faces according to valence ($t$[59] = 4.33, $p < .01$ for the deviation from 0.5), and M = .52 (SD = .11) for the categorisation of the Turkish and German primes according to ethnicity ($t$[59] = 1.20, $p$ = .24 for the deviation from 0.5). Thus, we have to concede that the direct evaluation task yielded an above-chance result, but we can conclude that the masking of the prime photographs was successful.

*Priming effects*

Trials with RTs that were 1.5 interquartile ranges above the third quartile with respect to the individual distribution (see Tukey, 1977) or which were below 250 ms were considered invalid and thus discarded from analysis (4.07 % of all trials). Mean error rates were 17.99 per cent ($SD$ = 8.81). We calculated an index of priming that was based on the rate of fast

(< 650 ms; i.e., the response deadline) *and* accurate responses (*M* = 57.38 %). That is, priming indices were calculated by subtracting the rate of fast correct responses for incongruent trials from the rate of fast correct responses for congruent trials. Two priming indices – one for possessor-relevant targets and one for other-relevant ones – were calculated for the schematic faces (taking the smiling/positive and sad-looking/negative combinations as congruent). Likewise, two indices were computed for the ethnic primes (taking the German/positive and Turkish/negative combinations as congruent). That is, positive priming differences represent higher relative devaluation of Turks compared to Germans. The analysis of variance of priming effects for schematic faces with target perspective (possessor vs. other) as the repeated measure revealed a significant main effect of target perspective, $F(1, 58) = 5.31$, $p < .05$. The mean for possessor-relevant targets, $M = 3.39$ ($SD = 13.02$) differed significantly from zero, $t(58) = 2.00$, $p = .05$, while the mean for other-relevant targets, $M = -2.97$ ($SD = 18.97$) did not, $t(58) = -1.20$, *ns.* Neither priming index correlated with the *A*' of the prime detection task, $-.27 \leq r \leq .04$, *ns*, indicating that priming effects were not related to prime awareness. These results demonstrate that our procedure was capable of disclosing effects of automatically activated valence. Not surprisingly, the schematic faces seem to convey possessor-relevant valence.

The analysis of variance of German-Turkish priming effects with target perspective (possessor vs. other) as the repeated measure factor revealed no significant effect ($F < 1$, *n.s.*). Priming effects did not differ significantly from zero ($M_{other}$ = -0.20, $SD$ = 10.55, $t$[58] = -0.15, *ns*, $M_{possessor}$ = -1.58, $SD$ = 11.06, $t$[58] = -1.10, *ns*), indicating that for the average participant the priming task revealed no negative reaction to Turkish primes compared to German primes. Again priming indices were not correlated with the direct measure for prime identification of German and Turkish primes, $-.05 \leq r \leq .09$, *ns*.

*Individual differences in priming effects*

Table 3 shows the correlations of the implicit prejudice priming measures with the explicit measures. As hypothesised, the other-relevant index proved meaningful whereas the possessor-relevant index did not. (The two priming indices were not significantly correlated with one another, $r$ = -.17, *ns*.) The other-relevant index significantly correlated with the blatant prejudice scale, which explicitly taps attitudes towards Turks living in Germany, as well as with the antiforeigner scale, that taps more general negative attitudes towards foreigners living in Germany. Priming effects show no substantial correlations with the subtle prejudice scale, presumably because of the low reliability of the scale. Indicating discriminant validity, there were no significant correlations with explicit antidemocratic attitudes. The slight sex differences with regard to other-relevant priming correspond

to the higher explicit prejudice scores of boys. Indicating discriminant validity as well, the priming differences for schematic faces showed no substantial correlation with the explicit measures, $-.21 \leq r \leq .11$, *ns*.

*Behavioural measures*

For the simple "Cyberball"-game ($n = 27$) with German and Turkish coexistent virtual co-players, the median proportion of tosses towards the Turkish player was 50 percent. To normalise the distribution of ball tossing frequencies, two extreme low values (10 % and 32 %) were set to 40 %, which is 2.5 SD units below the mean. Ball tossing rate towards the Turkish player did not correlate with any of the measures ($-.24 < r < .03$), except the priming effect for other-relevant targets, $r = -.34$, $p < .05$ (one-tailed; $r = -.08$, *ns*, for self-relevant targets), indicating that participants with higher automatic prejudice activation tend to discriminate against a Turkish co-player by avoiding to pass him the ball. In addition, a gender effect was found, with boys ($M = 46.90$, $SD = 5.75$) tossing the ball less frequently to the Turkish co-player than girls ($M = 51.39$, $SD = 4.52$), $t(25) = 2.11$, $p < .05$).

For the second version of "Cyberball" ($n = 29$; see *Materials*), we calculated the relative proportion of tosses to the "real person" (i.e., the German or the Turkish co-player, according to version) for the first and second half of the game because a change in behaviour can be expected after recognising the "unfair" tossing behaviour of the co-player (see

above). The means are depicted in Figure 1. A 2 (version: German vs. Turkish player) vs. 2 (block first vs. second) analysis of variance yielded a significant interaction, $F(1,28) = 5.49$, $p < .05$ (both $F$s for the main effects < 1.48, ns). Ball tossing rates to the different players did not differ in Block 1, t(28) = -0.26, ns, whereas ball tossing rates were significantly higher for the Turk co-player in Block 2, t(28) = -2.13, p <.05. For further analysis we computed an index of behaviour change in the ball-tossing behaviour by subtracting the number of ball-tosses towards the ”human” player in block two from rates in block one. Positive values indicate that the ball was thrown more frequently to the ”human” co-player in the second half of the game compared to the first half. For each predictor variable (i.e., subtle prejudice, blatant prejudice etc., respectively), a moderated regression was calculated with behaviour change as the dependent variable and the predictor, a dummy variable coding whether the co-player was Turkish or German, and the product term of predictor and dummy variable as independent variables. Table 4 shows the results. As can be seen, the regression weights for the product term were significant except for the subtle prejudice scale. Whereas there were null correlations between the predictors and behaviour change within the sample playing with a German co-player, substantial correlations were found within the sample playing with a Turkish co-player. To test whether the contribution of the priming measure to predict behaviour change is redundant with regard to explicit

prejudice, we performed another multiple regression analysis. In this analysis, behaviour change was the dependent variable and blatant prejudices as well as the other-relevant priming index were predictors. Indicating non-redundancy, both predictors were associated with a significant (negative) regression weight within the sample playing with the Turkish co-player, $t(10) = 4.01$, $p < .01$, and $t(10) = 2.60$, $p < .05$ for blatant prejudice and other-relevant priming, respectively.

## Discussion

With this study, we were able to show that an affective priming task with masked (i.e., subliminal) presentation of primes is applicable to assess the automatic activation of negative prejudice in adolescents. The procedure permits assessment of the extent to which the categorisation of positive vs. negative adjectives is facilitated or hampered by pictures of Turkish versus German faces, even when these are perceived outside of awareness. The validity of the measure becomes apparent in the prediction of self-reports of negative attitudes towards Turks. Thus, the interindividual variability of self-reported attitudes in eight-graders is reflected in their priming task reactions.

Our results strongly suggest that the type of valence is a crucial variable in automatic prejudice activation. Again (see Wentura & Degner, 2005a, 2005b; Wentura et al., in press), we were able to show that priming effects only occur for targets of one valence type. Here, meaningful correlations

were only found for other-relevant targets, indicating that the social view of Turks as a potentially threatening and hostile group finds its equivalent at the level of automatic activation. Please note that the priming effect for the schematic faces was only found for possessor-relevant targets. This result rules out the alternative hypothesis that other-relevant targets are in general more susceptible to priming (see also Wentura et al., in press)

Similar distinctions have been made by others studying the structure of socio-cultural attitudes (for a review see Duckitt, 2001). In his dual theory of prejudice Duckitt (2001; Duckitt, Wagner, du Plessis, & Birum, 2002) differentiated disliking an outgroup perceived as dangerous or threatening from disrespecting an outgroup perceived as inferior or worthless as two distinct dimensions of outgroup prejudice. Our results show that such a differentiation can already be found at the level of automatic evaluations.

Our Cyberball-games open up a promising route of assessing prejudice-related behaviour. The simpler version of the game includes a German player, a Turkish player, and the participant him/herself. Because of the evident character of the game, one might expect explicit prejudice to be a predictor of asymmetrical tossing behaviour. Interestingly, however, it is the other-relevant priming measure that (negatively) correlates with the number of tosses towards the Turkish player.

In second version, the participant played together with a “Smiley” and a supposedly human person that was either “German” or ”Turkish”. Most

importantly, the “human” co-player ignored the participant by never throwing the ball to him/her. Thus, the finding of a behaviour *change* makes perfect sense because participants need time to recognise the pattern of their co-players’ behaviour. This behaviour change was different for those who played with a ”Turkish” player than for those who played with a ”German” player. Moreover, substantial correlations of behaviour change with the prejudice measures were only found for the Turkish version, thereby making this game a potentially sensitive indicator of prejudiced behaviour. Of course, the sign of the correlations was unexpected. “Best guess” would have been to predict a tit-for-tat behaviour in the Turkish version for prejudiced participants. In fact, the opposite evolved. The increasing rate of tosses towards the Turkish player by prejudiced participants can be interpreted as a kind of challenging or provocative behaviour towards an ostracising outgroup member. As the meaning of the Cyberball game is somewhat ambiguous, tossing the ball can be interpreted as a cooperative act of handing over the ball to the next player as well as an aggressive act of firing off the player. Note that the possessor-relevant priming index (which – as expected – does not show any meaningful correlations with all other measures) shows a reversed correlation (compared to the other-relevant index) with the behaviour change index within the in the Turkish version. This result emphasises the differentiation of other- vs. possessor-relevance. While the negativity of the (imputed) hostility type is associated with the

challenging type of behaviour, the negativity of the depreciation type seems to be associated with ignoring the Turkish player. Of course, these preliminary results need further investigation.

In conclusion, the present study opens up a fruitful new avenue to the study of automatic prejudice. We found a set of meaningful results that fits to other research of our group (e.g., the differentiation of valence) and that introduces new tasks (e.g.., the Cyberball versions) in a population (i.e., school children) rather ignored in implicit attitude research up to now.

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## Author Note

Dirk Wentura and Juliane Degner, Department of Psychology, Saarland University, Saarbrücken, Germany.

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Correspondence concerning this article should be addressed to Juliane Degner, Department of Psychology, Saarland University, Building 6, P.O. Box 15 11 50, 66041 Saarbrücken, Germany, e-mail: j.degner@mx.uni-saarland.de.

# Footnotes

[1] Actually, Peeters (1983) used the terms *other-* and *self- profitability*.

[2] Actually, four more children participated who were non-native speakers of German. Their data were excluded from analyses.

[3] It has been repeatedly shown that emphasis on speeded responses promotes affective priming effects. Typically, this is realised by a response-window procedure (see Draine & Greenwald, 1998; see also Frings & Wentura, 2003; Otten & Wentura, 1999; Wentura, Kulfanek, & Greve, in press). In the present study, we decided against a response-window procedure because we suspected that these rather unusual and difficult instructions might be too complex for eight-graders.

[4] A criterion of significance of $\alpha = 5$ % (two-tailed, unless otherwise noted) is adopted for all analyses throughout the article.

[5] *A'* is the non-parametric signal detection sensitivity index typically used if the number of observations is very small or if the hit rates of some participants are perfect. Note that chance performance yields an *A'* of 0.5, whereas perfect performance is reflected in an *A´* value of 1.0.

# Figure Captions

*Figure 1*. Mean ball tossing rates towards the Turkish and German co-player, respectively, in Block 1 and 2 (second version of game)

Table 1

Pretest: Mean Error Rates, Categorisation Latencies and Mean Ratings of Primes

| | Turks | | Germans | |
|---|---|---|---|---|
| | M | SD | M | SD |
| Error rates (in %) | 6.06 | 4.29 | 5.30 | 3.53 |
| Categorisation latencies (in ms) | 561 | 30.19 | 551 | 17.45 |
| Intraethnic prototypicality | 3.97 | .29 | 3.77 | .27 |
| Facial expression | 3.40 | 1.20 | 3.4 | 1.21 |
| Attractiveness | 4.49 | .45 | 4.17 | .65 |

Table 2

Inter Scale Correlations (Cronbachs α in parentheses)

| | 1 | 2 | 3 | 5 | sex[a] |
|---|---|---|---|---|---|
| 1. Subtle Prejudice | (.53) | .43*** | .39** | .34** | .11 |
| 2. Blatant Prejudice | | (.85) | .86*** | .41*** | -.24 |
| 3. Antiforeigner Attitudes | | | (.88) | .52*** | -.16 |
| 4. Antidemocratic Attitudes | | | | (.69) | .08 |

*** p < .001, ** p < .01, * p < .05

[a] 1 = male, 2 = female

Table 3

Correlations of Priming Indices with the Explicit Scales

| | Priming Index | |
|---|---|---|
| | Possessor-relevant | Other-relevant |
| Subtle Prejudice | .08 | .11 |
| Blatant Prejudice | -.15 | .32* |
| Antiforeigner Attitudes | -.21 | .29* |
| Antidemocratic Attitudes | -.08 | .15 |
| Sex[a] | .19 | -.23$^{+}$ |

* $p < .05$, $^{+}$ $p < .05$ (one-tailed)

[a] 1 = male, 2 = female

Table 4

Results of the Moderator Analyses (Left Column) and Correlations within the Subsamples with the Turkish and German Co-Player, respectively, for the Behaviour Change Index of the "Cyberball"-Game (Second Version)

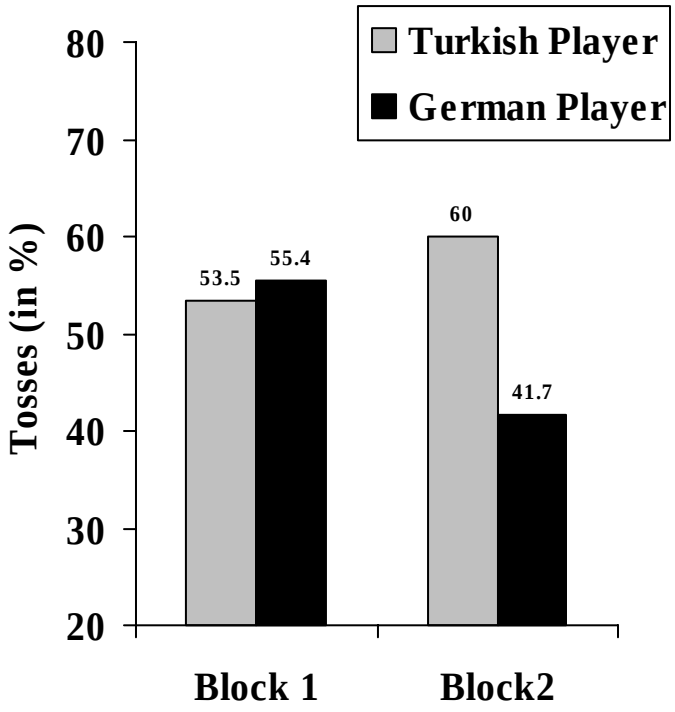
| | Moderator Analyses[a] t (25) | Co-Player: Turk (N=13) | Co-Player: German (N=16) |
|---|---|---|---|
| Subtle Prejudice | 0.68 | .41 | .14 |
| Blatant Prejudice | 2.42* | .76** | -.10 |
| Antiforeigner Attitudes | 2.21* | .72** | -.06 |
| Antidemocratic Attitudes | 2.29* | .73** | .02 |
| Priming (Other) | 1.86+ | .59* | -.07 |
| Priming (Possessor) | -2.30* | -.56* | .26 |
| Sex[b] | -2.01+ | -.32 | .42 |

*Note*: The dependent variable was the number of ball tosses towards the "human" player in the second half of the game minus the number of ball tosses towards the "human" player in the first half of the game.

** $p < .01$, * $p < .05$, + $p < .05$ (one-tailed)

[a] t-values for the product term's regression weight.

[b] 1 = male, 2 = female


Turkish Player
German Player
Tosses (in %)
80
70
60
50
40
30
20
53.5
55.4
60
41.7
Block 1
Block2