SENSORY PLAYBOOKS

Sensesbit

Become an expert in sensory analysis

PENALTY ANALYSIS

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SENSORY PLAYBOOKS PENALTY ANALYSIS

Measure the impact on acceptance caused by the deviation of a sensory attribute (either too intense or too weak).

It allows us to quickly and efficiently understand how to improve the product, since there is no need to train a tasting panel.

Execution

The essential elements for a penalty analysis are an acceptance question and a "Just About Right" (JAR) question.

For the acceptance question, the most commonly used scale is a 9-point structured scale, where 1 means "Dislike extremely", 5 means "Neither like nor dislike", and 9 means "Like extremely". For the Just About Right technique, bipolar scales with 3 or 5 points are typically used, with the central point labeled "Just About Right", and the endpoints labeled "More than I like" and "Less than I like".

Consumer tasks

Perceive the intensity of the attribute.



- Decide the ideal level of intensity for each attribute
- Calculate the difference between the perceived intensity and the ideal level.



Calculations

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Mean Drop:

 How much does acceptance decrease among consumers who perceive an attribute as being off from the just-aboutright point?

Weighted Penalty:

• The relationship between the impact of a deviation and how frequently it occurs. It helps us identify the most relevant deviations.

MeanDrop = aceptaciónPuntoJusto - aceptaciónDesviación

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

WeightedPenalty = -	meanDrop x % consumidores
	100

Average acceptance score of consumers at the just-about-right point minus the average score of consumers above or below the just-about-right point.

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Results

The best way to visualize the results is with a chart that relates the mean drop to the frequency of the deviation.

Thanks to this chart, we can identify the most concerning deviations—those that appear in the bottom right corner of the graph. In other words, they are the deviations that have the **greatest impact on the largest number of people.**

In this case, saltiness being too high is the most concerning deviation, as it is both the most frequent and has a high impact.



MENOS INTENSO DE LO QUE ME GUSTA MÁS INTENSO DE LO QUE ME GUSTA

Calculate it yourself

Download the template to perform these calculations yourself.

1° Enter your data in the data tab by modifying the sample and attribute names.

2° Check the "Means, %" tab to see which data will appear in the chart.

3° Indica al gráfico de qué tabla debe leer los datos en la pestaña Penalty test.

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