Understanding the effect of rating scale length on discrimination between samples

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Abstract:
The length of a rating scale used in descriptive analysis may affect the discrimination between samples and the apparent discriminative ability of trained panellists. Modern sensory testing of food and non-food products is moving to the use of tablets and even mobile phones for recording panellist's data. This has an impact on the size of the rating scale used by panellists to record sensory data. Equally, modern software packages allow you to modify the length of your scale from the standard 10cm up to 20cm or larger dependent on your needs.

This research compared data from trained panellists using a 10cm line scale, 20cm line scale and electronic tablets with 6.5cm line scale, to determine the impact of scale length on sample discrimination. 15 male and 15 female experienced panellists trained on 10cm unstructured line scales participated in the test, which included 4 visual, 1 tactile and 1 fragrance activity, with samples differing in their relative intensities and creating a range of 'differences'.

Results indicated that data collected using the tablet, where the finger was used to register intensity, over-estimated the result compared to using a mouse to record the intensity; this was particularly evident when registering results at the scale extremes. As a consequence, samples that were more similar (closer together on the scale) were not discriminated as well when the data was collected on the tablets compared to the computer.

Regarding the data collected using a computer and mouse, the absolute intensity of the results and the discrimination between samples was not impacted by absolute scale length.