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The Effect of Ambient Scent Type and Intensiveness on Decision Making Heuristics

Alina Gagarina^a, Indrė Pikturnienė^{b,*}

^{a, b} ISM University of Management and Economics, Arklių g. 18, Vilnius, LT-01305, Lithuania

Abstract

Ambient scent has an impact on consumer behavior in a number of ways. Pleasant scent enhances product and retailer evaluations, causes changes in shopping behavior (longer stay in premises, better mood and memories, purchase). Also, it has effect on body states and decision making. However, very little research is performed in the area of ambient scent effect on decision making heuristics, especially when risky decisions and risk perceptions are involved. Thus, the purpose of this paper is to identify the relationship of ambient scent type and intensiveness with decision making heuristics when risks are involved. Results of factorial 2x2 experiment with control group are presented. Ambient scent type (vanilla vs. peppermint) and intensiveness (8 (1mg) vs. 16 sprays (2mg) of scent concentrate in the same room) were manipulated as between subject variables. Risk aversion, effect of anchoring heuristic on bidding, and affect (risk and benefit) heuristic were tracked as dependent variables.

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Keywords: Ambient scent; Decision making heuristics; Risk aversion; Anchoring; Affect heuristic.

Introduction

Focus of early research in consumer decision making was heavily concentrated on product characteristics that could be cognitively assessed: features, price, package. However, the latest research puts a lot of basis for arguments that consumer decisions are not rational, since they are related to the contextual cues and are based on mental shortcuts without rational background. Starting from the works of H.Simon (1955), the concept of bounded

* Corresponding author. Tel.: +370 611 22530.
E-mail address: indre.pikturniene@ism.lt

rationality, or decision making heuristics was extensively developed by D. Kahneman and A. Tversky (2000). Now there is sufficient scholarly proof that the decision making process is not rationally framed, especially when risks in decision are involved. When people are selecting risky outcomes vs. non-risky ones, are involved in the activities when risks have to be assessed (for example, gambling or insurance), or assess situations as risky vs. beneficial, their behaviors do not follow the patterns of rational choice based on mathematically calculated alternatives (Kahneman & Tversky, 2000, Finucane, Alhakami, Slovic, & Johnson, 2000).

Scent effect on consumer behavior, even if cognitively not recognized, is related to the various outcomes, for example, product assessments, time of stay in premises, purchases (Bone & Jantrania, 1992; Bone & Scholder, 1999), moods and emotions (Hertz & Engen, 1996; Dunn, Sleaf, & Collett, 1995), physiological body states (Raudenbush, Coley, & Eppich, 2001), even cleaning or volunteering behavior (Holland, Hendriks, & Aarts, 2005; Baron & Bronfer, 1994).

In a similar manner, decision making heuristics is also affected by subconscious judgments, which are related to sensory cortices (Bechara, Damasio, & Damasio, 2000). As somatic marker hypothesis claims, decisions cannot be made only on cognitive level, and they are also affected by the emotions that in turn are induced by external or internal stimuli (Damasio, Tranel, & Damasio, 1991). There is an evidence that odorized environment affected time, spent on slot machines (Hirsch, 1995), that is, gambling behavior.

Common denominators (emotions, body states) allow making an assumption that decision making heuristics could be affected by atmospheric stimuli, that is, scents. Thus, the questions could be raised “Would individuals, exposed to different scents, demonstrate different decision making heuristics?”, “Would scent intensiveness, not only scent type, be influential on decision making heuristics?”. Thus, the purpose of this paper is to identify the relationship of ambient scents’ type and intensiveness with decision making heuristics when risks are involved. Factorial experiment was performed to explore the relationship of the variables.

1. Methodology

Since scent is reported to have impact on consumer emotions, physiological states, and other types of behaviors, and since decision making heuristics in risky choices are also related to emotions, contextual cues and physiological states, the research aimed to examine the relationship of ambient scents’ type and intensiveness with decision making heuristics.

Factorial 2x2 experiment with control group was performed.

Independent variables were scent type and its intensiveness level. Vanilla and peppermint scents were selected as two scent types on the basis of different reported stimulating properties. Peppermint scent has stimulating effects on human body (Raudenbush, Coley, & Eppich, 2001). Vanilla scent is relaxing (Warrenburg, 2005). Whereas peppermint has impact on alertness and increases physiological arousal, vanilla is has a reverse effect, since it decreases heart rate, leads to lower activity levels and slower response time to tasks (de Wijk & Zijlstra, 2012).

Intensiveness level is directly linked with scent concentration in the air, which is perceived as a strength of scent. 8 sprays of respective pure concentrate (each equal to 0,125 mg, or 1 mg in total) were used to create conditions of low intensiveness, 16 sprays (each equal to 0,125 mg, or 2 mg in total) were used to create conditions of high intensiveness. Sprays were delivered from different corners of the room to assure equal distribution.

Control group did not have any exposures to scent; the tasks were performed in a regular classroom environment.

Dependent variables were 3 decision making heuristics: risk aversion (risk seeking being the reverse of the continuum), anchoring and affect heuristic.

Risk aversion was measured as the risk avoiding option selection in 6 tasks. Tasks were adapted from Friedman, Milton and Savage (1948) and Kahneman and Tversky (1984). Each of the tasks had two possible options, asking for the preferred one. The options were manipulated as an outcomes of the choice, where one outcome was a sure gain, and another outcome was a risky choice with unsure, however, higher gain, or a direct question whether the respondent would be willing to be involved in a gamble or risky choice. The final measure was the number of selected risk averse (sure gain or non-involvement in risky choices) options.

Anchoring heuristics was measured as bidding performance after low and high anchor. Low anchor question was: “Do you know that on average people drink 10 liters of liquids per week?”, and high anchor question was “Do you know that on average one person drinks 500 liters of tea per year?” After each question (low anchor was

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