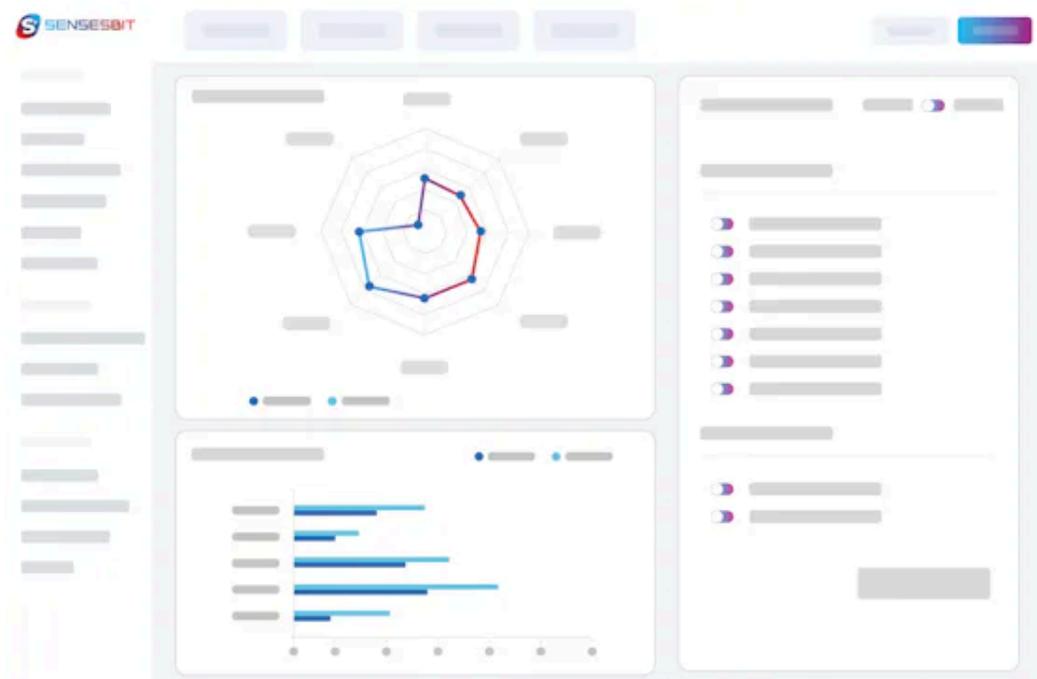


SENSORY PLAYBOOKS

SENSESBIT

Become an expert in
sensory analysis



Penalty analysis

It measures the impact on acceptance of the deviation of a sensory attribute (too intense or too low).

It allows us to know how to improve the product in a quick and agile way as it is not necessary to train a panel of tasters.

Execution

The necessary elements for a penalty analysis are an **acceptance** question and a **'Just about right'** question.

For the acceptance question, the most commonly used scale is a 9-point structured scale, where 1 means 'I dislike it very much', 5 means 'I neither like nor dislike it' and 9 means 'I like it very much'. For the 'Just about right' technique, 3- or 5-point bipolar scales are often used, with the middle point labelled 'Just about right' and the extremes 'More than I like' and 'Less than I like'.

Consumer tasks



Perceiving the intensity of the attribute



Deciding the right point of intensity for each attribute



Calculate the difference between the perceived intensity and the Just about right point.

Calculations

Mean drop

How much does acceptance drop for consumers who perceive an attribute as out of the just about right point?

Weighted penalty

Ratio between the impact of a deviation and how frequent it is. It helps us to detect the most relevant deviations.

$$\text{MeanDrop} = \overline{\text{aceptaciónPuntoJusto}} - \overline{\text{aceptaciónDesviación}}$$

Mean number of consumers at the just about right point minus mean number of consumers above or below the just about right point

$$\text{WeightedPenalty} = \frac{\text{meanDrop} \times \% \text{consumidores}}{100}$$

Mean drop by the percentage of consumers above or below the just about right point divided by a hundred.

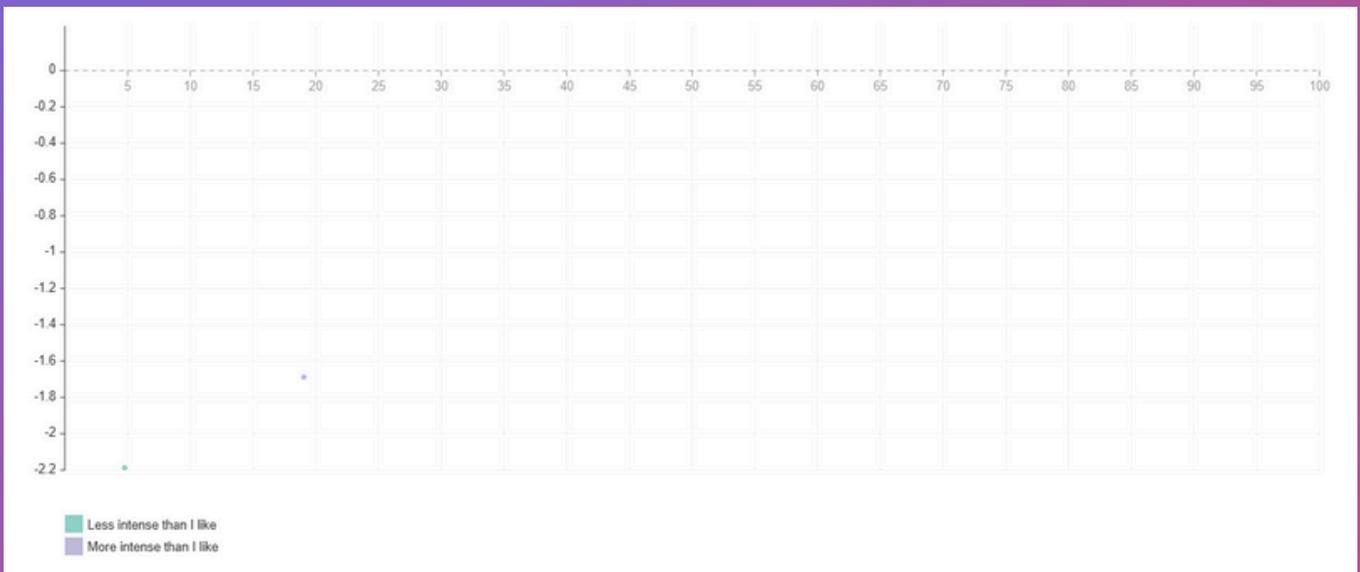
Penalty analysis

Results

The best way to visualise the results is by means of a graph that relates the mean drop with the frequency of occurrence of the deviation.

Thanks to this graph, we can know which are the most worrying deviations, which will always be those in the lower right-hand part of the graph. In other words, they will be the ones that cause the **greatest impact on the greatest number of people**.

In this case, the bitter flavour too high penalises more people while bitter taste too low penalises more but fewer people.



Sample	Attribute	Scale value	Central	Average drop	Consumer percentage	Weighted penalty
Chocolate A	Bitter flavor	Less intense than I like	7.1875	-2.1875	4.76%	-0.104
		More intense than I like	7.1875	-1.6875	19.05%	-0.321
	Crunchy	Less intense than I like	6.4118	1.5882	4.76%	0.076
		More intense than I like	6.4118	1.9216	14.29%	0.275