Food-evoked emotions: How to measure and model them and what do they add to liking?

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Objective

- Model to explain and predict food choice including affective and cognitive drivers in addition to liking
  - Systematic series of studies with focus on intrinsic/sensory and extrinsic/package elements

Methods

Products

- Five breakfast drinks and two desserts

Methods

- Emotional responses to Blind taste

Methods

- Assessing actual food choice after tasting each product blind

Methods

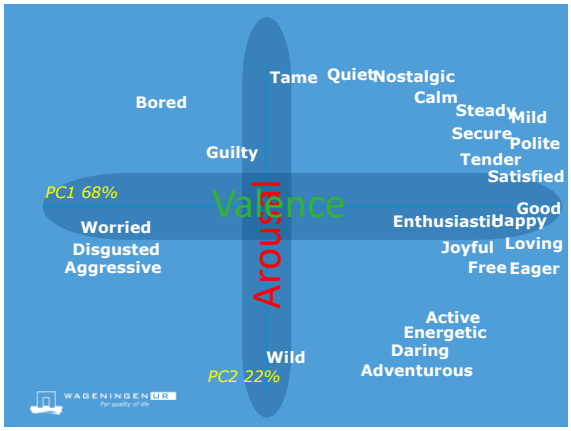
- Emotional responses to Package

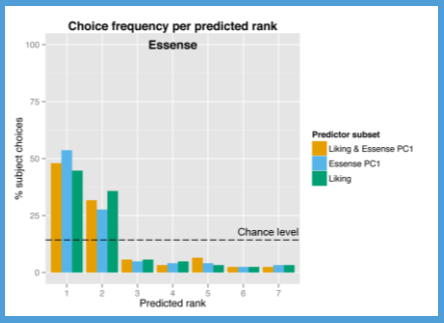
Methods

- Emotional responses to the Package+Taste

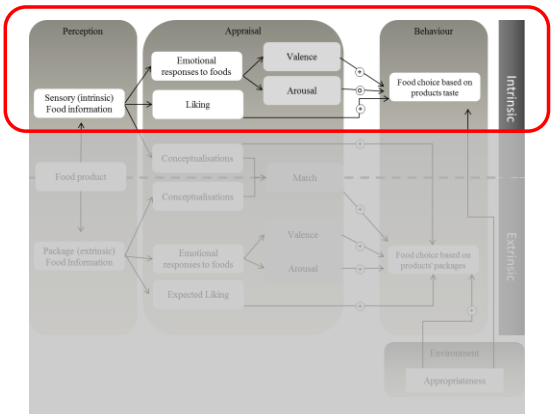
Methods

- Assessing actual food choice

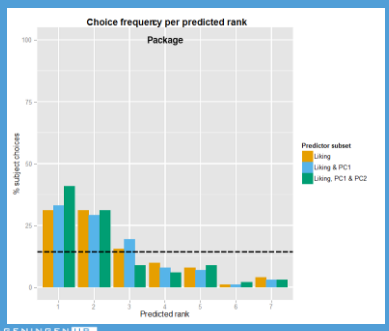


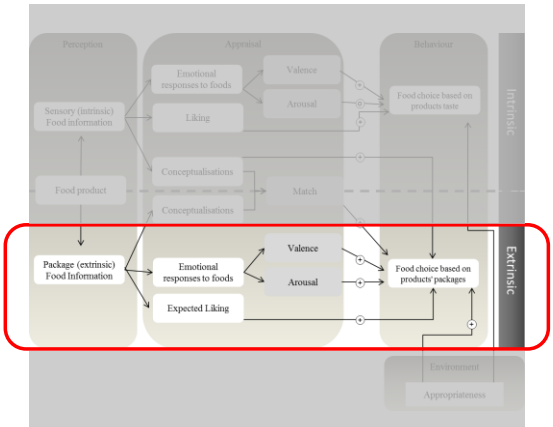


For details on MLM analysis see *Gutjar et al., FQAP, 2015; Dalenberg et al., PlosOne, 2014*



Emotions predict choice - Package





Summary slide

	Study 1	Study 2
Objective	To test the predictive ability of emotional associations on choice compared to sensory liking	
Methods	Emotional profiling + choice, Sensory properties	Emotional profiling + choice Sensory and packaging cues
Main conclusions	Combination of emotion valence and liking predicted 50% of all individual choice	Combination of liking, valence and also arousal predicted 41% of all individual choice
Learnings	Emotions add limited predictive ability but provide broader insights than liking	Emotions elicited by package add predictive ability to liking

Colouring perception?

Package colour trends in market

Stimuli

Investigating package colour effects

1. Flavour expectations & Flavour perception

2. Implicit associations

3. Neural correlates

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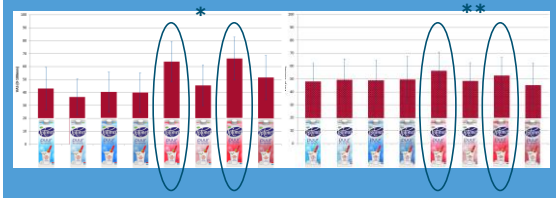
Expectations & Perception | Implicit associations | Neural correlates

Sweetness expectation | Sweetness perception



*$p<0.001$
**$p<0.05$

Expectations & Perception | Implicit associations | Neural correlates

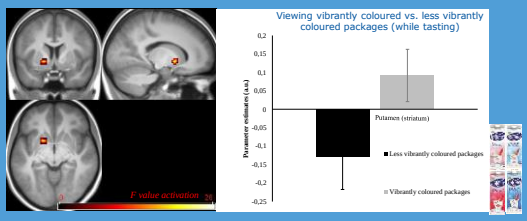
More vibrant packages strongly associated with ***attractiveness*** (high saturation, low brightness)

Less vibrant packages strongly associated with ***healthiness*** (low saturation, high brightness)

*$p<0.001$

Expectations & Perception | Implicit associations | Neural correlates

Expectations & Perception | Implicit associations | Neural correlates



More activity in brain region involved in reward value when viewing the *vibrantly coloured packages* compared to the *less vibrantly coloured packages* (irrespective of product tasted)

Packaging healthier products in warmer, less bright and more saturated coloured packages may render them more flavourful, more attractive and more rewarding

Introduction

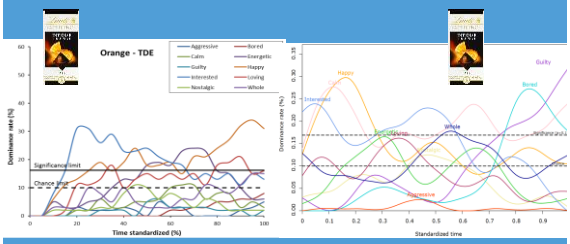
Investigate the temporal dynamics of **sensory** and **emotion** attributes for **multiple bite** evaluation of foods

Measuring food-evoked emotions is topical

Static	Dynamic
PrEmo© (Desmet & Schifferstein, 2008)	Autonomic nervous system parameters (heart rate, skin temperature etc.)
GEOS method (Chrea et al., 2009)	Affective brain function (fMRI)
EsSense™ (King & Meiselman, 2010)	Facial expressions
Conceptual profiling (Thompson et al., 2010)	Temporal Dominance of Emotions (Jager et al., 2014)
ScentMove™ (Porcherot et al., 2010)	
EsSense™ 25 (Nestrud et al, 2013)	
UniGEOS (Ferdenzi et al., 2013)	

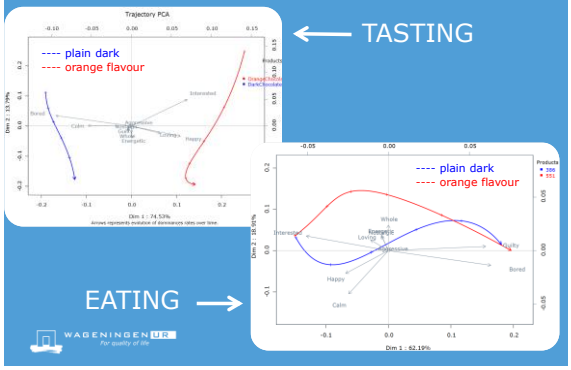
Method

CONTEXT - Tasting versus eating...



- Mean consumption duration tasting = 55 s (1 min)
- Mean consumption duration eating = 300 s (5 min), 55 g, 300 kcal

CONTEXT – PCA trajectory



TEMPO 2: Introduction

Sensory perception **evolves over time** due to mastication and salivation

Texture perception contributes to consumer acceptance and food palatability

Temporal Dominance methodologies most commonly used to measure temporal dynamics

TEMPO 2: Objectives

(1): Investigate the **effect of adding textural contrast** on dynamic sensory perception, food-evoked emotions and hedonic perception

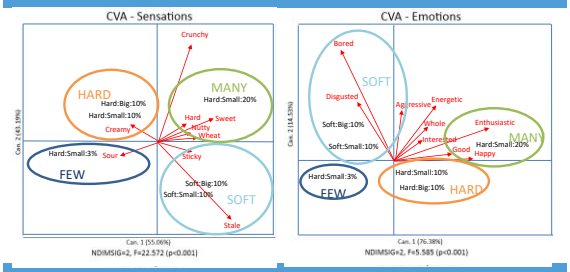
(2): Investigate the **evolvement** of dynamic sensory perception, food-evoked emotions and hedonic perception in **multiple bites**.

TEMPO 2: Procedure

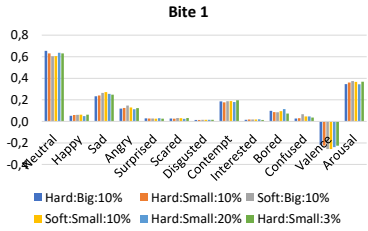
	HARD		SOFT		MANY	FEW
	Hard:Big:10%	Hard:Small:10%	Soft:Big:10%	Soft:Small:10%	Hard:Small:20%	Hard:Small:3%
Hardness	Hard	Hard	Soft	Soft	Hard	Hard
Granulation size	23mm	10mm	23mm	10mm	10mm	10mm
Yogurt (g)	54	54	54	54	48	58
Granola (g)	6	6	6	6	12	2
Granola (%)	10	10	10	10	20	3.3

TEMPO 2: Procedure

Product differentiation



Facial expressions



- Neutral expressions are most intense followed by sad, contempt, bored and angry
- People seem to display mainly negative emotions
- Contradictory, people self-report mainly positive emotions (e.g. good, calm and interested)

Acknowledgements

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Questions?

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