

Smelling Away: How our Sense of Smell Can Influence our Behavior

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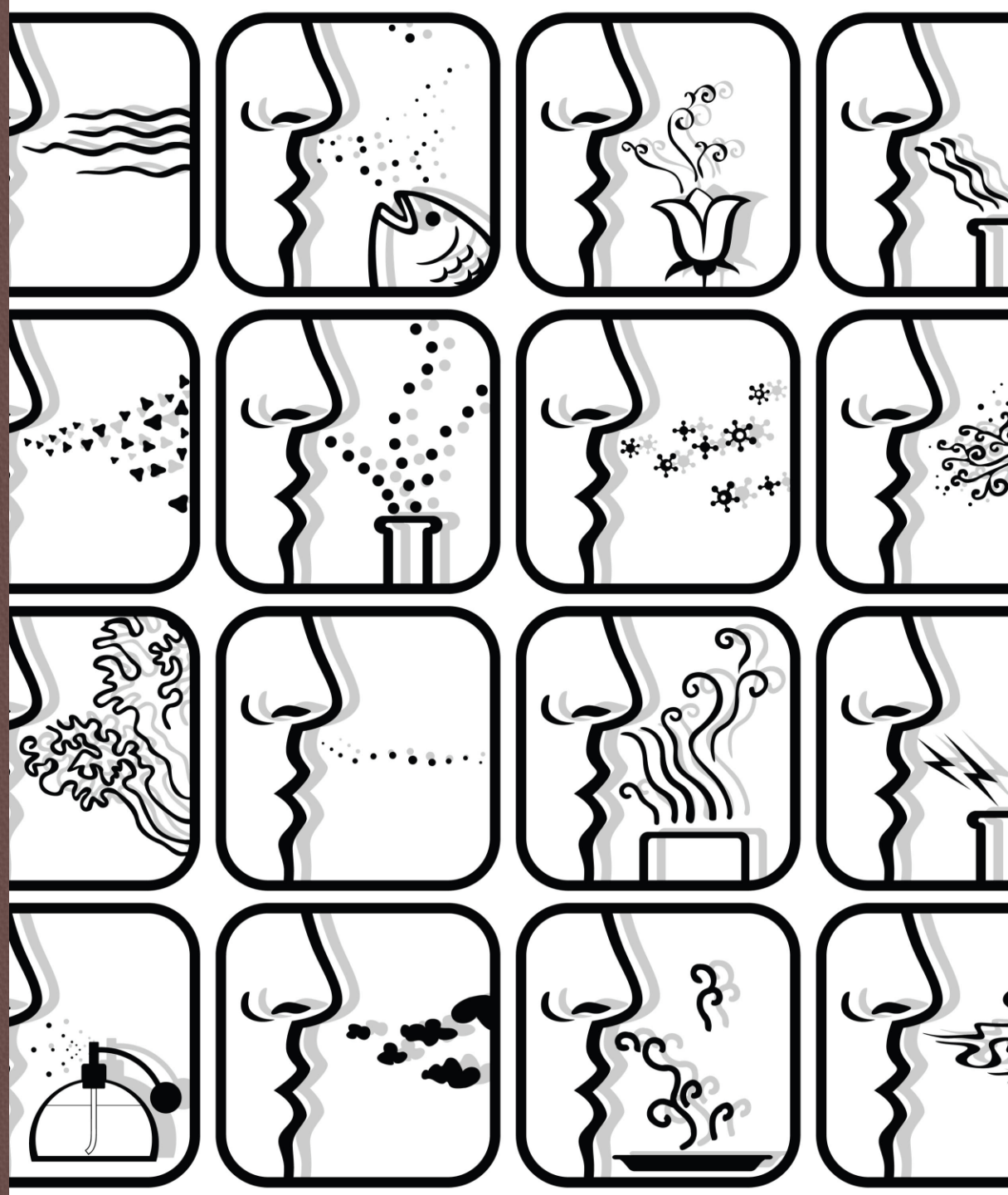
Park University

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Abstract

Studies indicate that our sense of smell can have a powerful effect on our behavior and even determine our social preferences. The following report analyzes the physiological aspect of our olfactory system and its connection to our emotions, the cultural norms that drive our perceptions of what constitutes a pleasant or unpleasant smell, the consequences of such perceptions, and how the principle of association plays an important role in our decisions. A field experiment was conducted to explore people's reactions to a request in the presence of a socially offensive smell.

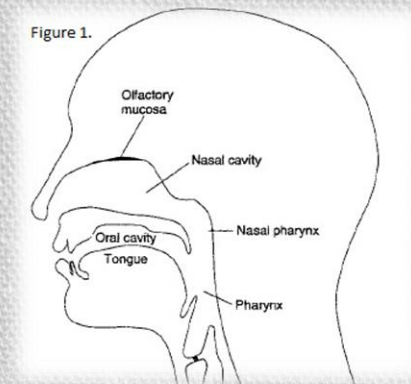
Literature Review

- Our sense of smell is perhaps the most pervasive of all senses as it has the ability to evoke memories and emotions in a vivid manner (Hirsch, 1995). Even though our vocabulary lacks adjectives to describe a scent or odor in the same way we do with colors or textures, our sense of smell has been recognized as being capable of influencing our social preferences, altering our mood and cognition, helping us memorize, and even regulating mate selection (Li, Moallem, Paller, & Gottfried, 2007).
- German writer Patrick Süskind (1986) even captured in his novel *Perfume: The story of a murderer*, the effect of the sensations recorded by our olfactory system:

Odors have a power of persuasion stronger than that of words, appearances, emotions, or will. The persuasive power of an odor cannot be fended off, it enters into us like breath into our lungs, it fills us up, imbues us totally. There is no remedy for it (p. 82).

Literature Review (Cont.)

- Our brain contains over one thousand receptors that can detect all the different components of a particular odor; nevertheless, a smell is usually classified unidimensionally as pleasant or unpleasant depending on individual preferences (Yeshurun & Sobel, 2010).
- Our nose and mouth—two separate entryways to our olfactory receptors—are directly connected with the limbic system, an area of the brain associated with emotions where chemical stimuli are converted into patterns of neural activity (Stevenson & Boakes, 2003).
- The connections between the different structures within this area of the brain contribute to the phenomenon called olfactory-evoked recall: The recollection of a past memory stimulated by an odor (Hirsch, 1995).



- Figure 1. Cross-section of the head, illustrating the entryways to the olfactory system (via the nose or nasal pharynx and oral cavity) (Stevenson & Boakes, 2003).

Literature Review (Cont.)

- Even though we tend to assign odors pleasant or unpleasant qualities, there are no intrinsically ‘good’ or ‘bad’ smells, just smells that we perceive differently depending on how we subjectively interpret and experience the world (Bering, 2009). Therefore, the associations we make between experiences and smells are ultimately what determine the attributes we bestow upon a particular odor. In social settings, how we categorize some else’s odor is many times all it takes for us to welcome or decline a request to interact with that person.
- Odors affect our social behaviors more than we realize or are willing to realize. Aside from the negative responses an obvious stench may provoke on us, our brain is hardwired to filter through our noses the “social information” produced by other people’s odors (Bering, 2009, para. 2).
- These chemical signals—although stronger in lower animals—serve as a means of communication by triggering a social response in other members of our species. Among other things, our sense of smell and the social information we receive through our olfactory receptors are partly responsible for regulating our sexual attraction, and therefore, our mate selection. In these sense, the way we perceive someone’s odor in our minds is what “modulates our feelings of attraction toward them” (Bering, 2009, para. 8).

Literature Review (Cont.)

- Even though there are no intrinsically good or bad smells, our culture is concerned—practically obsessed—with concealing our natural odors. Americans spend billions of dollars a year to look and smell a certain way; a behavior that is directly associated with the socially constructed concepts of beauty and attractiveness. The idea of what constitutes a pleasant smell has been so widely accepted, that breaking the norm is regarded by many as socially inappropriate.
- Furthermore, many fear being caught in public with (‘bad’) odor because of the stigma it carries, as a strong or ‘offensive’ odor is often caused by poor personal hygiene. There are of course, other causes of unpleasant body odor (including illnesses); nevertheless, and regardless of its source, the negative connotation associated with it may potentially harm an individual’s social life, and consequently lead to a loss of self-esteem (Li et al., 2007).



Literature Review (Cont.)

- This idea of cleanliness—particularly the absence of body smell—was not always tied to attractiveness, however (Woersdorfer , 2010). In past centuries, cleanliness was a symbol of social status. The concept evolved during modern times into an expectation—a social norm—that everyone held about everybody else, and so the “level of the individual’s consumption of cleanliness [became] socially determined” (Woersdorfer, 2010, p. 55). Needless to say, the existence of this norm not only affects how people care for their personal hygiene but also their behavior as consumers, as everyone looks at what others consider an acceptable level of cleanliness in true social proof fashion.
- Our social behavior is not limited to our perception of unpleasant smells. Fragrances—or our own idea of pleasant scents—can also affect the way we perceive and interpret our environment.



Literature Review (Cont.)

- A study conducted in a casino in Las Vegas showed that pleasant ambient odors can impact consumers' behavior. The researchers measured the amount of money gambled in three different slot-machine areas (two odorized with two different pleasant aromas and one unodorized control) during a weekend. Even though the amount of scent used was not subliminal (as it was sprayed at suprathreshold levels), the results of the study showed that the patrons in one of the odorized areas gambled 45 percent more than in any of the other two (Hirsch, 1995). It was concluded, however, that not all pleasant aromas may impact consumers' behavior positively (i.e. increasing the amount of money they spend), as the revenue in the other odorized area was not significantly different from that in the controlled slot-machine area.
- Conversely, another study examined the effect subliminal smells can have on our social preferences. The participants were asked to sniff at intervals a bottle containing a pleasant (lemon), neutral (ethereal), or unpleasant (sweat) odor at subthreshold levels, and then presented with eight photographs of faces with neutral expressions.

Literature Review (Cont.)

- The results indicated that faces were rated less likable following the unpleasant smell, which prompted the researchers to conclude that “subliminal odors can influence social likeability judgments”, and that “it is in the absence of conscious awareness that odors best exert their effects” (Li et al., 2007, p. 1048).
- Other studies also demonstrated the effects that pleasant or unpleasant odors can have on us. For instance, a case study showed that foul odors exacerbated a patient’s already existing pain in his elbow and hand (Villemure, Wassimi, Bennett, Shir, & Bushnell, 2006); whereas another showed that people were more willing to respond to a request made by a same-sex individual when in the presence of pleasant ambient odors, such as baking cookies and roasting coffee (Baron, 1997).

Questions/Hypotheses

- Scents seem to play a key role in social settings; but why is our judgment blurred or our will bent in the presence of pleasant or unpleasant odors? According to the association principle, we tend to connect two or more things together (objects, ideas, smells, etc.) and automatically infer a conclusion based on their association.
- The presence of a smell at a conscious or subliminal level can alter the behavior of individuals from their social interactions in a public context to more intimate activities such as courtship. As technological advances continue to shrink the distances between cultures and their members, we find ourselves connecting with individuals who, though intrinsically hardwired in the same way, may not share our perceptions about the world.
- Without a doubt, we are social beings who, in one way or another, develop and nurture interpersonal relations. For the most part, our personal relationships reflect our standards of attractiveness as we tend to associate with people we like and feel comfortable having around. These relationships are mostly mutually-beneficial since they are, to a great extent, based on the principle of reciprocity: An endless cycle of requests and retribution. As proposed in the literature review, our olfactory system may play an important role in our selection of the individuals with whom we want to interact.

Questions/Hypotheses (Cont.)

- Taking into account the various aspects of the previously mentioned studies, the present research intended to observe individuals' willingness to comply with a request in the presence of a socially offensive smell. It was predicted that:
 1. While people would turn down a request when in the presence of a socially offensive smell that was perceived before or while the request was being made,
 2. People who had not perceived the smell before or during the request would comply with said request but exhibit a reaction to the smell (such as wrinkling, touching, or wiggling the nose, stepping back from a previous position, or fanning the air).

Method

Data Collection

- The collection was conducted on a Sunday, between 1:30 and 4 o'clock in the afternoon, with a temperature of 60 degrees Fahrenheit and partially cloudy sky; the temperature remained stable during the data collection.
- Fifteen passersby were approached in a public space (front yard and exterior stairs of the main library branch in Columbus, OH) with a request to participate in an independent survey on the recently unemployment rate drop. The two questions included in the survey were: “Considering the 200,000 plus jobs created in March, do you think that is a sign that we are finally getting out of the recession?”, and “Do you think the unemployment rate will continue to drop in the upcoming months?”. The responses were recorded on a sheet indicating participation, respondent’s gender, and their answers to the questions.

Method (Cont.)

- The researcher (female) wore casual clean clothing (jeans, black hoodie, and black sneakers), light make-up, and no perfume in both conditions. The general appearance was kept identical while surveying both groups, but a smell was introduced in the experimental portion of the data collection. A solution of processed fish and vinegar diluted with water was used to spray the researcher's clothing.

Results

Data Analysis

- Even though the samples were disproportionate in size (control=10; experimental=5), all 15 passersby that were approached (nine men and six women) agreed to participate in the survey, indicating no difference between the conditions.
- Furthermore, complying with the request indicated that the smell was not detected (neither at the subthreshold nor suprathreshold levels) before or while the request was being made, or that the group included in this study did not perceive the smell as socially offensive.
- Additionally, no reactions (such as wrinkling, touching, or wiggling the nose, stepping back from a previous position, or fanning the air) were observed while surveying the experimental group. The lack of reaction to the smell indicated again that the smell was too subtle to be perceived or that the group did not find the smell offensive enough to react to it. It could have also signified that because they had already accepted the request, they felt compelled to fulfill it regardless of the conditions.

Results (Cont.)

- Another confound that revealed itself during data collection was the fact that frequent library patrons are accustomed to being asked these type of requests in their way to the library (particularly the main branch in downtown Columbus). In fact, two respondents approached the researcher thinking that the request had to do with the collection of signatures to repeal the recently passed SB5, which has received large media coverage in the past months.

Discussion

- The observations collected from this study do not offer support for the proposed hypotheses. Some of the factors that could have neutralized or offset the smell were the environmental odors in the area where the collection took place (the lawn of the library had been recently reworked with fresh mulch), the amount of water used to dilute the original solution which resulted in a weak compound, and the perception of offensive or unacceptable smells of the individuals residing or visiting the inner-city area.
- In spite of the fair weather conditions under which the field research took place, temperature is another factor to be taken into consideration in future studies as it could potentially weaken the smell to be manipulated.
- Of particular interest is the level of perceivable odor as a result of spraying the solution on the clothes. The solution was diluted to a degree that was perceivable only by the researcher but not by those in the surroundings. Because of the resulting direct contact with the smell, data collection in these conditions may represent a challenging task for the researcher. This and the previously mentioned confounds were discovered while the study was underway and should be addressed in future replications.

Discussion (Cont.)

- A pretest to assess the level and type of odor used is suggested prior to replication. This will not only be useful for the data collection but it will also provide the researcher with an opportunity to familiarize with the smell.
- The type of request, as evidenced by the level of participation, not only seemed to be appropriate for the location where the collection took place but it also aided the researcher to build rapport with respondents. These are clear indicators that it should be considered in future research.
- The results showed no difference between men and women in level of participation, indicating that the type of request and the gender of the requester did not represent confounding elements in the study.
- Despite the design flaws and lack of support for the hypotheses, the observations yielded by this study are evidence that social interactions can take place under a myriad of natural conditions that for the most part represent a challenge to control, not only for the researcher but also for those concerned with the personal impression others may take from interacting with them.

Conclusion

- The literature review revealed that unless we lose our sense of smell, odors cannot be evaded; they trigger our emotions, and with them, our reactions. Furthermore, as conceptions of what is acceptable and what is not shift into socially accepted norms, the decision of what constitutes a pleasant or unpleasant smell may no longer be a matter of personal choice.
- Even though it is impossible to know how our natural smell can influence the people we interact with casually, we can still manipulate our odors by conforming to the general norm and do everything in our power to smell according to the established social constructs of cleanliness, beauty, and attractiveness.
- In this context, the principle of association allows us to recognize who is breaking the norm and infer the possible factors that may have contributed to the smell.
- Moreover, the quick reference provided by the association principle coupled with the idea of socially acceptable smells offers the beauty and body care industry an inexpensive strategy for positioning new products in the market.

Conclusion (Cont.)

- The invisibility factor of a smell is perhaps its most prominent quality; nevertheless, as the results of the present study indicate, a smell could also be the hardest to manipulate and work with outside of controlled settings.
- For this reason, while a naturalistic approach may provide social researchers with greater insight on the behaviors a smell elicits, the practical applications of smell manipulation are perhaps better harnessed in closed environments.
- Finally, the present field research explores only one of the limitless possibilities smell manipulation can offer. Future studies should include researchers of both genders, and introduce a socially accepted smell that would allow for further comparison between variables.

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