

Novel Method to Conduct Remote Sensory Sessions and Biometrics During Isolation

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Introduction

The COVID-19 pandemic has led to several lockdown periods worldwide, which have affected companies, universities and research institutions conducting sensory evaluation. This has led to a reduction of sensory evaluation tests and delays in conducting studies. Therefore, a novel method to conduct sensory sessions in isolation has been developed.

Methods

Different sensory sessions have been conducted online throughout 2020 – 2021 (i) to assess consumers acceptability towards coffee labels (N = 69), (ii) videos of beer while pouring (N = 100), and (iii) images from the Geneva affective picture database (N = 100) assessing self-reported and biometric (subconscious) responses from consumers, and (iv) wine samples using a trained panel (N = 11) using quantitative descriptive analysis. As an example of the reliability of this method, the results from the coffee labels (Figure 1) test are shown in this poster.

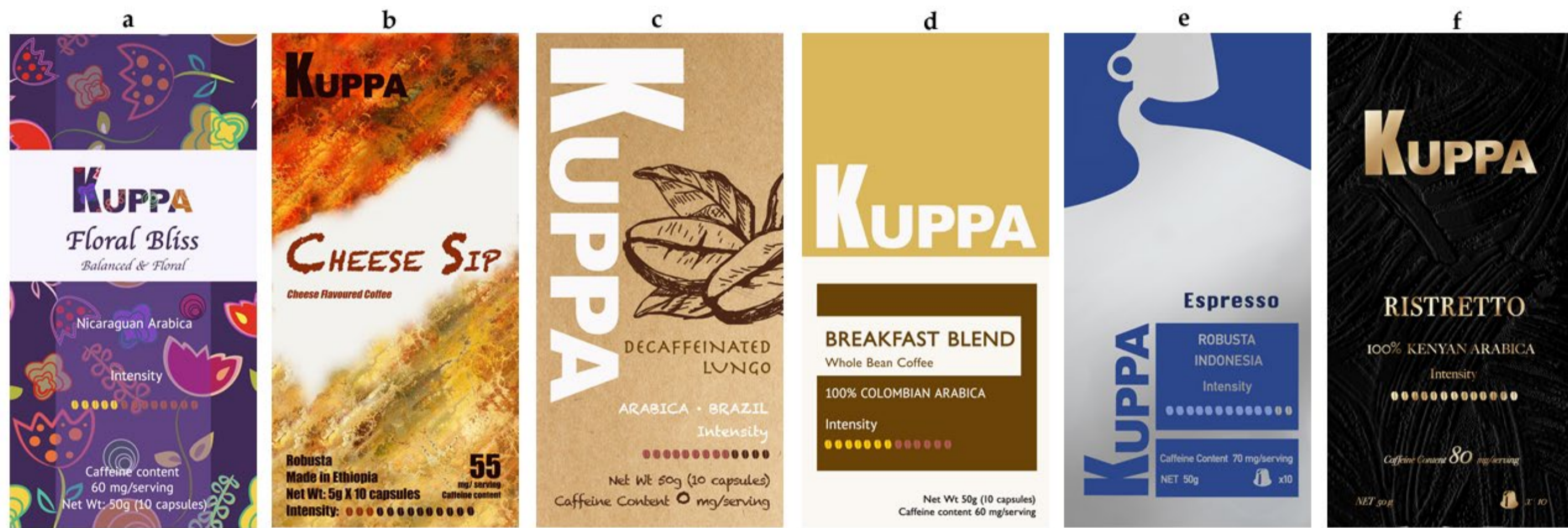


Figure 1. Coffee label designs used for the online sensory session. Labels were designed based on six TNS Needscope model™ segments (a) fun, (b) bold, (c) natural, (d) everyday, (e) classic, and (f) premium.

Sessions were using an online communication software Zoom (Zoom Video Communications, Inc., San Jose, CA, USA) along with an online software for sensory questionnaires such as Google Forms (Google, LLC, Mountain View, CA, USA) and RedJade® (RedJade Sensory Solutions, LLC, Martinez, CA, USA).

During the session, participants were asked to setup their camera and find a quiet and comfortable place with uniform lighting (Figure 1). Participants were asked to sign a consent form where they agreed to be recorded during the session according in compliance with the Human Ethics Advisory Group from the UoM (ID: 1953926.4).

Videos recorded for consumer tests were further analyzed to assess emotional responses using a software developed based on Affectiva© (Affectiva, Boston, MA, USA).

All data were analyzed using multivariate data analysis based on multiple factor analysis (MFA) in XLSTAT (Addinsoft, New York, NY, USA).

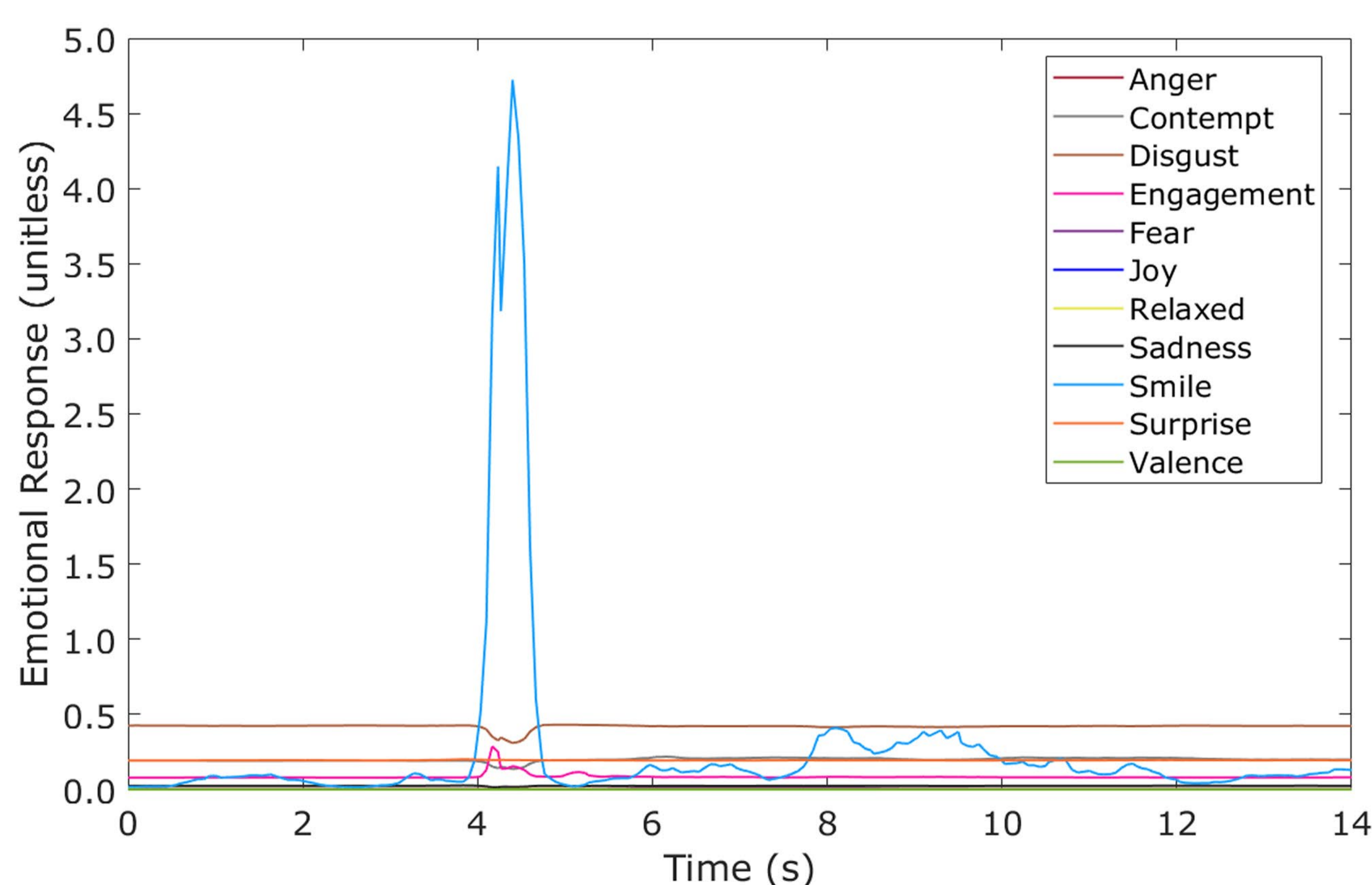
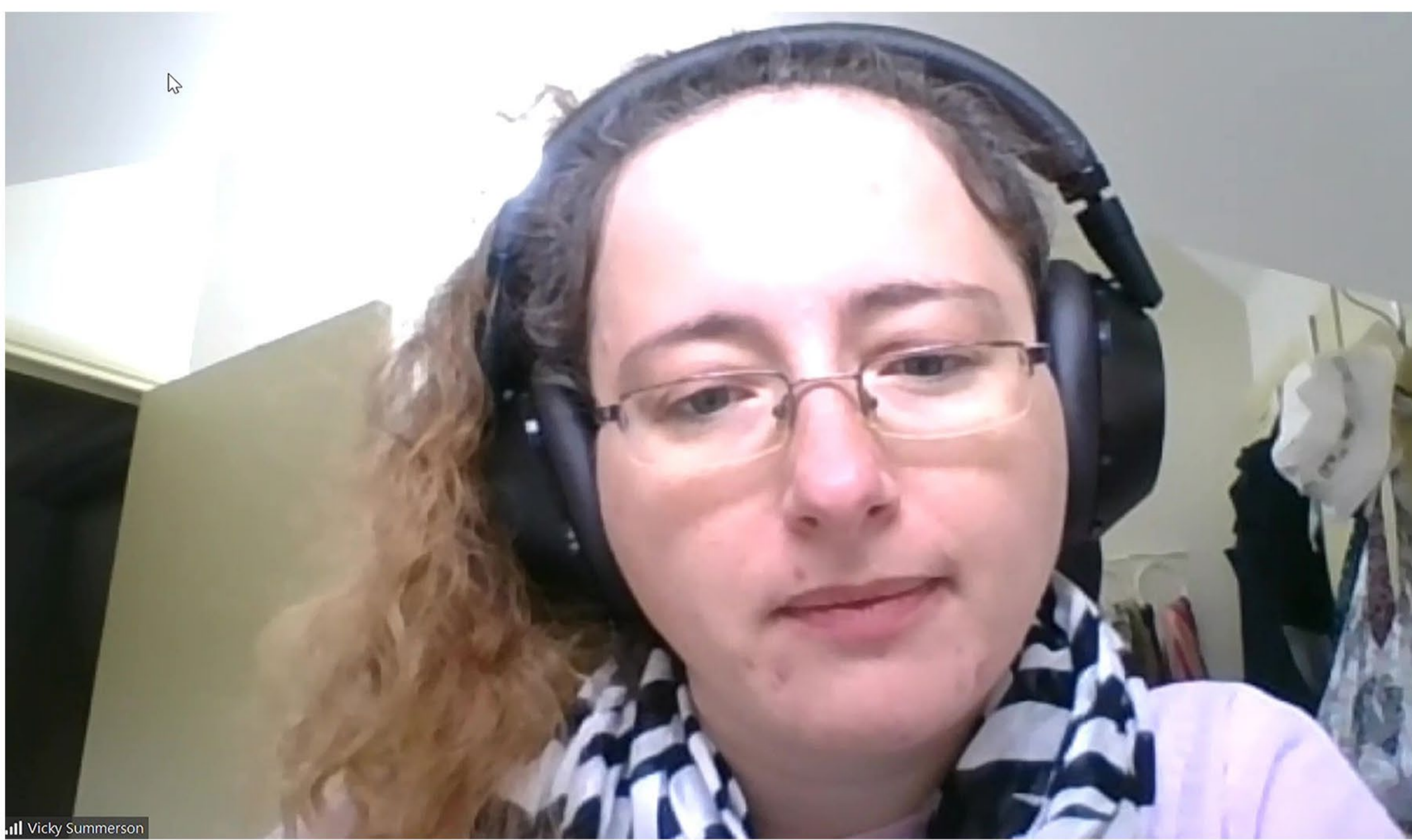


Figure 2. Video frame of participant during while evaluating a sample during the Zoom sensory session (above) and the emotional responses obtained from this video using a software developed based on Affectiva©.

Results

Figure 3 shows the MFA in which Factors 1 and 2 accounted for a total of 74.4% of data variability. As expected, the six labels elicited different self-reported and subconscious responses.

It was found that the Premium label was associated with perceived coffee strength, brand as preferred area of interest (AOI), 😊 and subconscious responses such as Valence and Relaxed. While Everyday label was associated with pleasantness, colours as preferred AOI, 😊, 😄, 😁, and subconscious responses such as Joy and Smile. On the other hand, Classic label was associated with product name as AOI, and negative emojis such as 😞, 😓, 😔, 😕, and 😖.

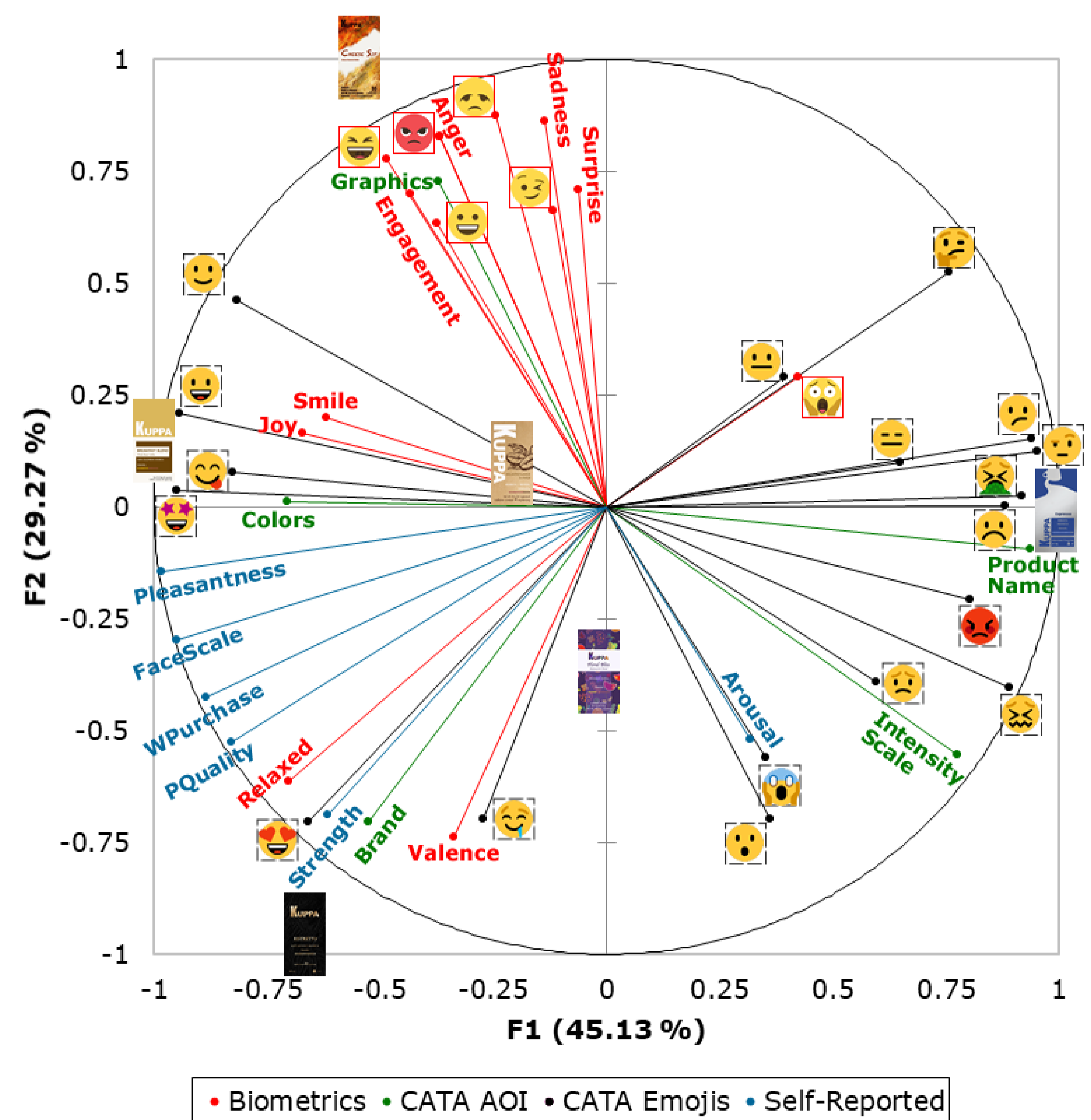


Figure 3. Multiple factor analysis showing results from the self-reported acceptance responses (blue), self-reported check-all-that-apply (CATA; green and black), and emotional biometric responses (red). Abbreviations: F1 and F2: Factor 1 and Factor 2

Conclusion

Findings from this study were consistent with those from similar studies conducted in a sensory laboratory, which help to confirm the reliability of the proposed virtual method. Further developments will involve the assessment of multiple participants to record their biometrics simultaneously and optimize the sensory session time.

References

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