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Gender differences in implicit prejudice

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Abstract

In three experiments ($n = 131$), we examined gender differences in implicit (and explicit) racial prejudice employing priming of immigrant and Swedish facial photographs without attention or without awareness. Implicit prejudice was defined as the degree of negativity expressed toward a person described in a subsequent ambiguous story in an impression formation task. We found, contrary to our hypothesis, that women displayed systematically higher implicit prejudice than men in all three experiments, although men scored higher on explicit prejudice than women. The results are discussed against the background of related prejudice research, the dissociation of implicit and explicit prejudice, and gender differences in cognitive functioning, especially in the processing of pictorial stimuli.

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1. Introduction

Past research has documented gender differences in various areas of psychology, for example, in decoding nonverbal cues (e.g. Hall, 1978), in aggression, anxiety, assertiveness, trust, and tender-mindedness (for reviews, see Feingold, 1994), emotional expressivity (e.g. Gross & John, 1998) and intensity (e.g. Grossman & Wood, 1993), specific emotions such as fear, disgust, sadness, and happiness (for a review, see Kring & Gordon, 1998), positive and negative automatic cognition (e.g. Bryant & Baxter, 1997), sociopolitical attitudes (e.g. Ekehammar & Sidanius, 1982), attitudes toward homosexuality (e.g. Whitley & Kite, 1995), and degree of positivity in the perception of others (Winqvist, Mohr, & Kenny, 1998).

Adopting the distinction between explicit (conscious, slow, controlled) and implicit (unconscious, fast, automatic) attitudes (e.g. Banaji & Greenwald, 1995) to the area of racial prejudice (and, more generally, to prejudice toward out-groups), most research has found gender differences in *explicit* prejudice using direct measures, that is, self-report instruments (e.g. Akrami,

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Ekehammar, & Araya, 2000; Altemeyer, 1998; Ekehammar & Sidanius, 1982; Hoxter, & Lester, 1994; McFarland, submitted for publication; Moore, Hauck, & Denne, 1984; Qualls, Cox, & Schehr, 1992; Sidanius & Pratto, 1999; Watts, 1996; Whitley, 1999). In all these studies, men have consistently displayed more racial prejudice than women. These differences are so well documented that they are, sometimes, presented as validity evidence in constructing or evaluating prejudice and prejudice-related scales. For example, social dominance orientation (SDO; Pratto, Sidanius, Stallworth, & Malle, 1994), measured through self-reports, has been shown to be tightly linked to various types of prejudice (e.g. racial prejudice, sexism). Summing up the gender differences obtained in SDO, Sidanius and Pratto (1999) concluded:

The higher relative level of SDO among males is one of the most well-documented empirical findings generated by research on social dominance theory (SDT). We have examined the male-female difference in SDO in some 45 independent samples, using almost 19,000 respondents across 10 countries. . . Men were found to have a significantly higher average SDO in 39 of the 45 samples, and there was *not a single case* in which women were found to have statistically higher levels of SDO than men. (p. 267)

Are there gender differences, then, in *implicit* prejudice? This question seems reasonable to pose against the research findings on explicit prejudice. However, and surprisingly, if one gleaned the extant literature for reported gender differences in the areas of implicit prejudice and automatic stereotype activation using indirect measures (based on, e.g. subliminal priming), one would come up empty-handed. A cursory glance at the composition of participants in these studies shows that the proportion of men and women is not even reported in many studies (e.g. Devine, 1989; Bargh, Chen, & Burrows, 1996; Fazio, Jackson, Dunton, & Williams, 1995; Lepore & Brown, 1997; Wittenbrink, Judd, & Park, 1997). Thus, perhaps, gender differences in implicit prejudice has not been an important issue that demands close examination or has not had theoretical relevance to capture the attention of social psychologists. Responding to this situation, we conducted three experiments bearing on the issue of gender differences in implicit (and also explicit) racial prejudice.

In an influential study, Devine (1989) suggested that people high and low on explicit racial prejudice may not differ in their automatic stereotype activation. According to our view, automatic activation of negative stereotypes must almost necessarily be linked to implicit prejudice. It seems difficult to imagine that an automatic activation of negative stereotypical traits concerning an out-group, for example, can lead to anything else than an automatic (implicit) negative evaluation (i.e. prejudice) of that group. Especially in an automatic, fast, and unconscious process, stereotype activation and prejudice should be intimately connected and could be seen as two sides of the same coin, where the stereotype represents the cognitive, and prejudice the affective or evaluative side (see also, e.g. Hilton & von Hippel, 1996). Thus, in accord with, for example, Brauer, Wasel, and Niedenthal (2000), we equate automatic stereotype activation with implicit prejudice in the present context. Returning now to Devine's (1989) study, she argued further that due to common socialization processes and the frequent exposure to cultural stereotypes in the past, people high and low on explicit prejudice are more likely to have the same implicit prejudice level. Following this line of reasoning, we suggest that men and women may show a similar implicit prejudice pattern as high- and low-prejudice people. In the present case, we studied

immigrant men as the prejudiced out-group. Consequently, we hypothesized that men and women do not differ in their implicit racial prejudice, that is, in their implicit attitudes toward immigrants.

A widely used method for assessing implicit prejudice is based on a procedure presented by Srull and Wyer (1979). In this procedure, as adopted to the present prejudice context (e.g. Devine, 1989), participants are first exposed to stereotypical trait words linked to a specific social category (e.g. African Americans). Then they are asked to read an ambiguous story, known as the Donald paragraph, and form an impression of Donald as part of an ostensibly unrelated experiment. The initial exposure to the stereotypical traits is assumed to activate relevant or applicable stereotypes that will subsequently affect the ratings of Donald. This effect has been obtained even when the traits were primed subliminally (e.g. Bargh & Pietromonaco, 1982; Devine, 1989).

In the present experiments, we used pictures (facial photographs) instead of words for reasons of ecological validity (cf. Fazio et al., 1995; Gilbert & Hixon, 1991; Zajonc, 1980) as well as the empirical finding that pictures seem to have privileged access to people's semantic networks containing affective information (De Houwer & Hermans, 1994). Thus, we conducted three experiments using facial photographs and indirect measures of implicit prejudice based on priming without attention or without awareness (subliminal priming) and employing variants of the Donald paragraph. (The paragraphs can be obtained, upon request, from the authors.)

2. Experiment 1

2.1. Method

2.1.1. Participants and design

Forty-three Swedish men and women, university students and students at the local authority-administered adult education, participated in the study. There were 22 men and 21 women between 17 and 49 years ($M = 23.5$ years) of age. They received cinema vouchers for their participation. The design was a 2 (Prime: immigrant vs. Swede) \times 2 (Participant gender: woman vs. man) between-subjects factorial. The participants were randomly assigned to either of two conditions, one exposed to photographs representing immigrants ($n = 22$; 11 women and 11 men) and the other to photographs representing Swedes ($n = 21$; 10 women and 11 men).

2.1.2. Apparatus

The experiment was conducted using an AST Premmia GX P/133 computer with a NEC MultiSync XP21 monitor. The monitor display was controlled by an Authorware 3 program. The monitor was run at a resolution of 1024×768 , with a 75 Hz monitor screen refresh rate.

2.1.3. Stimulus materials

Based on a previous study of which particular national categories people associate with the word "immigrant" in Sweden (Akrami, Ekehammar, & Araya, submitted for publication), we selected 25 male facial photographs from the Internet that represented the national categories obtained in that study. We also selected from the Internet 25 facial photographs of Swedish men that matched the immigrant faces as to age. In a pilot study, the 50 photographs were rated by a

pool of independent students ($n = 14$) as to how representative they were for a Swede and an immigrant, respectively. Based on these results, five of the Swedish, and five of the immigrant photographs were excluded. The remaining 40 photographs, 20 from each group, were modified to be face-shots and to have a white background. These final 40 photographs were employed in the present experiment.

2.1.4. Procedure

The participants were told that they were going to take part in two different experiments. The first, a “face recognition” experiment consisting of two parts, a learning (the *priming* part) and a “recognition” part, designed to study possible differences in recognition of human faces of either foreign or Swedish origin. The second experiment, they were told, was an unrelated “impression formation” experiment.

In the learning (*priming*) part, which ostensibly involved the ability to memorize faces for later recognition, the participants’ task was to attend to the photographs presented on the screen and try to remember them for later recall. The 20 photographs in each condition were presented in the center of the screen for 5 s, separated by 2.5 s intervals, in a randomized order for each participant.

After completing the priming part, participants were introduced to the *impression-formation* part, which, they were told, was totally unrelated to the purpose of the study. They were lead to believe that this task was introduced to distract them and to make the later face recognition task more difficult. The task was based on the Donald passage (cf. Srull & Wyer, 1979). However, in the present study, the story was translated into Swedish, and the main character was given a name neutral to gender and race, PP. Participants were told to perform the task carefully as the results were to be used for a future study. As we agreed with a previous critique (e.g. Carver, Ganellen, Froming, & Chambers, 1983; Lepore & Brown, 1997) that its tone is too negative, the passage was softened by inserting a few positive elements. Participants were instructed to read the passage and then rate PP on 10 adjectives representing positive (*intelligent, dependable, thoughtful, kind, and pleasant*) and negative (*hostile, unfriendly, dishonest, narrow-minded, and deceitful*) qualities. The ratings were made on a 10-point scale ranging from 1 (do not agree at all) to 10 (agree completely).

The positive and negative items were combined to form a single index of negativity by reversing the coding of the positive items. This index is our operationalization of implicit prejudice in this and in the following experiments. The reliability of the negativity (implicit prejudice) index was analyzed by combining the scores from all three experiments (Experiments 1–3; $n = 131$), after a z -score transformation within each experiment. This was done to arrive at a more precise reliability estimate, based on as many participants as possible. The internal-consistency reliability of the negativity (implicit prejudice) index was found to be satisfactory (Cronbach $\alpha = 0.78$).

After the impression-formation task, participants completed the face-recognition part, although of no interest for the present study. Participants were then guided to another room and asked to complete a computerized questionnaire containing the Modern Racial Prejudice Scale (Akrami et al., 2000). The reliability of the Modern Racial Prejudice Scale, in the present context, was analyzed using the scores from our three experiments (Experiments 1–3, $n = 131$) for reasons outlined above. The internal-consistency reliability of the scale was found to be satisfactory (Cronbach $\alpha = 0.82$) and of the same size as in our previous study (Cronbach $\alpha = 0.82$; Akrami et al., 2000). The scale included items such as “Discrimination against immigrants is no longer a problem in Sweden” and “Immigrants are getting too demanding in their push for equal rights”.

None of the participants reported any suspicion about any part of the experiment, or noted any relation between the different parts of the experiment. Participants were debriefed, thanked, and dismissed.

2.2. Results and conclusion

A 2 (Prime: immigrant vs. Swede) \times 2 (Participant gender: woman vs. man) between-subjects ANOVA was conducted with the negativity (implicit prejudice) index ($\alpha = 0.70$ for the present sample) as the dependent variable. No significant effect of Prime was found, $F(1, 39) = 0.94$, $P = 0.34$, indicating no differences in mean negativity between participants exposed to immigrant and Swedish primes. More important, however, the Prime \times Gender interaction was found significant, $F(1, 39) = 5.63$, $P = 0.02$. Further, post-hoc analyses according to Fisher's LSD (a powerful test provided that the interaction F -ratio has been found significant) showed that women displayed higher negativity than men in the immigrant, $P = 0.004$, but not in the Swedish prime condition, $P = 0.78$ (see Table 1).

The result that women displayed more negativity toward the target person than men when primed with immigrant photographs was unexpected. Confronted with such a finding, it is important to examine whether it can be replicated or not. Thus, in Experiment 2, we attempt to replicate our first experiment using a perception-without-awareness paradigm (subliminal priming). Although Merikle and Joordens (1997), for example, have argued that priming without attention and priming without awareness are equivalent and address the same underlying mental processes, we wanted to examine whether the gender difference in Experiment 1 might be due to the priming (without attention) paradigm employed there.

3. Experiment 2

3.1. Method

3.1.1. Participants and design

The participants were 46 Swedish students, 20 university students and 26 students at the local authority-administered adult education, 23 women and 23 men, aged between 19 and 37 years ($M = 24.7$ years). The university students took part in the experiment for course credit whereas

Table 1

Mean implicit prejudice (z -scores) across Experiments 1–3 as a function of Prime (Immigrant vs. Swede) and Gender of participant

	Immigrant Prime		Swedish Prime	
	Men	Women	Men	Women
Experiment 1	−0.48 (0.19)	0.74 (0.21)	−0.08 (0.39)	−0.20 (0.29)
Experiment 2	−0.11 (0.19)	0.71 (0.34)	−0.17 (0.22)	−0.39 (0.33)
Experiment 3	−0.19 (0.27)	0.81 (0.15)	−0.40 (0.31)	−0.15 (0.31)

Standard errors in parentheses.

the other participants received cinema vouchers (approximately equivalent to USD/EUR 7). A 2 (Prime: immigrant vs. Swede) \times 2 (Participant gender: woman vs. man) between-subjects design was employed. Participants were randomly assigned to either of two conditions, one exposed to immigrant primes ($n=23$; 11 women and 12 men) and the other to Swede primes ($n=23$; 12 women and 11 men).

3.1.2. Apparatus

The equipment was identical to that in Experiment 1. The exposure duration of each subliminal picture was bounded by the computer hardware. Thus, the 75 Hz monitor screen refresh rate gave an exposure duration varying between 13 and 26 ms.

3.1.3. Stimulus materials

The prime photographs employed in this experiment were the same 40 facial photographs, 20 immigrants and 20 Swedish faces, as used in Experiment 1. However, in this experiment, all photographs were given a dark beige background and were modified to the same size.

3.1.4. Procedure

The participant was told by the experimenter (blind to the priming condition) that he/she was to take part in two unrelated experiments, a “perceptual speed experiment” (the priming part) and an “impression formation experiment” (the impression formation part). All other instructions were presented on the screen. The participant was instructed to focus on the center of the screen, at a distance of 60–70 cm. Participants were tested individually.

In the *priming part*, each participant was exposed to two presentations of each prime. Every presentation started with a dot appearing in the center of the screen, and after 1–6 s (the length of the interval was randomized) the prime was presented. The primes were presented on one out of four different positions on the screen, with a distance of approximately 16 cm between the center of the stimulus face and the center of the screen, outside the parafoveal field (approximately 15°). The order and the location of the primes were randomized, with the only restrictions that the same picture could not appear twice in a row or twice in the same area. Each prime was exposed for 13–26 ms (one screen refresh) and was immediately replaced by the presentation of the mask (a pattern mask, composed of dark beige background with short, brown lines), also exposed for 13–26 ms (one screen refresh). To ensure that the participant focused on the screen, a task was constructed. Each time a prime was presented, an additional mask appeared alone in another corner of the screen. The participant was instructed to locate the “double” flash, which consisted of the prime and the mask.

In the *impression-formation part*, the task was, again, based on the modified Donald passage from Experiment 1 with one minor modification. Thus, the target person of the passage was renamed to *Anders*, a common Swedish name, instead of PP. The reason for this modification was that all previous studies that we knew of had used a male first name (Donald), and we wanted to check if the naming of the target person could affect the results. Participants were instructed to read the passage and then rate *Anders* on the same adjectives and scale as in Experiment 1.

After completing this task, participants were thanked and dismissed. Before leaving the experiment room, however, participants were asked if they had a few minutes' time to spare to help a research colleague. They were told that a colleague was collecting material for a social-psychology study and that the experimenter had promised to help him in collecting some of the

data. Participants were then guided to another room and asked to complete a computerized questionnaire containing, like in Experiment 1, the Modern Racial Prejudice Scale. None of the participants reported any suspicion about any part of the experiment, or noted any relation between the different parts of the experiment. Participants were debriefed, thanked, and dismissed.

3.2. *Results and conclusion*

A 2 (Prime: immigrant vs. Swede) \times 2 (Participant gender: woman vs. man) between-subjects ANOVA with the negativity (implicit prejudice) index ($\alpha=0.76$ for the present sample) as the dependent variable revealed a significant effect of Prime, $F(1, 42)=4.38$, $P=0.04$. Participants exposed to immigrant primes rated the person in the story more negatively than those exposed to Swedish primes. Based on the outcome of Experiment 1, planned comparisons (Bonferroni t -tests; $\mu_{\text{women}} \neq \mu_{\text{men}}$ for immigrant prime, and $\mu_{\text{women}} = \mu_{\text{men}}$ for Swedish prime) revealed that, in the immigrant prime condition, women scored higher on negativity than men, $t(42)=2.96$, $P=0.005$. However, there was no gender difference in the Swedish prime condition, $t(42)=0.79$, $P=0.86$ (see Table 1).

The result of Experiment 2 was much the same as that in our first experiment. Thus, women expressed more negativity to a target person than men after having been primed with immigrant facial photographs. However, when primed with Swedish facial photographs there was no difference in negativity between men and women.

In Experiment 3, we attempt to replicate Experiment 2 with one major procedural modification. To date, most research on automatic stereotype activation has employed either words (e.g. Devine, 1989) or pictures (e.g. Chen & Bargh, 1997) as primes. Therefore, we used the same type of photographs as in Experiment 2 but added the category words “immigrant” and “Swede” to the respective prime photographs, thus allowing simultaneous priming of picture and category word. A second objective for this modification was that we wanted to be certain that the “right” (i.e. Swedes and immigrants, respectively) social categories were really activated.

4. Experiment 3

4.1. *Method*

4.1.1. *Participants and design*

Participants were 45 Swedish students (23 women and 22 men) at the local authority-administered adult education, aged between 19 and 30 ($M=22.5$ years). Participants received cinema vouchers for their participation. The design was a 2 (Prime: immigrant vs. Swede) \times 2 (Participant gender: woman vs. man) between-subjects factorial. The participants were randomly assigned to either of two conditions; one exposed to primes representing immigrants ($n=21$; 11 women and 10 men) and the other to primes representing Swedes ($n=24$; 12 women and 12 men).

4.1.2. *Apparatus*

The experiment was conducted using a Compaq DP4000 computer with a Nokia 446Xpro monitor. The monitor was run at a resolution of 1024×768 , with a 75 Hz monitor screen refresh

rate, as in Experiments 1 and 2. The monitor display was controlled by an Authorware 3 program.

4.1.3. *Stimulus materials*

In a pilot study, the 40 male facial photographs used in Experiments 1 and 2, together with 10 new photographs, were rated by a pool of independent students ($n = 15$) concerning the age of the persons on the photographs and how representative they were of a Swede and an immigrant, respectively. Based on these results, 40 photographs (20 from each group) were chosen, matched on perceived age, and modified to be face-shots with a dark beige background. The word *immigrant* (in Swedish: *invandrare*) was added to the photographs representing immigrant, and *Swede* (in Swedish: *svensk*) to the photographs representing Swedish faces. The words were added onto the lower part of the prime photographs. Two types of mask were used, a pattern mask with a dark beige background, and a “dot mask”, composed of dark beige with colored circles (“dots”, the number varying between six and twelve).

4.1.4. *Procedure*

The participants were told, individually, that they were to take part in two unrelated experiments, a “perceptual counting-speed experiment” (the priming part) and an “impression-formation experiment” (the impression-formation part).

In the *priming part*, each participant was exposed to two presentations of each prime, with an interval of 1–6 s (randomized) between each presentation. The prime was exposed for 13–26 ms (one screen refresh), in one of four parafoveal positions (2–6° of the visual field; the prime was positioned between 3.5 and 6.5 cm from the center of the screen), with a randomized location and order, with the only restrictions that the same picture could not appear twice in a row or twice in the same area. The prime was replaced by the pattern mask, also presented for 13–26 ms (one screen refresh), which in turn was replaced by the dot mask, which remained on the screen for 2 s. After each presentation, the participant was asked to indicate whether an odd or an even number of dots had been presented. Except for the parafoveal positions of the primes, the procedure was designed following Chen and Bargh (1997).

The *impression-formation part* of the experiment was similar to that in Experiment 2, with some modifications. First, we renamed the principal person in the target paragraph to PP, to reduce gender and ethnic biases. Further, we inserted additional positive behavioral descriptions to balance the positive and negative elements of the target paragraph. The rest of the procedure was the same as in Experiment 2.

Two of the participants (one man and one woman) exposed to immigrant primes and one (woman) exposed to Swedish primes reported seeing some pictures in the priming phase. The results of these participants were consequently excluded from further analysis. Finally, all participants were debriefed, thanked, and dismissed.

4.2. *Results and conclusion*

A 2 (Prime: immigrant vs. Swede) \times 2 (Participant gender: woman vs. man) between-subjects ANOVA was conducted with the negativity (implicit prejudice) index ($\alpha = 0.77$ for the present sample) as the dependent variable. The analysis revealed a significant effect of Prime, $F(1,$

38) = 4.14, $P = 0.05$. Participants exposed to immigrant primes rated the person in the story more negatively than those exposed to Swedish primes. Planned comparisons (in accord with those in Experiment 2) showed that women were more negative than men after immigrant priming, $t(38) = 3.53$, $P = 0.001$, whereas there was no gender difference in the Swedish prime condition, $t(38) = 0.88$, $P = 0.77$ (see Table 1).

The result replicates that in Experiments 1 and 2. Thus, women expressed more negativity than men to the target person after having been exposed to immigrant primes, whereas no such difference occurred when using Swedish primes.

5. Overall analysis

A firm conclusion cannot be drawn from individual studies and their P -values (cf. Schmidt, 1996). Consequently, in addition to the analyses presented in Experiments 1–3, we conducted an overall analysis by combining the results from all three experiments ($n = 131$). More important, we also examined the gender difference in *explicit* prejudice scores using the Modern Racial Prejudice Scale (Akrami et al., 2000), which were collected from all participants that took part in Experiments 1–3. Our reason for comparing the implicit prejudice measures of men and women with their explicit prejudice scores was to rule out the possibility that the gender difference in explicit prejudice in our sample did not correspond to the outcome that is usually found in the literature (see Section 1).

5.1. Implicit prejudice

A 2 (Prime: immigrant vs. Swede) \times 2 (Participant gender: woman vs. man) between-subjects ANOVA of the negativity (implicit prejudice) z -scores disclosed a significant effect of Prime, $F(1, 127) = 9.31$, $\eta = 0.26$, $P = 0.003$, indicating that participants exposed to immigrant primes rated the person in the story more negatively than those exposed to Swedish primes. The analyses also showed a significant main effect of Gender, $F(1, 127) = 9.61$, $\eta = 0.27$, $P = 0.002$, that was qualified, however, by a significant Prime \times Gender interaction, $F(1, 127) = 10.78$, $\eta = 0.28$, $P = 0.001$. Planned comparisons (in accord with those in Experiments 2 and 3) showed that women were more negative than men when exposed to immigrant primes, $t(127) = 4.46$, $\eta = 0.37$, Cohen's $d = 1.12$, $P = 0.000$. However, for Swedish primes, a similar analysis disclosed a non-significant difference, $t(127) = 0.13$, $\eta = 0.01$, Cohen's $d = 0.03$, $P = 0.90$ (see Fig. 1).

5.2. Explicit prejudice

To examine gender differences in explicit prejudice, we analyzed participants' scores on the Modern Racial Prejudice Scale. To rule out the possibility that the priming task affected the participants' responses to the scale, we also entered Prime as a factor in our analyses. This resulted in a 2 (Prime: immigrant vs. Swede) \times 2 (Participant gender: woman vs. man) between-subjects ANOVA with the scores on the Modern Racial Prejudice Scale as the dependent variable. The analysis revealed only a significant main effect of Gender, $F(1, 127) = 6.28$, $\eta = 0.22$, Cohen's $d = 0.44$, $P = 0.01$, indicating that men had higher explicit prejudice scores than women

(see Fig. 2). The non-significant ($F_s < 1$) effects of Prime and Prime \times Gender ensure that participants' scores on the Modern Racial Prejudice Scale were not affected by the priming task that preceded the responses to the scale.

5.3. Conclusion

The results of the overall analysis showed that women, but not men, formed a more negative impression of the target individual when primed with immigrant as compared to Swedish facial photographs. Interestingly, women's negativity toward immigrants were almost the same across all three experiments, with mean z -scores ranging from 0.71 to 0.81. Further, the effect size for the gender difference in the immigrant prime condition was large according to Cohen's (1988) terminology based on the d measure, whereas it was negligible in the Swedish prime condition. Finally, the results showed that men, as in previous studies, displayed higher explicit prejudice than women. It can be noted that the effect size for the gender difference in explicit prejudice was markedly lower ($d = 0.44$) than for the gender difference in implicit prejudice ($d = 1.12$). Anyhow, in the present experiments, explicit prejudice does not seem to explain the obtained gender differences in implicit prejudice.

6. General discussion

To sum up, the results of Experiments 1–3 revealed that women showed higher *implicit* prejudice than men. Further, the overall analysis confirmed that the men had higher *explicit* prejudice than the women, which is quite in line with the gender differences in explicit prejudice reported in the literature (see Section 1). Finally, the overall analysis showed that the explicit prejudice scores were unaffected by our priming procedure.

There are two major explanations for the consistent gender differences revealed in the present experiments.

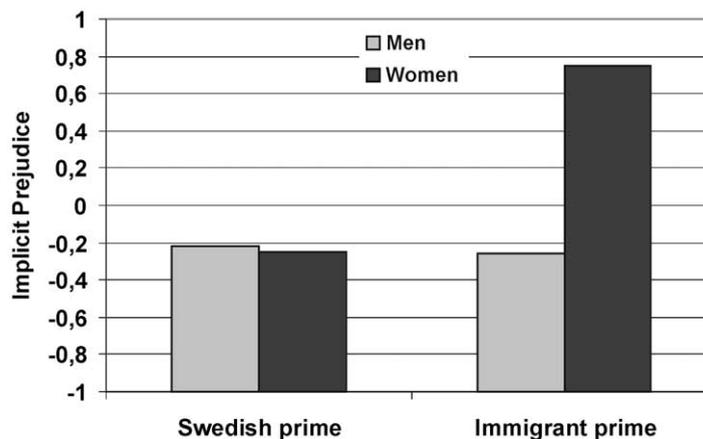


Fig. 1. Mean *implicit* prejudice as a function of gender of participant and pictorial prime (immigrant vs. Swede).

First, although women have been found to express lower explicit racial prejudice than men, they are in fact higher in implicit racial prejudice. This is not a contradiction because an extensive body of research has shown a dissociation between implicit and explicit prejudice (e.g. Augoustinos, Ahrens, & Innes, 1994; Devine, 1989; Kawakami, Dion, & Dovidio, 1998; Lepore & Brown, 1997). However, we must emphasize that an unwarranted over-interpretation of our findings should be avoided. Assuming a dissociation between implicit and explicit prejudice, previous research has not clarified in what way these two types of prejudice contribute to prejudiced *behavior*, that is, discrimination. Thus, a higher implicit prejudice in women than in men does not imply that women would show more discriminatory behavior toward outgroups than men. One interesting idea (suggested by an anonymous reviewer of a previous version of this paper) is that men and women may in fact have the same amount of prejudice but the cultural sex roles might influence the channels that are available for their expression. Thus, it is probably less acceptable for women to express explicit prejudice toward others, especially toward men. This might explain the greater explicit prejudice measured in men as compared to women and the higher implicit prejudice in women as compared to men. However, a look at our data (see Figs. 1 and 2) disclose that the summated prejudice level across the implicit and explicit types is still markedly higher for women than men.

Second, the gender differences obtained here might be due to methodological causes, for example, that our priming procedure might be more sensitive for women than for men. Supporting this second interpretation, some previous studies (e.g. Anooshian & Seibert, 1996; McGivern et al., 1997; McGivern et al. 1998) have documented gender differences in automatic or unconscious memory processes, especially in studies employing pictures as stimuli. Anooshian and Seibert (1996) have shown that the unconscious influences on picture recognition were more pronounced in women than in men, and they concluded that:

Gender differences in unconscious retrieval have significant and far-reaching implications for future research on gender and other individual differences. . . . As just one example, recent discussion of stereotypes and prejudice in terms of their automatic and controlled components (e.g. Devine, 1989) suggest that frameworks based on distinct retrieval processes could be useful in addressing individual differences in prejudice. (p. 644)

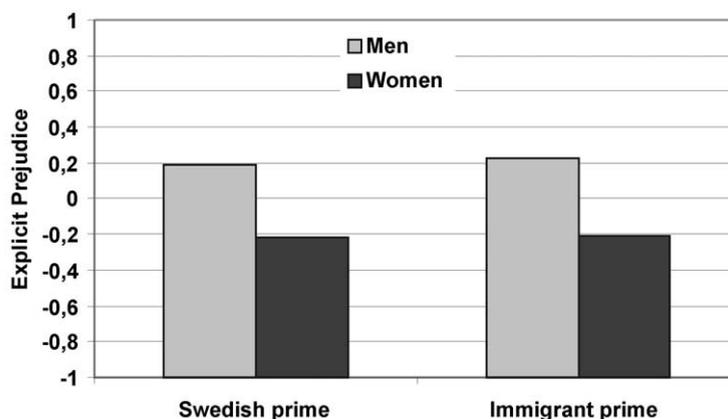


Fig. 2. Mean *explicit* prejudice as a function of gender of participant and pictorial prime (immigrant vs. Swede).

Further, also examining gender differences in processing of pictorial stimuli, McGivern et al. (1997, 1998) confirmed the female advantage in recognition performance. They concluded, “. . .that the gender difference in recognition memory reflects a greater unconscious processing of environmental stimuli in females” (McGivern et al., 1998, p. 223). The cited studies support the selectivity hypothesis put forth by Meyers-Levy (1989) which suggests that women tend to process both relevant and irrelevant information in a comprehensive manner whereas men tend to process information in a more selective way. Against this background, it is plausible that women’s superiority in processing pictorial stimuli, and their advantage in unconscious processing, might explain the gender differences we obtained.

Supporting our methodological choice, Kawakami and Dovidio (2001; see also Gilbert & Hixon, 1991) have argued that:

These stimuli [*male* (our emphasis) facial photographs] offer a more ecologically valid test of the automatic activation of stereotypes. Theoretically, however, it is possible that pictures and category labels may not produce the same results. Because category labels are notably devoid of any other information except the social category, they ensure that people will respond on the basis of category membership. Images of actual people who belong to the group, alternatively, are more externally valid because similar to all social category members, they may elicit responses to specific, potentially idiosyncratic facial cues (Zebrowitz, Montepare, & Lee, 1993) or produce more individualized rather than category-based responses. . . (p. 214)

However, although more ecologically valid, one objection to our interpretations of the present findings could just be the use of *male* pictorial stimuli in our experiments. It could be argued that the gender differences we obtained are due to the gender of the priming stimuli. However, and to the best of our knowledge, with one exception (Cunningham, Preacher, & Banaji, 2001), in all implicit-prejudice studies using facial photographs as primes, the gender of the prime has always been male (e.g. Bargh et al., 1996; Chen & Bargh, 1997; Fazio et al., 1995; Kawakami & Dovidio, 2001; Phelps et al., 2000). The argument for this procedure has probably been the assumption of the “male default” (Brauer et al., 2000; Kawakami & Dovidio, 2001; Zarate & Sandoval, 1995), which in the present context means that stereotypes of prejudiced groups are by default linked to the men rather than the women. This contention is also supported by a study of the cultural stereotypes of immigrants in Sweden (Akrami et al., submitted for publication) where a large portion of the reported stereotypes (e.g., criminal, sexist, aggressive, violent) seem to express male rather than female characteristics. Also, a look at the results of Devine’s (1989, Study 1) examination of the cultural stereotypes of African Americans in the USA, and Lepore and Brown’s (1997, Study 1) analysis of British people’s stereotypes of West Indians, would lead to a similar conclusion. Thus, we argue that the gender differences obtained in our three experiments can not be explained by the gender of the photographs.

The present results, in our view and irrespective of the underlying causes, can have important implications for prejudice research. Thus, our results suggest that the main effect of stereotype priming might vary as a function of the proportion of men and women participating in the study, at least when using photographs as primes. As shown in our three experiments, there was no significant main effect of the prime condition (Immigrant vs. Swedish) for male participants.

Thus, when using samples comprised primarily of men, one would not expect to find any main effect of the priming procedure. On the other hand, the greater the proportion of women in the study the higher is the chance to detect the main effect of the prime. As noted in the introduction, many studies in this area do not even report the proportion of men and women, and when reported, women are over-represented in various degrees (e.g. Augoustinos et al., 1994; Bargh et al., 1996; Chen & Bargh, 1997; Kawakami et al., 1998; Kawakami & Dovidio, 2001; Locke, MacLeod, & Walker, 1994; Wittenbrink et al., 1997). Thus, the main picture found in the stereotyping and prejudice literature, that the priming procedure has been shown to be efficient, might in fact be a consequence of the larger number of female as compared to male participants.

In conclusion, the present study highlights the necessity of extending the current social-psychological models of implicit prejudice and automatic stereotyping to account for individual differences. Further, future research on gender differences in implicit prejudice should examine the generalizability of our findings by employing other procedures to activate stereotypes, for example, by priming with words instead of pictures.

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