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BEVERAGE NEURO TASTING CASE STUDY

DISCOVERING INSIGHTS VIA NEURO SENSORY EVALUATION

WE ARE THIMUS

We collect data that traditional market research does not capture.
We do this by successfully integrating neuroscience and explicit data.
We explain and predict the complex relationship between humans and food.

Our methodology eliminates the biases of stated preferences.
Cultural neuroscience represents the best evolution of sensory analysis.

Thimus has made cultural neuro-sensory analysis portable, robust, scalable thanks to our proprietary SAAS platform: the T-BOX.

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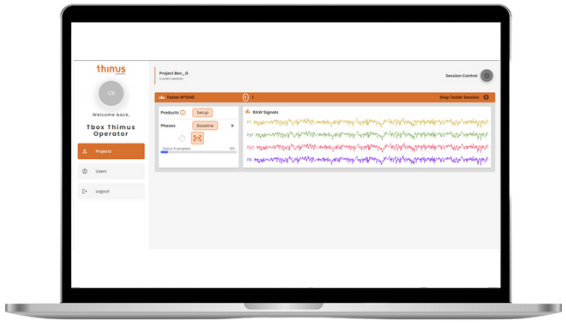
METHODOLOGY

The EEG is a non-invasive device: it is applied to the head of the participant using a strip with integrated electrodes, in which gel is applied to facilitate recording. Once worn, the tester takes a seat at the tasting station and follows the visual indications that appear on the screen.

The HUB is an electronic device responsible for transmitting the signal detected by the EEG. It is powered by an electric cable, equipped with antennas for signal amplification and connected to the Internet. It must be located near the EEG and can connect to a maximum of 3 devices simultaneously.



The cloud T-BOX platform is where the real magic happens. Users with a login profile can configure projects, add testers, acquire brain data and explore past projects and their results. We have implemented export of data both in easy-to-read PDF format or in CSV files for further analysis.

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PROJECT BRIEF

An investigation was conducted to compare three distinct cola-based formulations across five sensory phases and through repeated tasting sessions, aiming to analyze human perceptual responses and identify the product with the potential to emerge as a market leader in this food category.

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RESEARCH GOAL

1. The mental states and emotions associated with the different samples from the consumers' perspective among different sensory phases;

2. Highest and lowest peaks in neurophysiological response across the sensory experience;

3. The explicit perception of hedonic and sensory qualities of different samples.

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PHASES OF SENSORY EXPERIENCE

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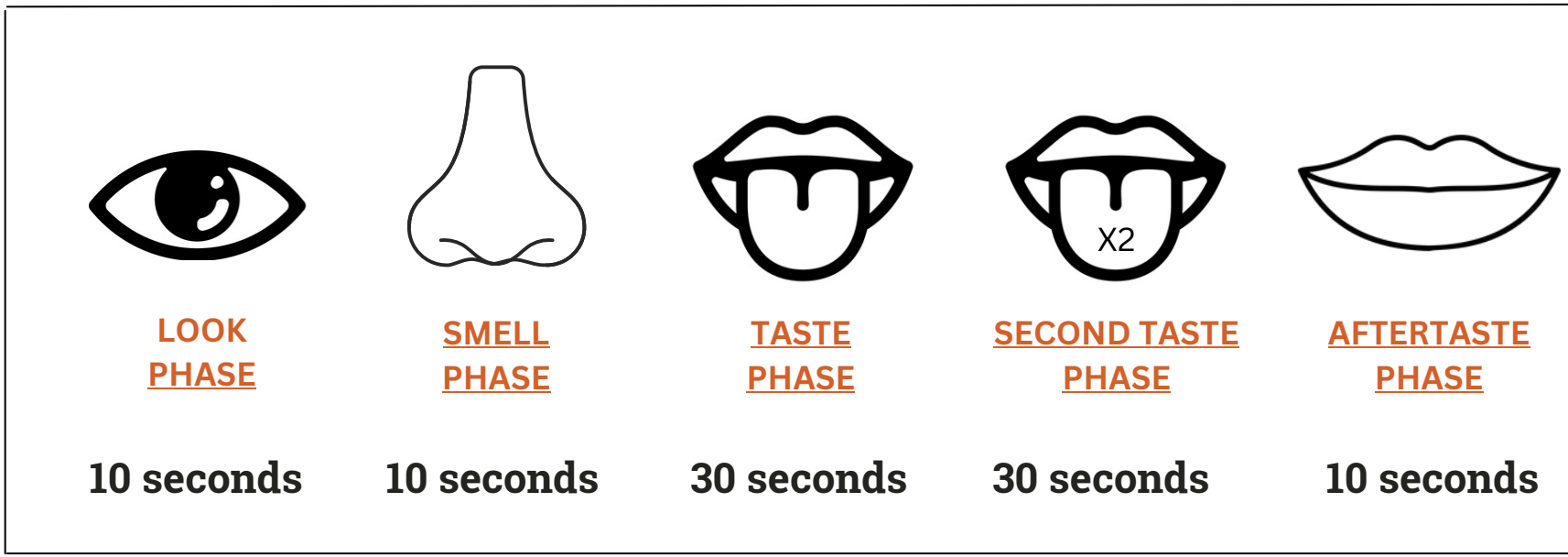

Phase-synced acquisition of EEG data

*The three products were randomized

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SAMPLE

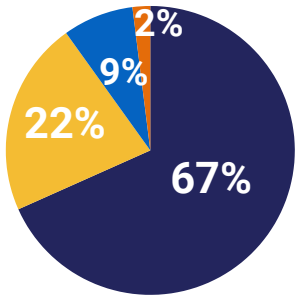
OVERALL: 58

29 Male

28 Female

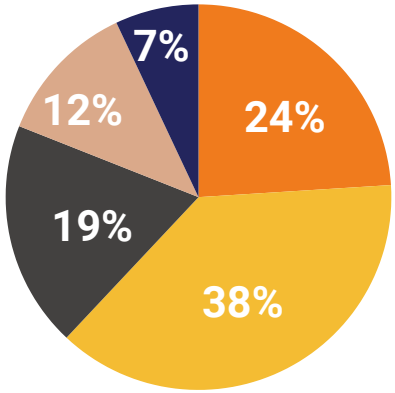
1

SMOKERS



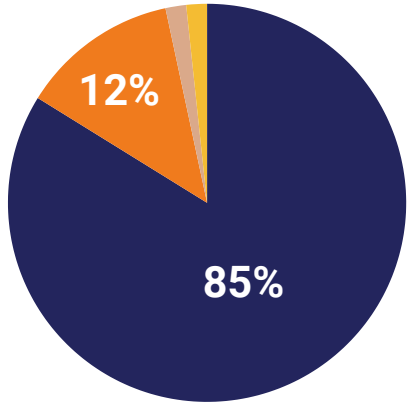
- Smoker
- Not smoker
- Former smoker
- N/A

AGE



- 18 - 28 years old
- 29 - 39 years old
- 40 - 50 years old
- 51 - 60 years old
- ≥ - 61 years old

DIET



- Omnivore
- Other
- Pescatarian
- Vegetarian

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METRICS

FRONTAL ASYMMETRY-LIKEABILITY

This index evaluates the natural balance of approach (associated with acceptance and positive emotions) and avoidance (withdrawal, negative emotions) of an individual about a task.

COGNITIVE WORKLOAD -FAMILIARITY

Mental activity is based on the use of working memory. This can be caused by a particular task at a given instant (Cain, 2007). It is therefore the set of mental processes that mediate the performance in perceptual, cognitive and motor tasks.

ENGAGEMENT

It represents emotional states, including motivation levels, excitement, attention, and interest experienced during performance
(Berka et al. 2007).

RELAX

Index of experienced and perceived mental and emotional well being and relaxation levels
(Teplan et al., 2009).

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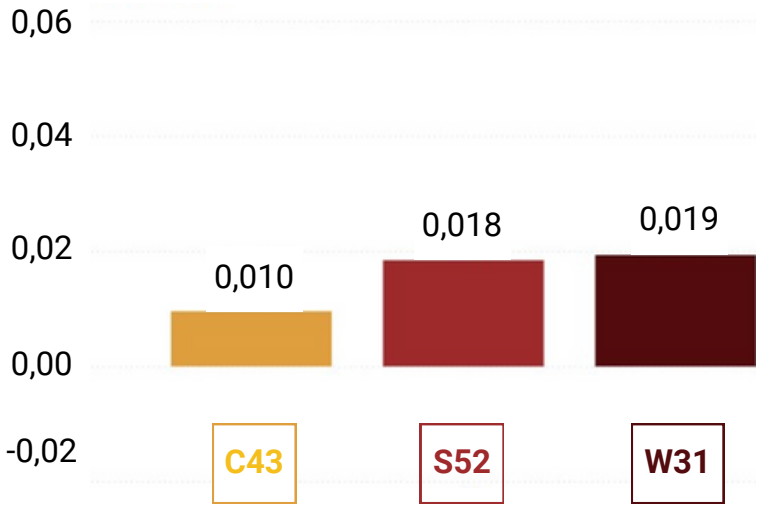
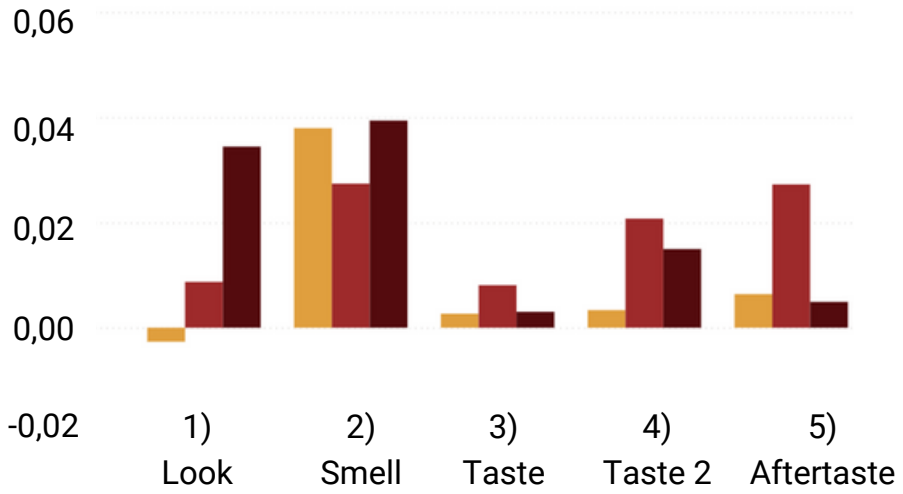
FRONTAL ASYMMETRY



All the products fall into the approach zone determining that they were appreciated by the group of testers. Despite the output not showing significant differences between products, trends demonstrate that **W31** is "winner" with **S52** behaving almost identically in terms of appreciation.



There is a clear variability in the phases. The higher overall approach response observed for **W31** is explained especially by the look and smell phases, that appear to elicit noticeable levels of approach compared to the other products. Conversely, **C43** is the only product to evoke avoidance responses during the look phase. This is the only product that was visibly different from the other two (lighter).

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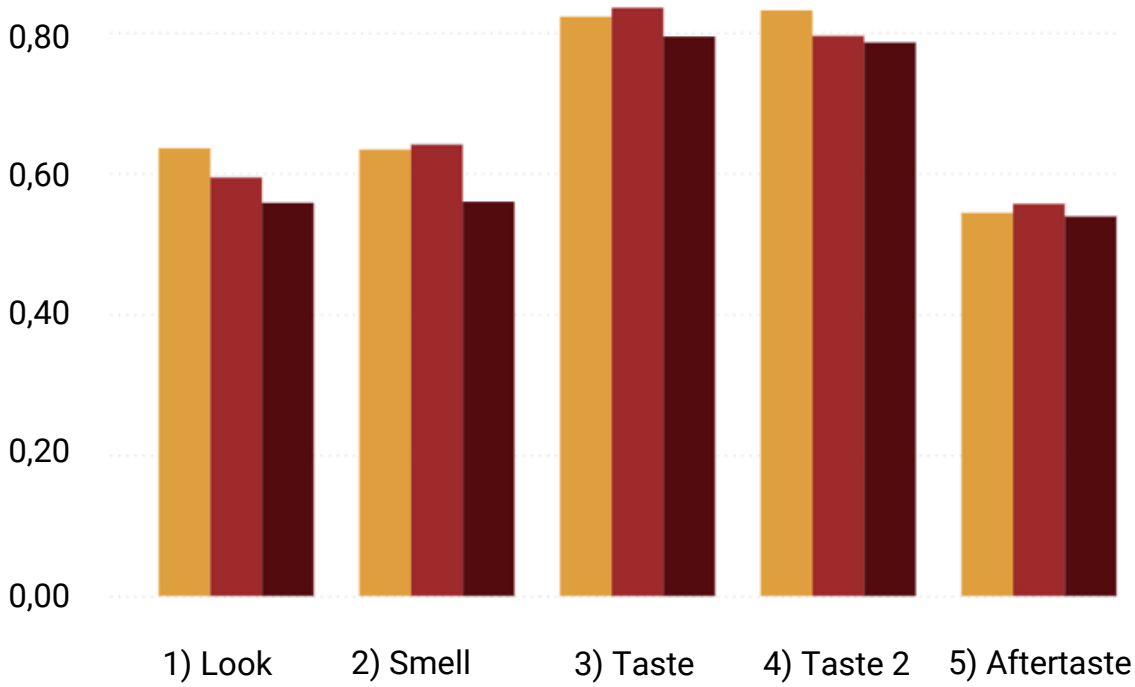
ENGAGEMENT



C43 was found to be more engaging than **W31** across the overall experience.
The two taste phases elicited the highest level of engagement compared to the other phases for all the products.

The scarce levels of engagement for **W31** might be accounted by the level of familiarity with the product.

C43 stands out as the most engaging when compared to **W31**. However, it seems to be performing similarly to **S52**. The fact that C43 is perceived as significantly more engaging (and to some extent also **S52**) might be explained by the limited familiarity of these products. The extreme familiarity of **W31** might have limited the amount of curiosity or excitement generated by the product, hence was the least engaging.

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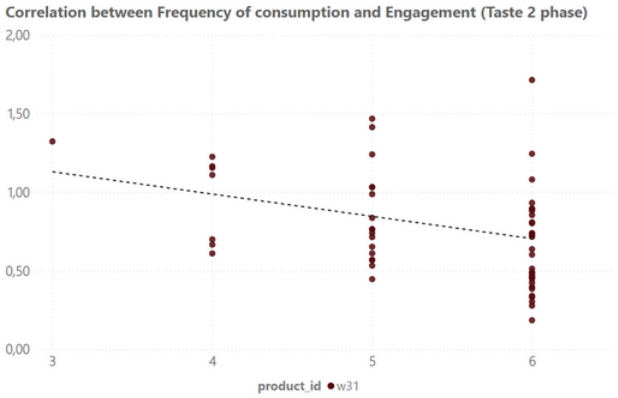
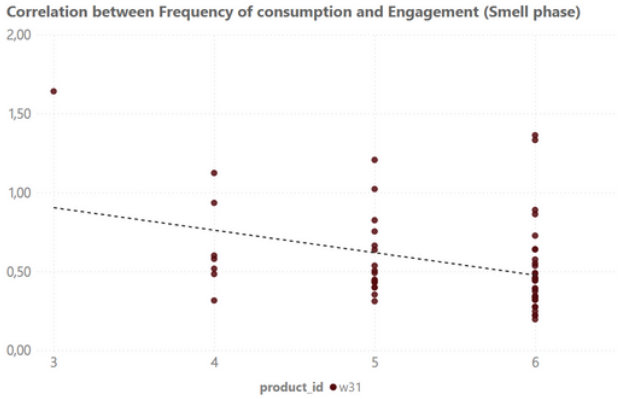
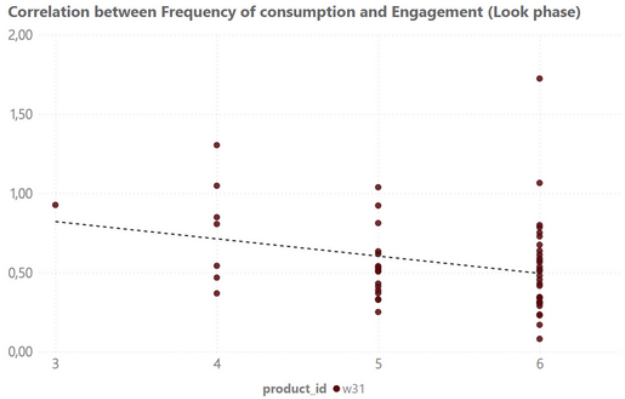
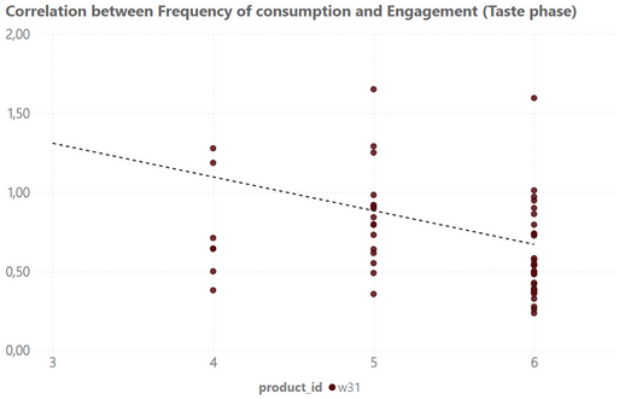
CORRELATION BETWEEN FREQUENCY OF CONSUMPTION AND ENGAGEMENT | PEPSI COLA









For product **W31**, a negative correlation was found between the frequency of cola consumption and the levels of engagement elicited during the look, smell, and both taste phases.

In essence, the higher the frequency of consumption, the lower the engagement across the experience.

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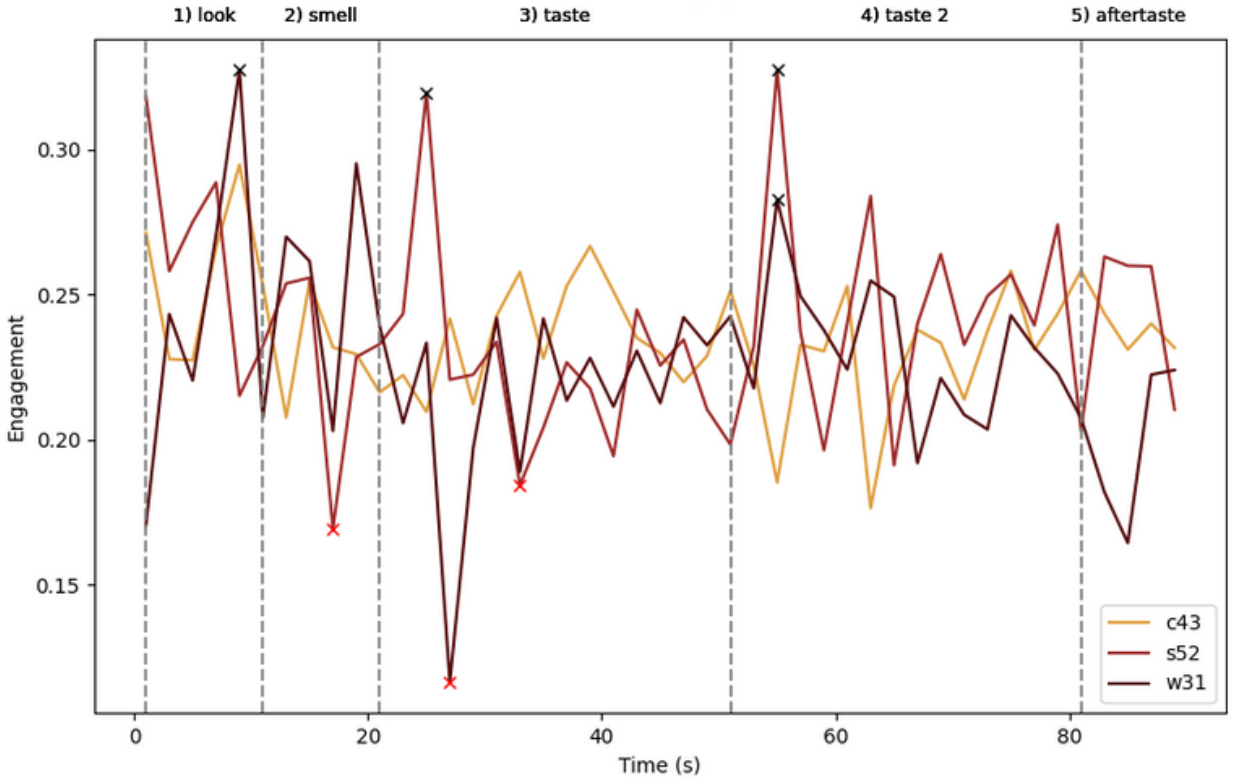
PEAK OF ENGAGEMENT



As **S52** consistently triggers a peak in engagement during the first sip of both taste phases. The first impression of **W31** is less engaging when compared to the rest of the tasting experience. This demonstrates that the product may have an aspect that is familiar hence not very stimulating for the consumers. **C43** is relatively consistent throughout the entire tasting experience.

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DIFFERENCES BASED ON FREQUENCY OF CONSUMPTION

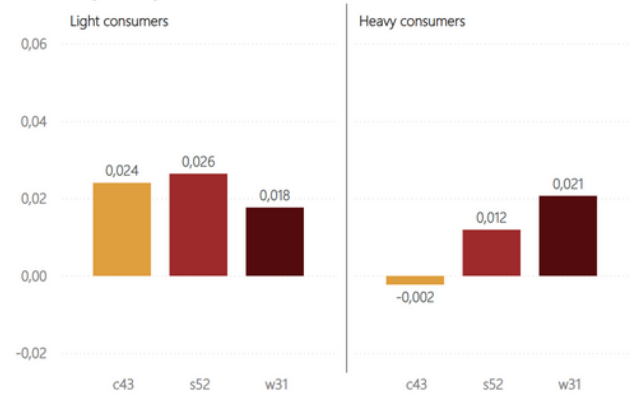
Segmentation based on frequency of consumption

Several times a week	6
Once a week	5
Once a fortnight	4
Once every 2-3 weeks	3

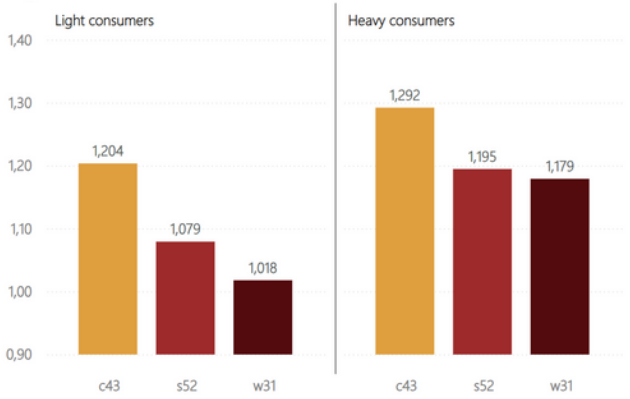
Group 1= light consumers, 25 pps (categories 3-5)
Group 2= heavy consumers, 32 pps (categories 6)

1 participant excluded due to missing data.

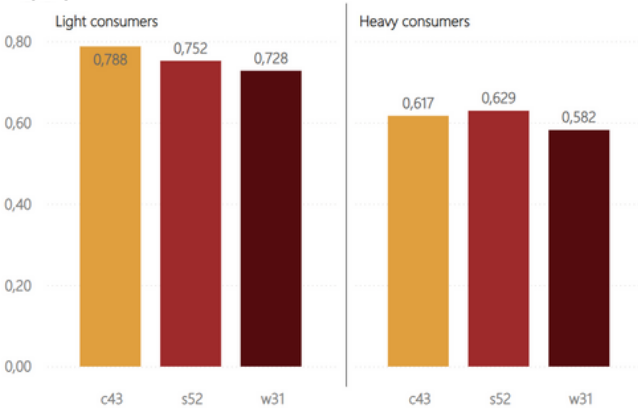
Frontal asymmetry



Cognitive workload



Engagement



The graphs above demonstrate trends found in the data.

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