7.7 Laboratory of Consumer Studies (LCS), Nitra, Slovakia

LCS aims to support fundamental as well as applied research, by linking disciplines and using advanced methodological technologies. Studies are designed based on previous research, experience, but also in consultation with experts in various fields (such as neurologists, psychologists, and IT specialists. The process of data acquisition and processing is governed by international standards ESOMAR 2019, ethical code NMSBA (Neuromarketing Science and Business Association) as well as its own internal guidelines. In addition, we have developed methodological manuals for retrieving and processing primary and secondary data. During the last 2 years, the LCS has hosted researchers from Indonesia, Taiwan, Ukraine, Poland and Italy. There was also interest from Australia and Iraq but due to lack of scholarship the PhD researchers did not arrive.

Important theoretical and methodological foundational elements in approach:

In Laboratory of Consumer Studies, researchers combine knowledge from several disciplines such as psychology, neuroscience, economics, as well as IT technologies in order to better understand consumer behaviour and preferences on different economic issues.

Device requirements and guidelines:

All devices are mobile and therefore allow for experiments in laboratory or real-world settings. Technical support is available on site from the laboratory technician. All experimental studies need to be carried out according to the COMFOCUS harmonised guidelines for emerging technologies (available on COMFOCUS website). These guidelines inform user about design, sample selection, ethical factors, technological factors, data processing, harmonised measures, and stimuli, as well as metadata that must be reported.

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	Reconstructed Virtual Reality device
Way the object of research is represented in design	Reconstructed reality creates a virtual representation of the real world, achieved by accurately replicating the real-world environment in a virtual setting. Designing a reconstructed reality involves various techniques and considerations such as data collection, processing, user interface, visual and interaction design. These elements are crucial in creating an engaging and realistic virtual environment.
Overall research question	*Research question* **(position 37)** *Research question* **(position 38)**
Key dependent outcomes	Data from the simulated environment will be collected, as well as additional data from an eye-tracking device built into a head-mounted display
Complementary measures / self-reports	*For all self-report measures, use harmonised measures of COMFOCUS if available.*
	Eye tracker device
Way the object of research is represented in design	With Fix and Mobile Eye-Tracker, visual attention tracking can be observed in both laboratory and real-world settings, using digital or real stimuli, such as in the food market. **Relevant previous studies:** HORSKÁ, E. -- NAGYOVÁ, Ľ. -- BERČÍK, J. Eye-tracking research on visual attention: the case of farm shop with dairy products and food tourism. In 1st UNICART Interdisciplinary International Conference on «Tourism, Management and Development of Territory». Bari : Università degli Studi di Bari Aldo Moro 2019. (2019), s. 287--294. Neomániová, Katarína - Berčík, Jakub - Pavelka, AnkaThe use of eye-tracker and face reader as useful consumer neuroscience tools within logo creation. In Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis. 67, 4 (2019), s. 1061--1070.
Overall research question	*How do food packaging, labelling and presentation impact consumer choice* **(position 39)** This research question deals with sub-topics such as packaging design, colour design but also nutritional indicators.
Key dependent outcomes	Visual attention (Heat maps, Fixation dots, Eye movements metrics), and product choice
Complementary measures / self-reports	Self-reports, questionnaires, choice experiments, sensory studies but also combination with other devices (EEG, EDA, GSR, FEA)
	Heart rate device
Way the object of research is represented in design	ECG (electrocardiography) is a method of collecting electrical signals generated by the heart. This allows us to understand the level of physiological arousal that someone is experiencing, but it can also be used to understand psychological states. There is a mobile device, which we most often combine with other methods (e.g. EEG or Face reader).
Overall research question	*How do food presentations impact consumer choice?* **(position 40 & 41)** This research question deals with sub-topics such emotions that certain foods evoke, the aversion to food and also the impact of its visual presentation of food on consumer preferences.
Key dependent outcomes	Emotional response (arousal) Product/food choice Consumer reaction to choice/situation

Complementary measures / self-reports	Self-reports, questionnaires, choice experiments, sensory studies
	Galvanic skin response device
Way the object of research is represented in design	Galvanic skin response (also known as electrodermal activity) is used to measure the level of emotional arousal as it changes in response to the environment. There is a mobile device, which we most often combine with other methods (e.g. EEG or Face reader).
Overall research question	*How do honey flavour, packaging, labelling and presentation affect consumer choice?* **(position 39)** This research question deals with sub-topics such sensory evaluation of honey, preference of packaging and the impact of communication on consumer choice *How do food presentations impact consumer choice? (***position 42)** This research question deals with sub-topics such emotions that certain foods evoke, the aversion to food and also the impact of visual presentation on consumer preferences. **Relevant previous studies:** Pierański, Bartłomiej - Berčík, Jakub Research on electrodermal activity. In: Experimental design and biometric research. Toward innovations. Poznań: Poznań University of Economics, 2021. s. 61--88. ISBN 978-83-8211-079-1.
Key dependent outcomes	Emotional attention (arousal) Emotional response Product/food choice
Complementary measures	Self-reports, questionnaires, choice experiments, sensory studies
	Electroencephalography device
Way the object of research is represented in design	Electroencephalography (EEG) is a method of recording the electrical activity of the brain through electrodes placed on the scalp, which is then translated into a series of brain waves. EEG data can provide valuable insights into our level of alertness, motivation, engagement, and the level of difficulty in performing a task. The use of mobile EEG devices enables experiments to be conducted in both laboratory and real-world settings. **Relevant previous studies:** Berčík, Jakub - Horská, Elena - Wang, W.Y. Regina -- Chen, Ying-Chun The impact of parameters of store illumination on food shopper response. Appetite. 106, (2016), s. 101--109. ISSN 0195-6663. Berčík, Jakub - Gálová, Jana - Vietoris, Vladimír - Paluchová, Johana. The application of consumer neuroscience in evaluating the effect of aroma marketing on consumer preferences in the food market. In Journal of International Food & Agribusiness Marketing. (2021), s. 2021. ISSN 0897-4438.
Overall research question	*How do food presentations impact consumer choice?* **(position 43 & 44)** This research question deals with sub-topics such emotions that certain foods evoke, the aversion to food and also the impact of visual presentation on consumer preferences. *How do honey flavour, packaging, labelling and presentation affect consumer choice?* **(position 41)** This research question deals with sub-topics such sensory evaluation of honey, preference of packaging and the impact of communication on consumer choice.
Key dependent outcomes	Emotional response (arousal, frustration), emotional engagement and Valence (Polarity of emotions)

	Product/food choice and consumer reaction to choice/situation
Complementary measures / self-reports	Measurement of emotions, e.g. via self-reports but also combination with other devices (Eye-Tracking, EDA, GSR)
	Face reader device
Way the object of research is represented in design	Our face displays our outward emotional expressions which are detected in real time using fully automated computer algorithms that record facial expressions via webcam. Tracking facial expressions can, when used in controlled contexts and in collaboration with other biosensors, be a powerful indicator of emotional experiences. This method of tracking can also be used via remote access. **Relevant previous studies:** Horská, Elena - Berčík, Jakub - Krasnodębski, Andrzej - Matysik-Pejas, Renata -- Bakayová, Hana Innovative approaches to examining consumer preferences when choosing wines. In Agricultural economics. 62, 3 (2016), s. 124--133. ISSN 0139-570X. Neomániová, Katarína - Berčík, Jakub - Pavelka, Anka The use of eye-tracker and face reader as useful consumer neuroscience tools within logo creation. In Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis. 67, 4 (2019), s. 1061--1070. ISSN 1211-8516. Berčík, Jakub - Paluchová, Johana - Neomániová, Katarína Neurogastronomy as a tool for evaluating emotions and visual preferences of selected food served in different ways. In Foods. 10, 354 (2021), s. 2021. ISSN 2304-8158.
Overall research question	*How do food packaging, labelling and presentation impact consumer choice* **(position 45)** This research question deals with sub-topics such as packaging design, colour design but also nutritional indicators. *How do food presentations impact consumer choice?* **(position 46)** This research question deals with sub-topics such emotions that certain foods evoke, the aversion to food and also the impact of visual presentation on consumer preferences.
Key dependent outcomes	Emotional response Valence (Polarity of emotions) Product/food choice
Complementary measures / self-reports	Other complementary and self-report measures can be used, if relevant. *For all self-report measures, use harmonised measures of COMFOCUS if available.*