



Rapid Profiling Technique: Flash Profiling

What is Flash Profiling?

Flash Profiling is a rapid sensory profiling method which requires assessors to rank-rate samples in order of intensity. Each assessor individually determines their own list of attributes by which to evaluate the samples. Samples are then ranked by the assessor for the intensity of each descriptive term in their attribute list. This saves a huge amount of time that would normally be spent in traditional profiling to train assessors to produce a standard lexicon and more significantly how to use line scales. Ranking is a more instinctive method and this together with the fact that each assessor has their own terms means no training is required. The output of flash profiling is a plot showing the differentiation of the product set, the dimensions of which are defined by the attributes used.

Why would you use it?

Flash Profiling was derived from Free Choice Profiling (FCP) to make an even more rapid sensory profiling technique! Ranking is a much easier task than rating with a line scale. Flash Profiling combines the free-choice attribute selection with a simultaneous sample presentation of the whole product set. By presenting the samples simultaneously, assessors can directly compare the samples to one another, which allows for slightly better discrimination¹. Flash Profiling is the technique to use when you need to understand the most important attributes in a product set and get a broad understanding of how the products are discriminated, but you do not have enough time to train your sensory panel to produce a consensus vocabulary or how to use line scales.

Who would you use?

As ranking is intuitive you can use anyone as long as they can understand what you are asking them to do. We have used our trained panel and consumers to carry out Flash Profiling and both groups gave comparable results. If you are going to use consumers they should be regular users of the product and be articulate (the better they can describe the samples the more information about the product set you will get).

What samples can you assess?

As the samples are served simultaneously, Flash does lend itself better to ambient products but as long as you can find a way to keep hot products hot and cold products cold, without affecting their sensory properties, there is no reason why you can't rank them. When deciding how many samples to put into the study you need to consider the following types of questions: How strong are the flavours? How many attributes are the assessors likely to generate? How quickly will they fatigue

¹ Dairou, V., Siefferman, J.M. (2002). A comparison of 14 jams characterized by conventional profile and a quick original method, the flash profile. *Journal of food science*, 67, 826-834.



etc. It is possible to rank between three and ten samples using a trained panel and probably up to seven samples with consumers. Ranking tends to lead to a lot of retasting and so is fatiguing. We used 10 orange juice samples which gave us good results but the assessors did find it quite tiring. If you have 10 or more samples Napping® or Free Choice Profiling would be a more appropriate rapid technique to use.

How is it done?

Flash Profiling is carried out in two sessions: an attribute generation session and a rating session. The attribute generation session is exactly the same as the attribute generation session for Free Choice Profiling. You can use data collection software for the rating session if available otherwise paper and pencil works fine! The procedure is the same for both trained assessors and consumers but consumers may require more guidance.

To carry out Flash Profiling follow these steps:

Attribute Generation Session:

1. Present all the samples (either simultaneously or one at a time) to the assessor.
2. Ask them to evaluate each sample and record all the attributes they perceive in each sample and to note if each is an aroma, flavour, mouthfeel, texture or aftertaste term.
3. Once they have evaluated all the samples ask them to list all the descriptive terms they have generated and group them by modality (aroma, flavour etc). For consumers you may want to assist them with this step to ensure all the words are listed in the correct modality.
4. You will need to tell the assessor how you want them to order the samples for intensity e.g. most intense to least intense or least intense to most intense. For most sensory attributes those anchors will be appropriate but for some attributes they may need to assign different ones e.g. 'fast-slow'

If you are using consumers we recommend that you give them a short presentation informing them about the types of words that you are interested in e.g. sensory, context of use etc. and if you are interested in sensory terms, explain to them about the different sensory modalities. By doing this you will get much more valuable data. Another good idea when carrying out this technique with consumers is to present the samples in triads (sets of three) so they can compare them for similarities and differences which will help them generate more terms.



Sample Rating Session:

1. Create a ballot (questionnaire) for each assessor using their unique list of descriptive terms. This can be done using your normal sensory testing software– the only difference is that each person will have their own program or alternatively, you can create paper ballots.
2. Associate each term with a scale (if on paper, blank boxes in a row that correspond to the number of samples you have) and the anchors decided above.
3. Present all the samples simultaneously to the assessors and ask them to rank the samples in order of intensity for each attribute they have generated.
4. Depending on the amount of time available you could evaluate the samples in duplicate or triplicate. We carried out two replicates to evaluate how consistent our panel and consumers were between reps.
5. All the data is either exported (if using computerised software) or entered (if using paper ballots) into an Excel spreadsheet.

How do you analyse the data?

Data is analysed using a multivariate technique such as General Procrustes Analysis (GPA) which is suitable for comparing different matrices (i.e different numbers of attributes). You can either ask a statistician who is familiar with sensory data (we recommend QI Statistics www.qistatistics.co.uk) or you can have a go yourself using XLSTAT. XLSTAT is a user-friendly statistical software package that can carryout highly efficient statistical and multivariate data analysis.

The output of the analysis will be a consensus product configuration map to show overall or by modality how the products were perceived in relation to one another. Plots can also be produced for each attribute to determine which attributes are being used to describe a particular characteristic.

Don't get caught out by...

- You may need to check if your normal sensory testing software can accommodate Flash Profiling (ranking).
- Ask your assessors to remove opposite terms e.g. both thin and thick do not need to be ranked. This will help reduce fatigue.
- Ranking will not give you any information on how much the samples differ in intensity for a particular attribute just that there is a perceivable difference between the samples.



- You will need to decide in advance if you wish to include tied ranks and inform your assessors of how to do this.

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