



COMPARISON OF THREE METHODOLOGIES TO IDENTIFY DRIVERS OF LIKING OF MILK DESSERTS

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INTRODUCTION

- Understanding how consumers perceive food products is critical for food companies.
- Food companies need information about which sensory characteristics consumers expect to find in the product, i.e. which sensory attributes drive consumer liking
- Preference mapping techniques have been widely used to answer this question

- One of the limitations of these techniques is that they assume that consumers and trained assessors perceive the products in the same way
- An alternative could be to gather information about consumers' perception of the product using open ended questions.
- ten Kleij & Musters (2003) allowed consumers to voluntarily write down comments after their evaluations.

OBJECTIVES

- Evaluate the use of an open-ended question to identify drivers of liking of milk desserts
- Compare results to those obtained using internal and external preference mapping techniques

MATERIALS AND METHODS

- Eight milk desserts with different texture and flavour characteristics were formulated following a L_82^7 Taguchi design
- Milk desserts were prepared using powdered milk and tap water
- Five two-level variables were considered:
 - Starch
 - Carragenan
 - Vanilla
 - Sugar
 - Milk fat concentration

Sample	Starch	Vanilla	Sugar	Carragenan	Fat
I	4.2%	0.1%	8%	0%	3.2%
II	4.2%	0.1%	12%	0.02%	0%
III	4.2%	0.25%	8%	0.02%	0%
IV	4.2%	0.25%	12%	0	3.2%
V	5.2%	0.1%	8%	0	0%
VI	5.2%	0.1%	12%	0.02%	3.2%
VII	5.2%	0.25%	8%	0.02%	3.2%
VIII	5.2%	0.25%	12%	0	0%

Trained assessors panel

- A panel of 8 assessors characterized the texture and flavour of the samples using Quantitative Descriptive Analysis
- The assessors evaluated the following attributes:
 - Sweetness
 - Milky flavour
 - Vanilla flavour
 - Thickness
 - Creaminess
 - Melting
 - Density
 - Stickiness
 - Mouth coating
- Unstructured 10-cm-long scales anchored with “nil” and “high” were used to describe attribute intensity.

Consumer panel

- A consumer study was carried out with 80 consumers
- Consumers evaluated the overall acceptability of the desserts using a 9-point hedonic scale
- They were also asked to provide up to four words to describe each dessert

Sample N° _____

How much do you like
this milk dessert?

Dislike
extemely

Neither like
nor dislike

Like
extemely

Mention up to 4 words you would use to describe this milk dessert _____

Data analysis

- Analysis of variance
- Principal component analysis of trained assessors' data
- Internal preference mapping
- External preference mapping
- Analysis of open-ended question:
 - Qualitative analysis of elicited terms
 - Correspondence analysis

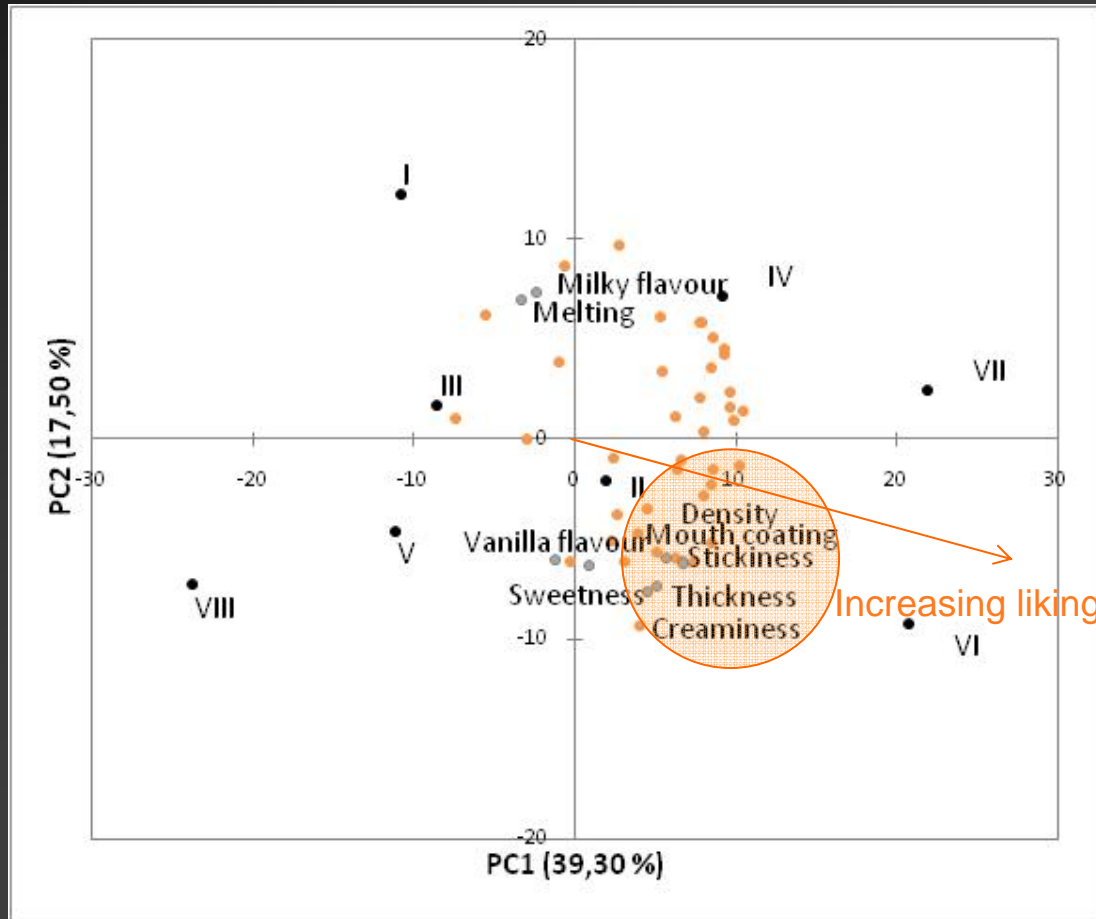
RESULTS

Acceptability scores

Sample	Mean acceptability score
I	4.7 ^{b,c}
II	5.2 ^{b,c}
III	4.0 ^d
IV	5.7 ^b
V	4.4 ^{c,d}
VI	6.9 ^a
VII	6.6 ^a
VIII	4.1 ^d

RESULTS

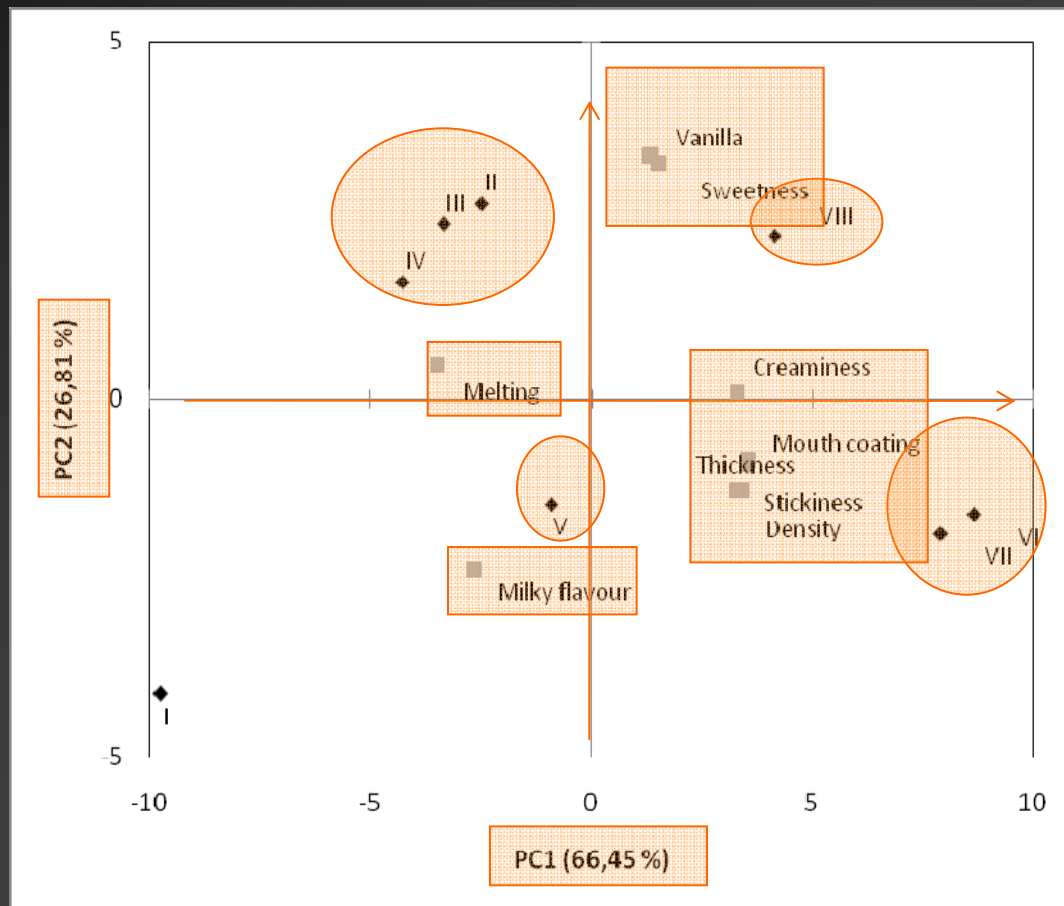
Internal preference mapping



Drivers of liking:

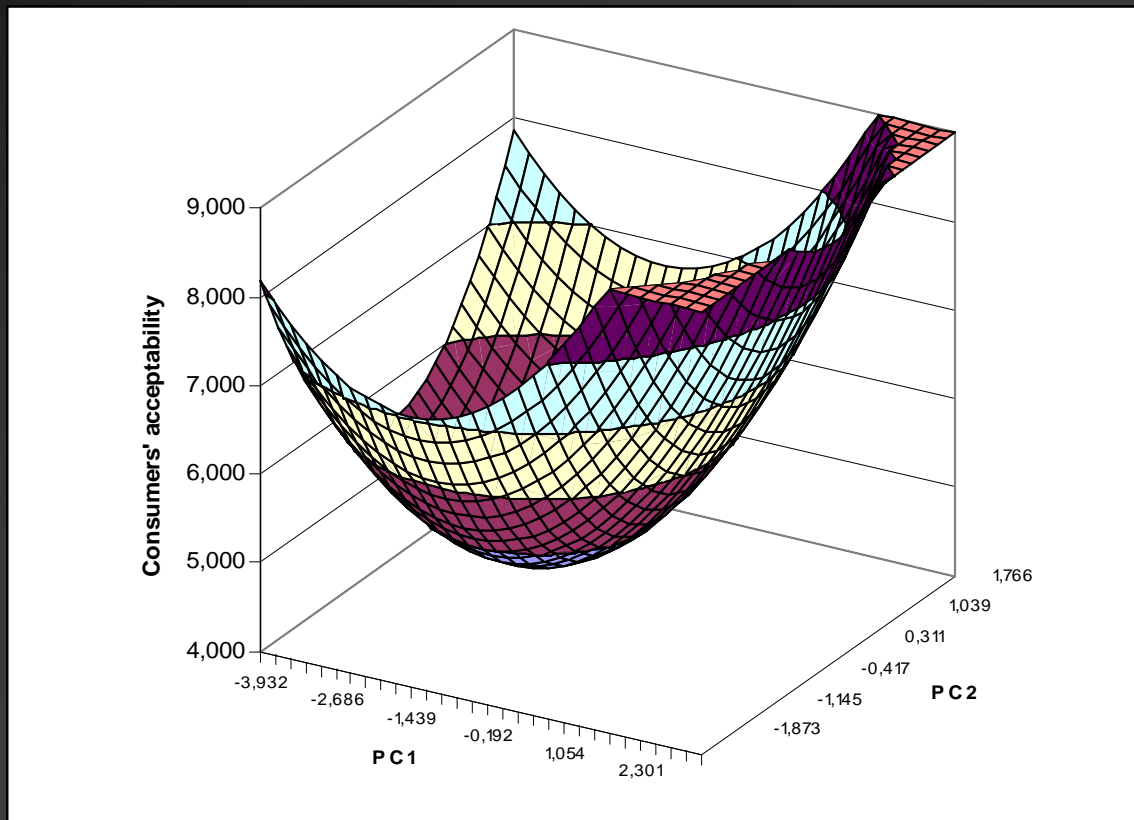
- Creaminess
- Thickness
- Mouth-coating
- Stickiness
- Density

Principal component analysis of trained assessors' data



- PC1 was mainly related to texture attributes
- PC2 was correlated to flavour attributes
- Samples were sorted into 4 groups

External preference mapping



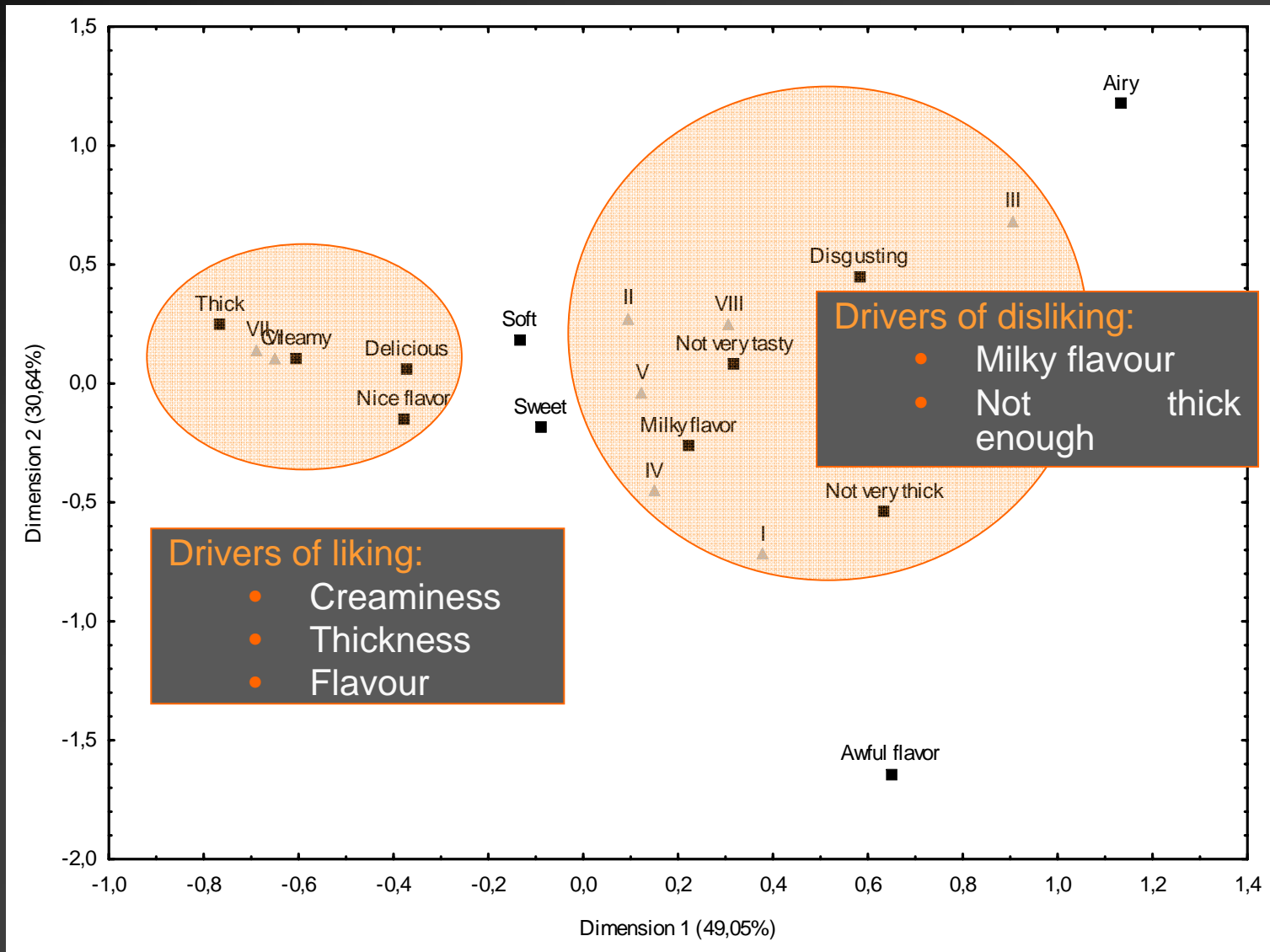
Drivers of liking:

- Creaminess
- Thickness
- Mouth-coating
- Stickiness

Open ended question

Category	Examples	Frequency
Delicious	Delicious, I like it, Nice, Tasty	210
Thick	Thick, consistent, viscous	138
Disgusting	Disgusting, I don't like it	84
Creamy	Creamy, Very creamy	84
Sweet	Sweet, Very Sweet	84
Not very tasty	Not very tasty, Not tasty enough	78
Milky flavour	Milky, Milky flavour	76
Soft	Soft	70
Not thick	Not thick, Not thick enough, Runny	56
Airy	Airy, With bubbles	42
Nice flavour	Good flavour, Nice flavour	38
Awful flavour	Awful flavour, Bad flavour	10

- Responses to the open-ended question identified liked and disliked samples, as well as the sensory attributes responsible for consumers' preferences



CONCLUSIONS

- The use of an open-ended question asking consumers to describe the samples provided an interesting insight into consumers' perception.
- This technique could be useful to identify terms for other methodologies.
- Further research is necessary to evaluate the applicability of this technique for the identification of drivers of liking of more complex food products.

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**THANK YOU VERY MUCH
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