

The influence of gender-stereotyped perfumes on leadership attribution

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Abstract

The classification of perfumes as 'women's' and 'men's' fragrances is based on certain gender stereotypes. In two experiments, female and male participants were asked to assume the role of a manager. In Experiment 1, they read an application for the position of a junior manager written by a male or female job applicant. Application papers were prepared with a typically masculine perfume, a typically feminine perfume or no perfume at all (control group). In Experiment 2, participants conducted a job interview with a female or male applicant (a confederate) who had applied the respective perfume or no perfume. Persons with a typically masculine perfume were 'employed' with a higher degree of certainty compared to persons with a typically feminine perfume. Copyright © 2002 John Wiley & Sons, Ltd.

In their 'cultural history of smell' Classen, Howes, and Synnott (1994) describe '... how olfactory codes create and inform power relations between social classes, ethnic groups, and women and men in the contemporary West' (p. 161). Accordingly, women are the 'perfumed sex', and the use of fragrances is recommended and promoted to enhance women's desirability in the eyes of men. In contrast, men are expected to disdain the use of perfume, there is 'no particular need for them to enhance their attractiveness. It is women's duty ...' (p. 163). The gender-stereotyped role prescriptions for heterosexual behaviors which are described here have been changing in recent years. These days, both sexes use perfume for the purpose of managing impressions of personality in social interactions. Perfumes are even classified as 'women's' and 'men's' fragrances, with 'flowery' or 'fruity' fragrances being offered for women, 'spicy' and 'strong (tangy)' fragrances for men.

While 'odor has been almost totally neglected by social psychologists' (Levine & McBurney, 1986, p. 180), the few existing studies found that olfaction plays an important role in person perception. An influence of olfactory cues on social perception (for an overview see Levine & McBurney, 1986), particularly an influence of perfume on impression-formation processes, was found in several studies conducted by Baron (1981, 1983, 1986) since the 1980s: The use of fragrance by informally dressed female confederates positively influenced male participants' impressions of their attractiveness and personal traits. When the female confederates were dressed in a more formal attire, perfume seemed to

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reduce the attraction (Baron, 1981). Fragrance also had an impact on evaluations of job applicants (female confederates wearing a popular and pleasant 'women's' fragrance or no fragrance and male confederates wearing a 'men's' fragrance or no fragrance (Baron, 1983, 1986). In the respective studies, participants evaluated applicants on job-related and personal dimensions in simulated employment interviews. Male participants rated perfumed job applicants lower than non-perfumed applicants on these dimensions; female participants showed the opposite pattern (Baron, 1983). In another study, only female applicants were evaluated. Here, their use of a 'women's' perfume as a tactic of self-presentation in a job interview increased the ratings they received from female as well as from male participants on job-related and personal dimensions (Baron, 1986). The same was true for another tactic of self-presentation: the emission of numerous positive non-verbal cues (e.g. smiling, high level of eye contact, friendly posture). When the two tactics were employed in combination, however, they reduced the ratings of male interviewers, an effect that was interpreted by the author as 'too much of a good thing'. In the reported studies, the impact of fragrance use was thus moderated by other factors: mode of dress (Baron, 1981), sex of participant/perceiver (Baron, 1983), and nonverbal cues (Baron, 1986). Only one of Baron's studies included the sex of stimulus person as an independent variable. This variable failed to exert any significant influence on the evaluation of perfumed job applicants (Baron, 1983). In sum, the results of Baron's work reflect the complex interrelations of olfactory and other social cues in the impression formation process. The application of perfume had neither consistently positive nor consistently negative effects.

It is important to consider the perceptual quality of odors in order to predict their effects on person perception (McArthur & Baron, 1983). Research on olfactory stimuli conducted by Fiore (1992) showed that specific components of fragrances influence impressions of personality in specific ways. Participants (all female in this study) were asked to imagine fictitious persons wearing three different commercial women's fragrances (floral, oriental or chypre) and to evaluate the personality of these persons. The three different fragrances were presented on scent strips. Compared to oriental and chypre fragrances, the floral fragrance triggered lower ratings on traditionally male traits (e.g. competent, professional, career-orientated, confident, assertive). Rather than depending on the mere presence or absence of perfume, the impression formation process is thus apparently influenced by finer distinctions of the cues which result from the expressive quality of aesthetic components: 'If the stimuli for Baron's study were oriental fragrances, associated with the *Traditional Male* factor and other traits compatible with a professional image, the studies may have resulted in higher evaluations on job-related dimensions' (Fiore, 1992, p. 159). Consider the classification of perfumes as 'women's' and 'men's' fragrances that was mentioned above. The association of 'flowery' or 'fruity' fragrances with women and of 'spicy' and 'strong (tangy)' fragrances with men is based on gender stereotypes and is therefore of special interest for the area of research on leadership attribution reported here.

GENDER ROLE STEREOTYPES AND LEADERSHIP ATTRIBUTION

Research on gender stereotypes has consistently demonstrated that men are generally seen as more agent and more competent than women, while women are seen as more expressive and communal than men (e.g. Broverman, Vogel, Broverman, Clarkson, & Rosenkrantz, 1972; Williams & Best, 1982). One area in which gender stereotypes manifest themselves is the attribution of achievement performance and leadership: 'If women in general are believed to be less competent, for example, then a specific woman's performance is viewed less positively and her success is less likely to be explained by assuming ability' (Deaux, 1995, p. 13). Regarding the context of leadership, Schein (1973, 1975) examined the social image of successful middle managers and found that the attributes

ascribed to a 'successful middle manager' yielded a significantly higher correlation with the description of a typical man than with the description of a typical woman. This phenomenon of 'think manager—think male' was confirmed in many subsequent studies (e.g. Brenner, Tomkiewitz, & Schein, 1989; Massengil & DiMarco, 1979; Schein, Mueller, Lituchy, & Liu, 1996; Sczesny, Spreemann, & Stahlberg, presentation at the 12th General Meeting of the European Association of Experimental Social Psychology, Oxford, 1999). Heilman's (1983) lack-of-fit-model provides an explanation of this phenomenon (see also prototype-matching processes, e.g. Lord & Maher, 1991). According to Heilman, 'expectations about how successful or unsuccessful an individual will be when working at a particular job are determined by the fit between the perception of an individual's attributes and the perception of the job's requirements in terms of skills and abilities' (p. 278). For organizational jobs that are male-typed, e.g. leadership positions, there is a lack of fit between the perceived requirements of the job and the skills and abilities typically attributed to women as a group. This presumed lack of fit may increase the likelihood of sex-biased judgments or behaviors (see also 'Role congruity theory of prejudice toward female leaders', Eagly & Karau, in press).

BIOLOGICAL SEX AND OTHER CUES THAT ACTIVATE GENDER STEREOTYPES

Not only does biological sex activate gender role stereotypes, but other cues that are part of a global, multi-faceted gender role stereotype can also activate the attribution of leadership. A multidimensional conception extends the formerly trait-based view of gender stereotypes and opens a more differentiated perspective. According to this conception, stereotypes are composed of diverse components, such as traits, role behaviors, occupations and physical appearance (Deaux & Kite, 1993; Deaux & Lewis, 1983, 1984; Freeman, 1987; Jackson & Cash, 1985). While the salience of a person's biological sex is often considered sufficient for the activation of the corresponding stereotype components, the work of Deaux and Lewis (1984) suggests that gender-stereotyped physical characteristics (e.g. broad shoulders versus dainty physique) can outweigh sex as a basis of judgment. Their results show that the components of gender stereotypes differ in their ability to implicate other components, with physical appearance playing a dominant role (see also Freeman, 1987).

Biological sex—in terms of a social category—activates gender stereotypes resulting in different evaluations of women and men. But other physical aspects such as facial features, voice or smell are probably also associated with gender stereotypes: Sczesny, Spreemann, and Stahlberg (under review; Spreemann, 2000) assumed that—because of the close association of typically masculine attributes with attributes of the typical successful manager—masculine features were expected to trigger the contents of gender stereotypes. The results of four experiments indicated that more pronounced leadership qualities were attributed to stimulus persons with typically masculine physical characteristics than to those with typically feminine characteristics, regardless of the person's biological sex. Since odor can be seen as another facet of physical appearance, it seems worth looking into its influence on person perception.

OVERVIEW OF RESEARCH

The main aim of the present research was to examine the effects of 'women's' and 'men's' perfumes on person perception. We intended to test whether a typically masculine perfume can activate gender stereotypes, similar to visually perceivable characteristics (see above). For this purpose, we conducted two experiments. Our hypothesis at the onset of the investigations was that gender-stereotyped

perfumes have an effect on the evaluation of persons who apply for a leading position in a company. We expected stereotypically masculine and stereotypically feminine perfumes to trigger significantly different responses in the perceivers. The applicants associated with a typically masculine perfume should be employed with a higher degree of certainty than applicants associated with a typically feminine perfume because of the activation of the male stereotype and in correspondence with the phenomenon 'think manager—think male' (Hypothesis 1). Because the application of perfume had shown both positive and negative effects in previous research we compared gender-stereotyped perfumes with a perfume-free condition: The applicants associated with a typically masculine perfume should be employed with a higher degree of certainty than applicants associated with no perfume whereas applicants associated with a typically feminine perfume should be employed with a lower degree of certainty than applicants associated with no perfume (Hypothesis 2). In order to explore the effects of sex of applicants, this aspect was included as a factor in the experimental design.

EXPERIMENT 1

Participants were asked to assume the role of a personnel manager evaluating a single job applicant. They were handed an application for the position of a junior manager. These papers were standardized, they varied only in terms of gender-stereotyped perfume and sex of applicant (stimulus person). The participants' task was to decide whether they would employ the applicant or not and how certain they feel in their decision. The experiment was based on a 3(perfume: typically masculine versus typically feminine versus no perfume) \times 2(sex of stimulus person: female versus male) design.

Method

Participants

Seventy-four students (37 females/37 males) of the University of Mannheim, Germany, participated in the study. Ages ranged from 17 to 41, with a mean age of 23.7 years. Participants were randomly assigned to experimental conditions and received either DM 5 or course credit for their cooperation.

Materials

Participants were told that the study served to investigate managers' selection of personnel on the basis of written applications. They were asked to imagine that they were a personnel manager choosing a person for a position as 'European Business Analyst', an entry-level position, which 'their' company was offering. They received a sheet with the job advertisement which contained a brief description of the activities and requirements the position involved. Participants were also given the application of an alleged applicant (the stimulus person) which consisted of a cover letter and a resumé. These materials were standardized and varied only with regard to the independent variables.

Independent Variables

The application papers were prepared with 'perfume', a typically masculine perfume, a typically feminine perfume or no perfume (control group). The classification of perfumes was based on a pre-test conducted with an independent sample of 60 participants. Five participants each had evaluated

one of twelve perfumes (six labeled by the producers as a feminine and six as a masculine scent). They rated the perfume's masculinity and femininity (rating scales ranging from 1 = *not at all masculine/feminine* to 6 = *very masculine/feminine*). On the basis of these data, we selected the perfume that had been evaluated both as the most masculine ($M = 3.83$) and the least feminine ($M = 2.50$) for the typically masculine condition. The perfume chosen for the typically feminine condition had been judged both as the most feminine ($M = 5.00$) and the least masculine ($M = 1.57$). The application papers were sprayed with the typically masculine or the typically feminine fragrance, according to experimental condition, and were then enclosed in an envelope. In addition, the perfume was also applied to a desk pad which the participants used while they were working on the material.

The independent variable 'Sex of Stimulus Person' was manipulated by using a male versus a female name for the applicant. In the male condition, the applicant's name was 'Mr Peter Keller', while it was 'Ms Petra Keller' in the female condition.

Dependent Variable

Participants were requested to answer the following questions regarding the employment of the applicant: 'Would you employ the job applicant?' (*yes/no*), and 'How certain do you feel in your decision?' (rating scale ranging from 1 = *not certain* to 5 = *very certain*). Both answers were recoded into one variable 'Certainty of Employment Decision' ($-4 = \text{high certainty of refusal}$ to $+4 = \text{high certainty of employment}$).

Sex of experimenter and sex of participant were balanced over the experimental conditions to control for potential influences of these variables. At the end of the experiment, participants were asked whether they had perceived a scent during the experiment. Those who answered in the affirmative had to rate the pleasantness of this scent at the end of the experimental session (rating scale ranging from 1 = *not at all pleasant* to 5 = *very pleasant*).

Procedure

The application papers and the desk pad were prepared as described above. Only one perfume condition was tested in the same room on each day of the experiment. Participants were guided into the room and were asked to sit down at the desk. On the desk were the instructions and the job advertisement. The instructions contained the following cover story (example: male stimulus person):

'It is the aim of this study to investigate how personnel managers select personnel for leading positions on the basis of written applications. We ask you to assume the role of an upper-level manager whose task it is to decide on the employment versus non-employment of a person. You will be given a job advertisement and an application for the respective position. The application consists of a cover letter and a resumé, in this case the application of Mr Keller. Try to form an impression of this applicant. Please read the papers carefully—twice, if necessary.'

After reading the job advertisement, participants received an envelope with the prepared application papers. They read these papers in order to evaluate the applicant's suitability for the position. Before making their decisions, participants returned the application papers to the experimenter. After completion of the experiment, participants were questioned about the cover story and the hypothesis of the experiment. None of the participants were able to guess the hypothesis. When questioned, 88.5% of the participants in the typically masculine perfume condition and 75% in the typically feminine

Table 1. Experiment 1: means (and standard deviations) of certainty of employment decisions by perfume and sex of stimulus person

	Sex of stimulus person		
	Female	Male	Total
Perfume			
Typically masculine	1.46 (2.63)	2.62 (2.02)	2.04 (2.37)
Typically feminine	0.50 (3.09)	0.67 (2.15)	0.58 (2.60)
No perfume	2.91 (1.04)	2.54 (0.78)	2.71 (0.91)
Total	1.58 (2.58)	1.92 (2.58)	

Note: $N = 74$; scores ranging from $-4 =$ high certainty of refusal to $+4 =$ high certainty of employment.

perfume condition stated that they had perceived a fragrance; in the control condition (no perfume) 12.5% of the participants reported that they had noticed a fragrance.¹ Finally participants were debriefed.

Results

Data were analyzed with a 3×2 (perfume \times sex of stimulus person) factorial ANOVA and three planned contrasts. All means and standard deviations are summarized in Table 1.

As predicted, persons with a typically masculine perfume were employed with a higher degree of certainty than persons with a typically feminine perfume ($M = 2.04$ versus $M = 0.58$; scores ranging from $-4 =$ high certainty of refusal to $+4 =$ high certainty of employment; $F(2, 68) = 6.37$, $p = 0.003$; one-sided *a priori* contrast $p < 0.05$; there were no other significant effects, all other F 's ≤ 0.83 , all other p 's > 0.44). Regarding the comparisons of perfume versus non-perfume use applicants whose papers had *not* been sprayed with perfume ($M = 2.71$) were employed with a higher degree of certainty than applicants with typically feminine perfumed papers ($M = 0.58$; one-sided *a priori* contrast $p = 0.001$). Although the comparison between the no perfume versus typically masculine conditions reached no significance, applicants with non-perfumed papers were also evaluated more favorably than applicants with typically masculine perfumes ($M = 2.71$ versus $M = 2.04$). Figure 1 shows the cell means for the effect of perfume.

To examine the association of perfume, i.e. the expected difference between feminine and masculine perfume, with leadership competence in more detail, we performed a mediation analysis, including the perceived 'Pleasantness of Perfume' as a potential mediator variable. The following analyses are based on the answers of those participants of the two perfume conditions who claimed to have perceived a scent ($N = 41$). Prior to describing the actual mediation analysis, it is important to note that the following preconditions for assessing mediation were met (Baron & Kenny, 1986): First, a *t*-test for independent samples was performed to ascertain that the perfume manipulation had significantly influenced the potential mediator variable 'Pleasantness of Perfume'. The result showed that the typically feminine perfume was rated as significantly more pleasant than the typically masculine perfume ($M = 3.11$ versus $M = 2.22$, $t = -2.30$, $df = 39$, $p = 0.027$; scores ranging from $1 =$ not at all pleasant to $5 =$ very pleasant). To make sure that a second precondition for assessing mediation was met, we calculated correlations: 'Pleasantness of Perfume' was significantly correlated

¹We decided to include those participants who reported that they had not perceived a fragrance, for a perfume might have an effect even if a participant is not aware of its presence (e.g. Schilcher & Wippich, poster presented at the Tagung experimentell arbeitender Psychologen, Marburg, 1998). This constitutes a conservative test of our hypotheses.

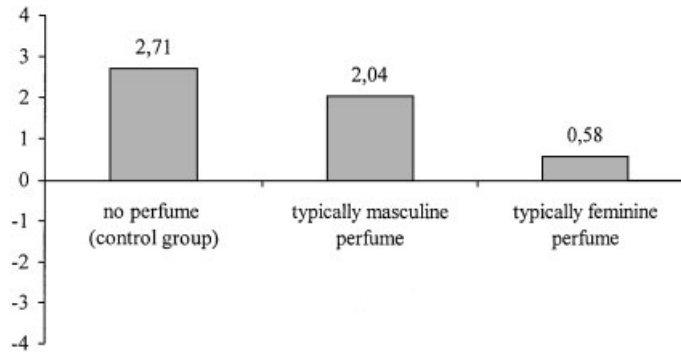


Figure 1. Main effect of perfume in Experiment 1 (application papers): means of certainty of employment decisions (scale ranging from $-4 = \text{high certainty of refusal}$ to $+4 = \text{high certainty of employment}$)

with 'Certainty of Employment Decision' ($r = 0.43$, $p = 0.006$). To assess the degree to which 'Pleasantness of Perfume' had affected the dependent variable 'Certainty of Employment Decision', we performed a one-way analysis of variance with the factor 'Perfume' (typically masculine versus typically feminine) and 'Certainty of Employment' as a dependent variable. For this analysis we used the reduced sample of participants who had reported awareness of a fragrance. This analysis confirmed once more that persons with a typically masculine perfume were employed with a higher degree of certainty than persons with a typically feminine perfume, $F(1, 48) = 4.27$, $p = 0.044$ ($M = 2.04$ versus $M = 0.58$; scores ranging from $-4 = \text{high certainty of refusal}$ to $+4 = \text{high certainty of employment}$). We then repeated this analysis adding 'Pleasantness of Perfume' as a covariate. The results documented a significant effect of the potential mediator 'Perceived Pleasantness of Perfume', $F(1, 38) = 14.80$, $p < 0.001$: a higher degree of pleasantness corresponded to a higher degree of certainty of employment. Nevertheless, the above described main effect for 'Perfume' remained significant, $F(1, 38) = 6.96$, $p = 0.012$, with typically masculine perfume corresponding to a higher degree of certainty of employment than typically feminine perfume ($M = 1.91$ versus $M = 0.94$). Thus the effect of perfume was not mediated by the pleasantness of the scent.

Discussion

As predicted, applicants with a typically masculine perfume were 'employed' with a higher degree of certainty than applicants with a typically feminine perfume. This can be interpreted in terms of the lack-of-fit hypothesis in leadership evaluations (Heilman, 1983). When a feminine perfume activates the feminine stereotype, this should result in a lack of fit between this stereotype and the supposed requirements of the leadership position. Thus this result is in line with the 'think manager—think male' phenomenon. It is not mediated by the pleasantness of the fragrances concerned, therefore this alternative explanation can be ruled out. Obviously it is not visual cues of physical appearance alone that activate gender stereotypes (e.g. Deaux & Lewis, 1984) and hereby influence the attribution of leadership (Sczesny, Spremann, & Stahlberg, under review; Spremann, 2000). Although in the present experiment this link was not tested explicitly the above-reported result by Fiore (1992) also supports our major hypothesis.

The use of perfume seems to be disadvantageous for the applicants. What can account for the different evaluations of applicants with perfume versus without perfume? As previous research has shown, the use of perfume can lead to unfavorable evaluations in a professional context (see Baron,

1983). Our results indicated that using a typically feminine perfume in the context of employment decisions leads to a lower acceptance for a leadership position compared to a control group without perfume. Most of the participants in this experiment had been aware of a perfume, apparently the scent was rather strong and transcended a subliminal threshold. The use of a fragrance may have been perceived as 'unprofessional' or 'too much of a good thing' (Baron, 1986) and may thus have evoked the negative evaluations reported. Moreover, the use of perfumed application papers as our method of presenting the olfactory stimulus is uncommon and may have caused negative attributions. Although none of the participants had guessed the hypotheses, they might have been irritated by the stimulus material since the use of perfumed application papers is uncommon. The scent could also have been perceived as too strong. Experiment 2 was planned to avoid this limitation and test for the reliability of the findings of Experiment 1.

EXPERIMENT 2

Experiment 2 was planned to replicate the effect of gender-stereotyped perfumes on person perception. Regarding the above-described explanation for the different effects of perfume use versus no perfume we were looking for a more natural setting in Experiment 2 in order to avoid negative attributions in terms of 'too much of a good thing' (Baron, 1986). Therefore participants interacted with stimulus persons who wore the respective perfumes. They evaluated the applicants in the framework of a standardized job interview. In creating face-to-face interactions, the ecological validity of the experiment should be increased and the awareness of perfume should be lowered.

As a further extension of Experiment 1, influences of participant's sex were explored. Some earlier studies had identified participant's sex as a moderating variable in the evaluation of leadership and performance of men and women (e.g. Eagly, Makhijani, & Klonsky, 1992). Male participants were found to evaluate women more negatively relative to men than female participants did. In addition, a few studies on the 'think manager—think male' phenomenon found that female participants did not associate the image of a successful leading figure primarily with men (e.g. Brenner et al., 1989; Massengil & DiMarco, 1979). This would suggest that women's view of leading positions is less male-biased. In many other studies (e.g. Schein, 1973, 1975; Sczesny et al., under review), however, participant's sex caused no such differences so that the findings are rather heterogeneous. Furthermore, previous research has indicated that women and men differ in the identification and evaluation of smells (Doty, 1986). In the research on olfactory cues, male participants rated perfumed job applicants lower on job-related and personal dimensions than non-perfumed applicants; female participants showed the opposite pattern (Baron, 1983). To explore the effects of participant's sex, we included it as a factor in the experimental design of Experiment 2.

Method

Participants

One hundred and sixteen students participated in the experiment (59 females/57 males). Their ages ranged from 19 to 41 years ($M = 22.7$). Again participants were approached at the University of Mannheim and were randomly assigned to experimental conditions. They received either DM 10 or course credit for their cooperation.

Materials

Participants were told that the study investigated the quality of personnel managers' decisions on employment under circumstances where only limited information is available. They were asked to conduct a job interview in the role of a personnel manager, with an alleged second participant assuming the role of the applicant for a junior management position (for this procedure, see Baron, 1983): The 'second participant', however, was a (female or male) confederate of the investigators and served as a stimulus person. The confederate gave standardized responses to five 'core questions'. Participants received index cards on which the questions were written and were instructed to ask them in the given order. The 'applicant's' responses to these questions had been prepared in advance. The confederates had memorized the responses, had practiced them and reproduced them in a standardized manner.

Independent Variables

The stimulus persons had used the respective 'Perfumes' on themselves (typically male perfume, typically female perfume, or no perfume at all; see Experiment 1). To avoid individual differences as the fragrance unfolded, confederates did not apply the perfume directly to their skin. Instead, their shirts and blouses were sprayed with the fragrances. When data collection took longer, the perfume was applied a second time. In the control group, no perfume was used. In all experimental conditions, the confederates refrained from using any other fragrance. They were dressed in a relatively standardized manner wearing white shirts/blouses and black trousers. To increase the perceptibility of the fragrance in the perfume conditions, participants were instructed to shake hands with the 'applicant' at the beginning and the end of the interview. Moreover, participants were seated in such a way that the stimulus persons passed them at a close distance when taking their seat.

The independent variable 'Sex of Stimulus Person' was varied by presenting one of two female or one of two male confederates as the job applicant. They were introduced as Mr or Ms Keller.

The independent variable 'Sex of Participant' was recorded in the questionnaire which contained questions on demographic data, as in Experiment 1. Female and male participants were randomly distributed over experimental conditions in approximately equal numbers.

Dependent Variable

Again the 'Certainty of Employment Decision' was measured as described in Experiment 1.

To avoid effects of the experimenters' sex, the appearance of female and male experimenters was balanced over conditions.

Procedure

The experimenter guided the participant into the experimental room (where only one 'Perfume' condition was being tested and which was aired thoroughly after each interview). The participant then read the instructions which described, among other things, the alleged objectives of the investigation (the cover story):

'Selection procedures aim at identifying a person who is able to cope successfully with a high degree of leadership responsibility. During the past years, complex questioning techniques and methods have been developed for this purpose (e.g. assessment centers). These methods, however,

are expensive for the company concerned. It is therefore the aim of the present investigation to test whether standardized core questions could serve equally well to provide a first, but sufficient impression of applicants. . . . Please try to imagine yourself in the role of a leading manager. You are responsible for the selection of personnel in your company. It is your task to find a junior manager (middle level of management) for your company, a modern service enterprise. The person you will meet today was selected for this job interview because of her/his excellent resumé. Please conduct the following conversation to find out whether you consider this person suitable for the respective position.'

After the participant had read the instructions, the confederate was led into the room and was introduced as Ms or Mr Keller, the job applicant. The participant then received the five standardized questions which were typed on separate index cards (example: 'Which are your professional goals for the next five years?'). The questions were to be asked in a fixed order, additional questions were not permitted. In the interview, the confederate gave the prepared standardized answers (example: 'First I intend to learn the ropes in this company. I also hope to be able to carry out the duties entrusted to me to the full satisfaction of my employers. Later I would like to develop my own goals and concepts and be involved in their realization, and to be successful in communicating my ideas and aims to my co-workers'). After the interview, participant and confederate said goodbye and the experimenter accompanied the confederate out of the room. Subsequently the participant was asked for his/her employment decision (see above). Having done this, the participant was questioned about the cover story and hypotheses. Again, none of the participants gave a correct guess at the hypotheses of the experiment. When questioned, 33.3% ($n = 13$) of the participants in the typically masculine perfume condition and 8.1% ($n = 3$) in the typically feminine perfume condition stated that they had perceived a fragrance. In the control condition (no perfume) none of the participants had been aware of a fragrance. Finally, participants were debriefed.

Results

Data were analyzed with a $3 \times 2 \times 2$ (perfume \times sex of stimulus person \times sex of participant) factorial ANOVA and three planned contrasts. All means and standard deviations are summarized in Table 2.

As postulated, persons with a typically masculine perfume were employed with a higher degree of certainty than persons with a typically feminine perfume ($M = 1.95$ versus $M = 1.00$; scores ranging from $-4 = \text{high certainty of refusal}$ to $+4 = \text{high certainty of employment}$; $F(2, 104) = 2.40$, $p < 0.096$; one-sided *a priori* contrast; $p < 0.05$). Regarding the comparisons of perfume versus non-perfume use applicants wearing a typically masculine perfume ($M = 1.95$) were employed with a higher degree of certainty than applicants without perfume ($M = 0.88$; one-sided *a priori* contrast; $p < 0.05$); the comparison between the no perfume versus typically feminine perfume conditions reached no significance ($M = 0.88$ versus $M = 1.00$; $p = \text{ns}$). The cell means are depicted in Figure 2.

In addition, female participants reported a higher degree of certainty to employ the applicant than male participants ($M = 2.00$ versus $M = 0.53$; $F(1, 104) = 11.42$, $p = 0.001$). Furthermore the three-way interaction between 'Perfume', 'Sex of Stimulus Person', and 'Sex of Participant' was marginally significant, $F(2, 104) = 2.64$, $p < 0.076$.² None of the follow-up comparisons regarding this interaction

²In the following conditions stimulus persons with a typically masculine perfume were employed with a higher degree of certainty than persons with a typically feminine perfume: female and male participants evaluating male stimulus persons ($M = 2.80$ versus $M = 2.22$ and $M = 0.89$ versus $M = -0.56$), male participants evaluating female stimulus persons ($M = 2.33$ versus $M = 0.50$). Female participants employed female applicants with a typically masculine perfume to a very similar degree of certainty as female applicants who had used a typically feminine perfume ($M = 1.73$ versus $M = 1.89$).

Table 2. Experiment 2: means (and standard deviations) of certainty of employment decisions by perfume, sex of stimulus person and sex of participant

Perfume	Sex of stimulus person				Total
	Female		Male		
	Sex of participant				
	Female	Male	Female	Male	
Typically masculine	1.73 (2.15)	2.33 (1.23)	2.80 (0.79)	0.89 (2.98)	1.95 (2.01)
Typically feminine	1.89 (2.03)	0.50 (2.84)	2.22 (1.72)	-0.56 (2.79)	1.00 (2.56)
No perfume	2.00 (2.21)	-0.70 (2.95)	1.40 (2.80)	0.80 (2.20)	0.88 (2.66)
Total	1.27 (2.46)		1.28 (2.47)		

Note: $N = 116$; scores ranging from $-4 =$ high certainty of refusal to $+4 =$ high certainty of employment.

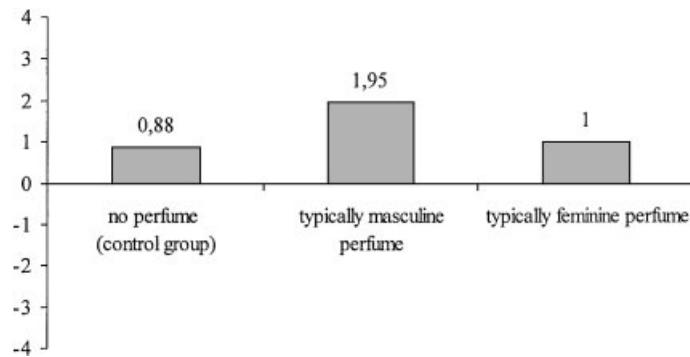


Figure 2. Main effect of perfume in Experiment 2 (job interviews): means of certainty of employment decisions (scale ranging from $-4 =$ high certainty of refusal to $+4 =$ high certainty of employment)

reached significance (Scheffé tests; $p = ns$). No other significant effects were found, all other F 's < 0.95 , all other p 's > 0.39 .

Due to the small number of participants who had perceived a scent ($N = 16$), it was not possible to perform a mediation analysis similar to the one in Experiment 1 in order to examine the effect of pleasantness of perfume on the association of perfume with leadership competence.

Discussion

In Experiment 2 the predicted effect of perfume on certainty of employment, that had already been documented in Experiment 1, was replicated. Compared to persons with a typically feminine perfume, persons with a typically masculine perfume were 'employed' with a higher degree of certainty. Again, these results are in line with the 'think manager—think male' phenomenon.

As suggested, in the more natural setting of job interviews the use of perfume did not cause unfavorable evaluations compared to a control group without perfume. Obviously for many participants the scent did fall below a subliminal threshold in these face-to-face interactions: Most

of the participants had not been aware of a perfume. But even in the absence of awareness, perfume exerted significant influence on the perception of leadership in the direction of the 'think manager—think male' phenomenon.

Sex of participant—independent of perfume use and sex of stimulus person—played a role for the hiring decisions. Female participants were more certain in their decision to 'employ' applicants than were male participants. Similar sex-of-rater biases in job evaluation ratings have already been reported in some but not the majority of former studies (e.g. Arvey, Passino, & Lounsbury, 1977). We will come back to this finding in the general discussion.

GENERAL DISCUSSION

The present research contributed to a neglected research area, the influence of olfactory cues on social perception (see Levine & McBurney, 1986). Based on previous studies by Baron (1981, 1983, 1986), our research confirms that olfaction plays an important role in person perception. Both experiments gave first evidence that gender-stereotyped perfumes are important for hiring decisions: persons wearing a typically masculine perfume were consistently 'employed' with a higher degree of certainty than persons wearing a typically feminine perfume. In correspondence to the phenomenon 'think manager—think male' (the impact of biological sex; e.g. Brenner et al., 1989) and in addition to visual aspects of physical appearance (e.g. Deaux & Kite, 1993; Sczesny et al., under review; Spreemann, 2000), olfactory information triggered probably gender stereotypes in the present experiments. The results cannot be explained with a systematically differing pleasantness of the perfumes based on the finding that pleasantness ratings do not play a mediating role (see the mediation analysis in Experiment 1). Instead we assume that the respective perfumes activated gender-stereotypes. There is some evidence for this assumption in previous research (see Fiore, 1992). Stereotypes represent semantic associations which lead to automatic activation of stereotype attributes once a specific stereotype component becomes salient (Banaji & Hardin, 1996; Blair & Banaji, 1996; Gilbert & Hixon, 1991; see also implicit stereotypes, e.g. Greenwald & Banaji, 1995). Nevertheless, there remain some open questions for future research:

While the results of Experiment 1 with written applications clearly indicate that the use of perfume caused unfavorable evaluations in this context, the results of Experiment 2 did not show a comparable negative effect in face-to-face interactions. How can these inconsistencies be explained? It can be assumed that the strength of perfume is the relevant moderator of the different findings in Experiments 1 and 2 reported above: The more a person's odor differs from normative expectations (e.g. professional roles, gender roles), the more attention it is likely to attract and the more it will tend to stimulate attributional analysis. Violation of odor expectations may be attention-provoking and may elicit a heightened evaluative response (either positive or negative, depending on the valence of the odor; Schneider, Hastorf, & Ellsworth, 1979). If a scent transcends specific thresholds in a professional context, it is likely to be perceived as 'unprofessional' in terms of 'too much of a good thing' (Baron, 1986). This may lead to negative evaluations. Thus these inconsistencies may be attributed to the dominance of either automatic or controlled information processing (for an overview, see Dovidio, Kawakami, Johnson, Johnson, & Howard, 1997). In future research, the role of possible moderators such as the strength of the olfactory cue in the processing of olfactory information needs to be analyzed.

Regarding the perception of perfume, there were no differences between female and male participants as has been shown in previous research on olfaction (see Baron, 1983; Doty, 1986). In Experiment 2, female participants were more benevolent in their hiring decisions compared to male

participants. It might be the case, for example, that female raters tend to show 'benevolence' in face-to-face interactions such as job interviews (see Experiment 2), but not in anonymous evaluations based on written materials (see Experiment 1). Although some authors have also reported similar effects (see above) Mount and Ellis (1989) have reviewed empirical studies in this respect and concluded that rater's sex has little or no effect on job evaluation ratings, at least in laboratory settings. Future research should therefore investigate under which conditions female and male raters differ in job evaluations.

In our opinion the expenses on perfume in contemporary societies are emphasizing that the influence of perfume on person perception is an important issue for future research.

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