

THE DIFFERENCE BETWEEN IMAGINATION AND REALITY -  
TESTING THE NUTRI-SCORE LABEL USING EMOTION RECOGNITION SOFTWAREDORINA SZAKÁL<sup>1,2</sup>, ORSOLYA FEHÉR<sup>2</sup> AND ATTILA GERE<sup>3</sup><sup>1</sup>Department of Hospitality, Faculty of Commerce, Hospitality and Tourism, Budapest University of Economics and Business; Alkotmány utca 9-11., H-1045 Budapest;<sup>2</sup>Institute of Agricultural and Food Economics, Hungarian University of Agriculture and Life Sciences; Villányi út 29-31, H-1118 Budapest, Hungary;<sup>3</sup>Institute of Food Science and Technology, Hungarian University of Agriculture and Life Sciences; Villányi út 29-31, H-1118 Budapest, Hungary

## Introduction

Numerous interrelated factors influence the intricate habit of determining what to eat [1]. There are numerous possibilities within each food group, as well as a wide range of meals that may be obtained with little or no effort in today's developed world [2]. In this case, it is critical to attract consumers' attention to food labels and offer them with information that influences their expectations and purchasing decisions. Food nutrition labeling on the main page is increasingly significant [3]. The aim of this research was to determine whether there is an interaction between the products in this study and participants' emotions. In addition, we aimed to determine whether an eye-tracking parameter (FD, fixation count) could predict participants' choices. The results of our studies were designed to explore whether consumers can determine the Nutri-Score classification of a food just by looking at its packaging.

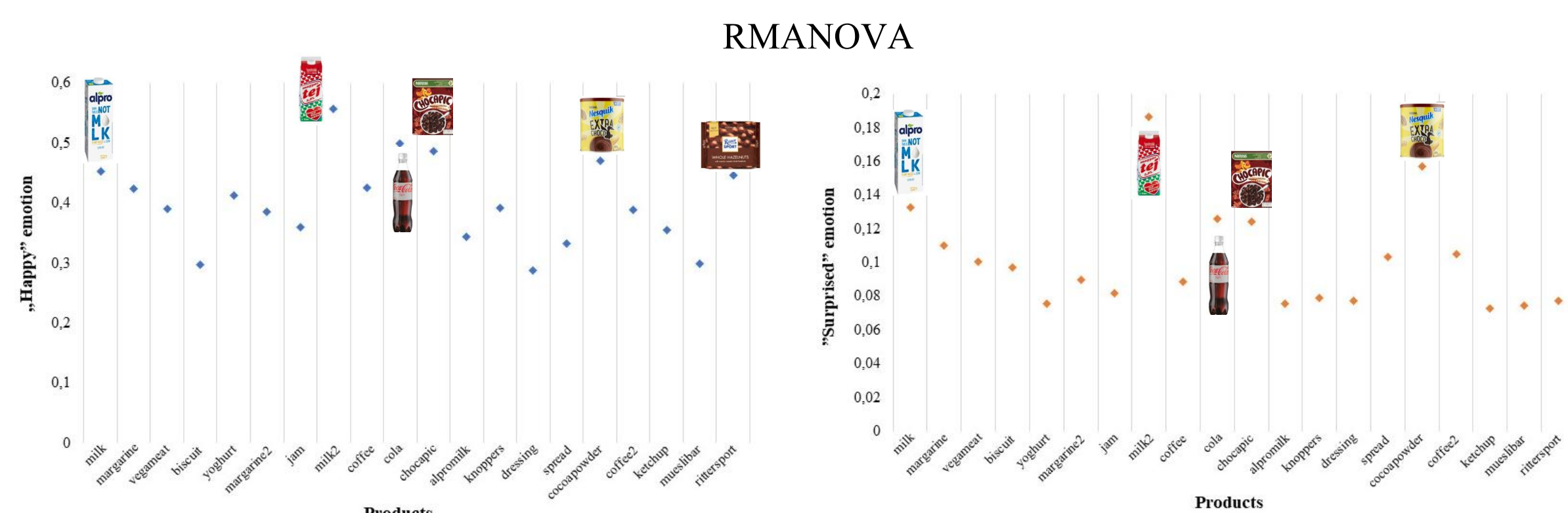
## Materials

- **Place of measurement:** Buda Campus of the Hungarian University of Agriculture and Life Sciences.
- **Participants:** the study included a total of 71 participants (28 male, 43 female)/40 Hungarian and 31 foreign students.
- **FaceReader software:** Noldus FaceReader v 9.1 software (Wageningen, Hollandia).
- **Visual stimuli (Fig.1):** 20 commercially available food and 5 characters of the Nutri-Score label (from A to E in the corresponding colour).
- **Data analysis:** ANOVA, RMANOVA



Figure 1. Products used in the measurement, grouped by Nutri-Score classification

Figure 2. Representation of the interaction between "happy" and „surprised” emotion and products after

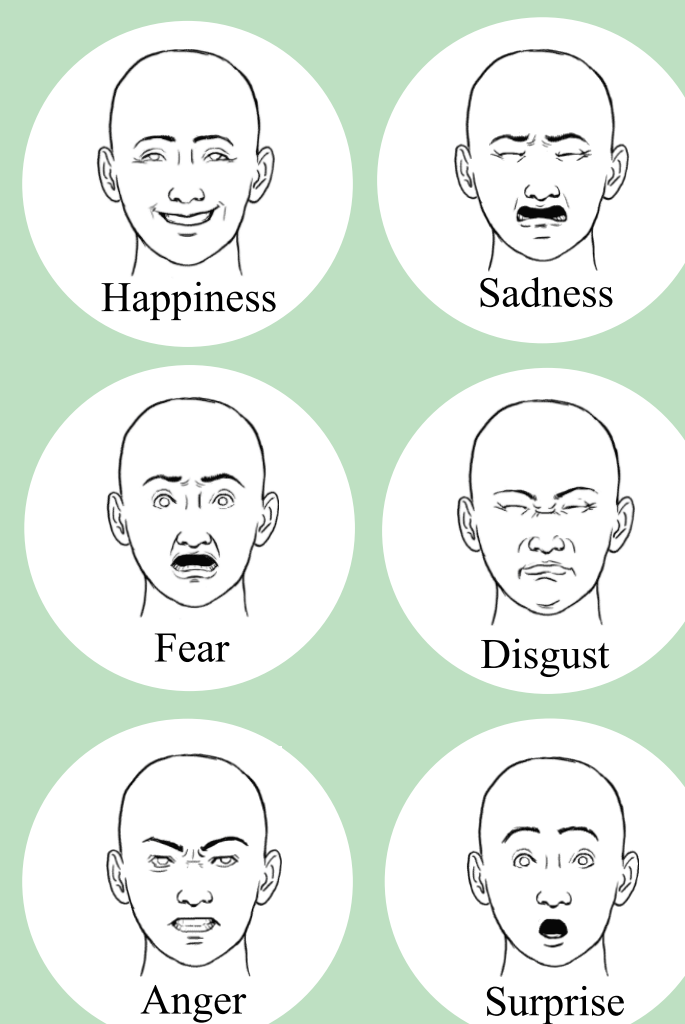


## REFERENCES

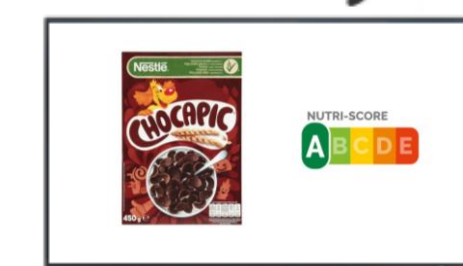
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## Process

## Identifiable emotions



Next product



Viewing the result

Description of the task



Fixation cross



Choose an NS label

## Results

We first examined which emotions showed significant differences based on the FaceReader software data. The results of the analysis of variance (ANOVA) for each emotion are presented in Table 1. The results show that of the 6 basic emotions and the neutral state, only happy and surprised are significantly different from each other, but not from the other emotions, so the latter are not relevant for further analysis. The interaction between the 20 products and the 2 emotions (happy and surprised) was tested by repeated measures analysis of variance (RMANOVA).

The results of the analysis of the interaction between the emotion "happy" and the products are illustrated in Figure 2. The figure clearly shows that the product that elicited the most intense pleasure and happiness was Magyar ESL fresh milk, but also Coca-Cola Light carbonated soft drink, Nestlé Chocapic cereal, Nesquik Extra Choco Instant cocoa drink powder and Ritter Sport milk chocolate with whole hazelnuts elicited a strong emotional response.

The result of the analysis of the interaction between the "surprised" emotion and the products is illustrated in Figure 3. The figure clearly shows that the most intensively triggered emotions of surprise were Magyar ESL fresh milk, Coca-Cola Light carbonated soft drink, Nestlé Chocapic cereal, Nesquik Extra Choco Instant cocoa drink powder and Alpro NOT MILK oat drink. In the case of Magyar ESL fresh milk, several respondents said they were surprised that this product was the worst, i.e. it was rated Nutri-Score E, and should be considered for future consumption.

Table 1. ANOVA results for each emotion

Emotions	Neutral	Happiness	Sadness	Anger	Surprise	Fear	Disgust
Pr>F	0.625	<b>0.001*</b>	0.985	0.923	<b>0.000*</b>	0.644	0.989

Bold and\* indicates effect of a significant level of  $p < 0.05$ .