Developing a Color Scale as a New Methodology in Sensory Science: Detecting Emotions Evoked By Organic Food Consumption

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INTRODUCTION

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• Various methods have been developed to measure and understand not only explicit emotions but also the implicit ones.
• The need to a new method that is capable to measure the implicit emotions has arisen.
• Colors form an integral part of semiotic and nonverbal communication.
• Psychologists have found a link between colors and emotions, and suggested that colors signal the brain directly to trigger an effective reaction, and present an innate functional association between color and psychological responses.
Materials and Methods

Developing the color scale

Using the developed color scale in the sensory evaluation
Materials and Methods

- Developing the color scale
- self-report questionnaire (SRQ)
- Eye-tracking
Materials and Methods

Sensory Evaluation

Verbal Emotion Questionnaire

Eye-tracking
Results and discussion

The self-report questionnaire (SRQ)

Figure 1. Frequency of positive and negative emotional terms that were chosen by the participants after viewing light and dark color.

Figure 2. The most selected colors after evoking positive emotions.

Figure 3. The most selected colors after evoking negative emotions.
Eye-tracking Experiment

- After viewing the positive emotional stimuli, participants fixed their sight longer on the light colors (the mean of the dwell time = 2112.8 ms on the light side, while the mean of the dwell time on the dark side was 525.9 ms).

- On the other hand, after the negative emotional stimuli, participants fixed their sight on the dark colors to express their emotions (the mean of the dwell time on the dark colors was 1669.8 ms, while on the light colors was 906 ms).

- A multivariate analysis of variance MANOVA showed a statistically significant difference the fixation time on the light and dark colors.

- No influence of the stimulus’s color on participants’ decision.
Sensory Evaluation

Eye-tracking

➢ The participants’ dwell time on the light colors were significantly higher than on the dark colors after testing the samples.

➢ The color of the tested samples had no impact on the most fixed-on color by participants perception.

The verbal emotion questionnaire

➢ The participants’ mean rate of the positive emotion terms after testing the samples was higher for all samples than the mean rate for negative emotion terms. For instance, the mean rate of positive emotion terms for each of apple, orange juice and coffee samples was 3, while the rates of negative emotions were 1 for apple and orange juice samples and 1.5 for coffee sample.
Conclusions

➢ The participants tended to choose light colors to express their positive emotions, and dark colors to reflect their negative emotions in the self-report questionnaire.

➢ During the eye-tracking experiment, they expressed their positive emotions with focusing more time on the light colors, and their negative emotions with focusing on the dark side of the color scale.

➢ the results for each sample showed a consistency between the mean rate of the positive emotions and the higher dwell time on the light side of the color scale, and the same results between negative emotions and dark colors.

➢ There were no significant effect for the sample’s color on the color that had the highest dwell time in the color scale.

➢ The latter results may refer to the capability of the new developed method, the color scale, to detect the implicit emotions in a sensory evaluation for a better understanding of the consumer’s emotions evoked by organic food samples.

➢ These results will be used in further research to understand more the role of the emotions in the intention-behavior gap related to organic food consumption.
Thank You

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