

7.8 FLAVORIA®, Turku, Finland

Flavoria® is a research platform, a living lab, for studying human (consumer)-food interaction and food related experiences in a lunch restaurant and café environment. It is a truly multidisciplinary platform, because so far four faculties from the University of Turku (Faculty of Medicine, Faculty of Science and Engineering, Faculty of Social Sciences, and Turku School of Economics) and the Faculty of Agriculture and Forestry from the University of Helsinki are partners at Flavoria. One of the key objectives of the platform is to produce new scientific knowledge and consumer understanding for the sustainable development of the society and businesses.

In Flavoria, there are three experience contexts: a lunch restaurant (with approximately 800 daily customers), a café and a snack shelf, and a multisensory lab called Aistikattila (or “Sensory Pod” in English). The restaurant and café activities are operated by Sodexo and the research platform is coordinated by the University of Turku. For more information about Flavoria, please see our website. <https://www.flavoria.fi/en/front-page/>

Important theoretical and methodological foundational elements in approach:

Flavoria® is a multidisciplinary research platform. It offers research possibilities and environments to both scientific and commercial entities, including research institutions, students writing their theses, and companies developing their products and services. Sustainable development and human health are at the center of Flavoria’s research.

The Generic Flavoria study protocol has been reviewed and ethically approved by the Ethics Committee for Human Sciences at the University of Turku, Humanities and Social Sciences Division (37/2021). Studies conducted in the Flavoria should follow the European Union’s General Data Protection Regulation (GDPR).

Researcher will be trained to use the Flavoria installation. Depending on the study design and detailed plan, it may be required to apply extended ethical statement from Ethics Committee at the University of Turku. This need to be done before conducting and completing the studies.

Device requirements and guidelines:

Multisensory Laboratory of Flavoria®

Controlled research space for testing and designing multisensory experiences includes: 12 meters wide wall surface on which you can project photos and videos with 4 projectors, intelligent and programmable lighting smart lighting system with 60 separate spots, 8-channel audio system with Genelec loudspeakers’ system for creating impressive soundscapes, scent equipments, and Compusense cloud or RedCap for data collection. Room is suitable for approximately 45 people all at once. [Aistikattila® - a research space for vivid, multi-sensory experiences](#)



Eye tracking (Head-mounted eye-tracking glasses)

Tobii Pro Glasses 2, a head-mounted eye-tracking device with a recording frequency of 50Hz.

<https://www.tobii.com/products/discontinued/tobii-pro-glasses-2>

Facial expression analysis

Vicar Analytics tracks and monitors real-life behaviour of the consumers when they are making food choices in Flavoria Café. The software provides initial data analytics.

<https://www.vicaranalytics.com/>

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Multisensory laboratory	
Way the object of research is represented in design	<p>Our multisensory laboratory is an immersive multisensory space for research. In this unique space you can create vivid multisensory experiences with the help of photos, videos, lighting, sounds and scents – just set your imagination free (position 47)</p> <p>Relevant previous studies conducted in multisensory space: Hoppu, U., Puputti, S., Mattila, S., Puurtinen, M., & Sandell, M. (2020). Food Consumption and Emotions at a Salad Lunch Buffet in a Multisensory Environment. <i>Foods</i>, 9(10), [1349]. https://doi.org/10.3390/foods9101349 Greis, M., Nolden, A. A., Kinchla, A. J., Puputti, S., Seppä, L., & Sandell, M. (2023). What if plant-based yogurts were like dairy yogurts? Texture perception and liking of plant-based yogurts among US and Finnish consumers. <i>Food Quality and Preference</i>, 107, 104848. https://doi.org/10.1016/j.foodqual.2023.104848 Mathiesen SL, Hopia A, Ojansivu P, Byrne DV, Wang QJ. (2022). The sound of silence: Presence and absence of sound affects meal duration and hedonic eating experience. <i>Appetite</i>. 174:106011. https://doi.org/10.1016/j.appet.2022.106011</p>
Overall research question	<i>How do cross-modal environmental factors contribute to food experiences of consumers? Is it possible to use multisensory space to boost the acceptability of plant-based products?</i>
Key dependent outcomes	Hedonic responses, Food choices and Emotional states
Complementary measures	<i>For all self-report measures, use harmonised measures of COMFOCUS if available.</i>
Head-mounted eye-tracking glasses	
Way the object of research is represented in design	<p>Mobile eye tracking (MET) enables studying visual food perception with real foods. Study will be conducted at the Flavoria research lunch restaurant. Different lunch lines (home food, vegetarian etc.) of Flavoria may be used in data collection</p> <p>Relevant previous studies: Puurtinen, M., Hoppu, U., Puputti, S., Mattila, S., & Sandell, M. (2021). Investigating visual attention toward foods in a salad buffet with mobile eye tracking. <i>Food Quality and Preference</i>, 93, [104290]. https://doi.org/10.1016/j.foodqual.2021.104290</p>
Overall research question	<i>How individual is the visual attention toward sustainable foods in lunch buffet measured with a mobile eye tracking? (Positions 48-51)</i>
Key dependent outcomes	visit counts and scan path measurements, attention-action profiles in food perception
Complementary measures	<i>For all self-report measures, use harmonised measures of COMFOCUS if available.</i>
Facial expression analysis	
Way the object of research is represented in design	Vicar Analytics solutions gives insights into detailed visitors demographics and visitors behaviour in Flavoria Café. It tracks & monitors real-life behaviour of the consumers when present in the restaurant without revealing the identity of the person. (
Overall research question	<i>Is it possible the identify the target group of different sustainable or healthy or delicacy snacks such as candies and ice cream? Positions 52-56)</i>
Key dependent outcomes	Selected key performance indicators: Average duration of time in front of the product Dominant mood status of consumers .
Complementary measures	Gender and average age estimation of consumer will also be included as measures. <i>For all self-report measures, use harmonised measures of COMFOCUS if available.</i>