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Sensory Appeal and Purchase Behaviour: Combining massive transactional data with consumer reviews to examine the psychology of perfume consumption

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Introduction & Background

The perfume industry faces significant ethical scrutiny ranging from environmental degradation and labour concerns to the carbon costs of global logistics. Despite these concerns, consumer purchase decisions are more often guided by sensory cues such as scent, branding and packaging design. Such attributes are routinely prioritised in marketing strategies, yet empirical research quantifying their effect on consumer buying behaviour remains scarce. Furthermore, little is known about how these sensory elements interact with buyer characteristics such as location, age or personality types.

Objectives & Approach

This study addresses this knowledge gap by combining two rich sources of digital footprint data: (1) transactional sales records from the UK's largest fragrance retailer, including loyalty card linked purchases across physical and online stores and (2) user generated reviews from Fragrantica, a leading global perfume database. The two datasets were linked by brand and product name. This enabled the merge of behavioural purchase data with perceptual attributes such as longevity, sillage, gender perceptions and perceived price value. This, therefore, allowed the possibility to analyse the relationship between sensory attributes and consumer purchase behaviour at national scales.

Relevance to Digital Footprints

This research contributes to the growing digital footprint literature in two ways. First, it leverages large-scale real-world behavioural data to provide a national lens on perfume consumption. Second, it demonstrates a novel integration of perceptual review data with sales data offering insights into how sensory perceptions drive consumer behaviour and enabling interdisciplinary approaches to behavioural research.

Results

Data drawn from the Fragrantica database includes 104,894 perfumes and 2,112,790 perfume reviews generated by

1,528,705 users. This was linked to sales dates for >1.7k over 4 years. Results emphasise how important sensory elements such as scent, sillage, and packaging are in influencing consumers' decisions to buy perfume and point to socio-demographic trends that may reflect purchase motivations. The study also highlights the value of combining transactional and sensory data to investigate consumption patterns in the field, opening the door for further research that may help guide consumer-focused and sustainable perfume creation approaches.

Conclusions & Implications

This study highlights the value of combining transactional and perceptual data to gain a deeper understanding of consumer psychology in perfume consumption. While not traditionally framed within the 'public good' field the research contributes in several meaningful ways. First, by identifying how individuals respond to sensory marketing, it provides opportunities for guiding consumers towards more sustainable or ethically produced perfumes without compromising on sensory appeal. Second, given the emotional and identity-based nature of scent, the findings may inform future research into how perfume consumption supports individual wellbeing and self-expression. Overall, the study encourages more ethical, data-informed innovation in an industry increasingly under pressure to balance beauty with responsibility.

Keywords

Transaction, Sensory, Scent, Sillage, Packaging



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