Effects of intrinsic and extrinsic attributes on product responses

MAPP Workshop 2012
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Ongoing Nofima project:

Prediction of food choice: challenges related to measuring consumers’ responses

- Relationship between intrinsic and extrinsic attributes
- Effect of meal situation
- Relationship between ranking and rating data
- New strategies for measuring choice
- How do rated acceptance and ranking predict «final product choice»?
Intrinsic and extrinsic attributes

• Intrinsic attributes: Appearance, odour, taste/flavour and texture

• Extrinsic attributes: Price, origin, nutritional content, branding etc.

• Extrinsic attributes created expectations

• The extrinsic perception of the product should be confirmed by the intrinsic perception
Expectations are important

**Blind**: How much do you like this wine?

Score: 3

**The bottle is presented**: How much do you expect to like this wine?

Score: 7

**Taste and see the bottle**: How much do you like this wine?

Score: 5
Liking of a product tends to assimilate towards the expectations (Deliza and MacFie, 1996)
Effects of information and expectations on product selection and evaluation (Deliza and MacFie, 1996)

Experience and information

Low

Expectations

Rejection

High

Choice

Product use (sensory)

Disconfirmation

Negative

Rejection

Expectations lowered

Confirmation

Positive

Satisfaction

Repeated use

Expectations raised
Two main situations for collecting responses

Expectations

1. Choice
   - Ranking
   - Choice
   - Willingness to pay
   - Probability of buying

2. Eating
   - Blind rating (?)
   - Informed rating
   - Expected liking
   - Probability of buying
Applications – conjoint methodology

1. «Standard approach» (Hersleth et al, 2011)
   - Eating situation
   - Blind, expected, informed

2. «Interaction approach» (Johansen et al, 2010)
   - Eating situation
   - Interactions between intrinsic and extrinsic
1) Consumers’ acceptance of innov. in dry cured ham: impact of reduced salt content, prolonged aging time and new origin

Hersleth, Lengard, Verbeke, Guerrero and Næs, 2011

• Aim: To evaluate effects of information about reduced salt content, prolonged aging time and new origin on the acceptance of dry-cured ham.

• Four types of ham
  – Norwegian and Spanish (N & S)
  – Short and long aging (1 & 2)
  – Extrinsic attributes: origin, aging time, salt content

• Three responses
  – Blind test (intrinsic attributes)
  – Expected liking (extrinsic attributes)
  – Informed test (intrinsic and extrinsic attributes)
Average liking 1-9 scale

Like extremely

Dislike extremely

N1  N2  S1  S2

6.6  5.7  7  6.9
4.9  4.6  6  6.3
4.6  4.9  6  5.8

Blind test  Expected liking  Informed test
2) Acceptance of calorie-reduced yoghurt: Effects of sensory characteristics and product information.
Johansen, Næs, Øyås and Hersleth, 2010

Question:
• How does the interaction between nutritional information and sensory perception affect consumer acceptance?

Objective:
• Study acceptance of yoghurt with different levels of sweetness and richness, when corresponding information about sugar and fat content was given simultaneously with tasting.

Approach:
• Conjoint
Approach

Production of 12 vanilla yoghurts

Descriptive profiling 12 yoghurts

1 warm-up + 4 yoghurts
Hedonic rating, scale 1-9
Blind
153 consumers

2 * 4 yoghurts
Hedonic rating, scale 1-9
Conjoint
153 consumers
Conjoint: $2^{(4-1)}$ design

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<th>Sweetness</th>
<th>Richness</th>
<th>Information about sugar content</th>
<th>Information about fat content</th>
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Results:

• Intrinsic attributes
  – Sweetness +
  – Richness +

• Extrinsic attributes (conjoint)
  – Low sugar +
  – Low fat NS

• Interaction effects: NS
  – Sensory richness & info fat content
  – Sensory sweetness & info sugar content
Learning

• «Standard approach»
  – Effects of sensory attributes
  – Effects of information
  – Where to emphasise improvements

• «Interaction approach»
  – More natural
  – Possible to study interactions
  – Challenging to include tasting
  – Unnatural to combine price and tasting

• New approaches needed

• Important to consider possible contextual effects
References:

• Almlø, V. L. and Hersleth, M. Submitted to Aquaculture International. Salt replacement and injection salting in smoked salmon evaluated from descriptive and hedonic sensory perspectives.
Thank you for your attention

Acknowledgements: