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**Eye-tracking consumers' visual attention:
What do consumers actually look at
on food labels?**

**Match or mismatch between
consumer knowledge and packaging design**

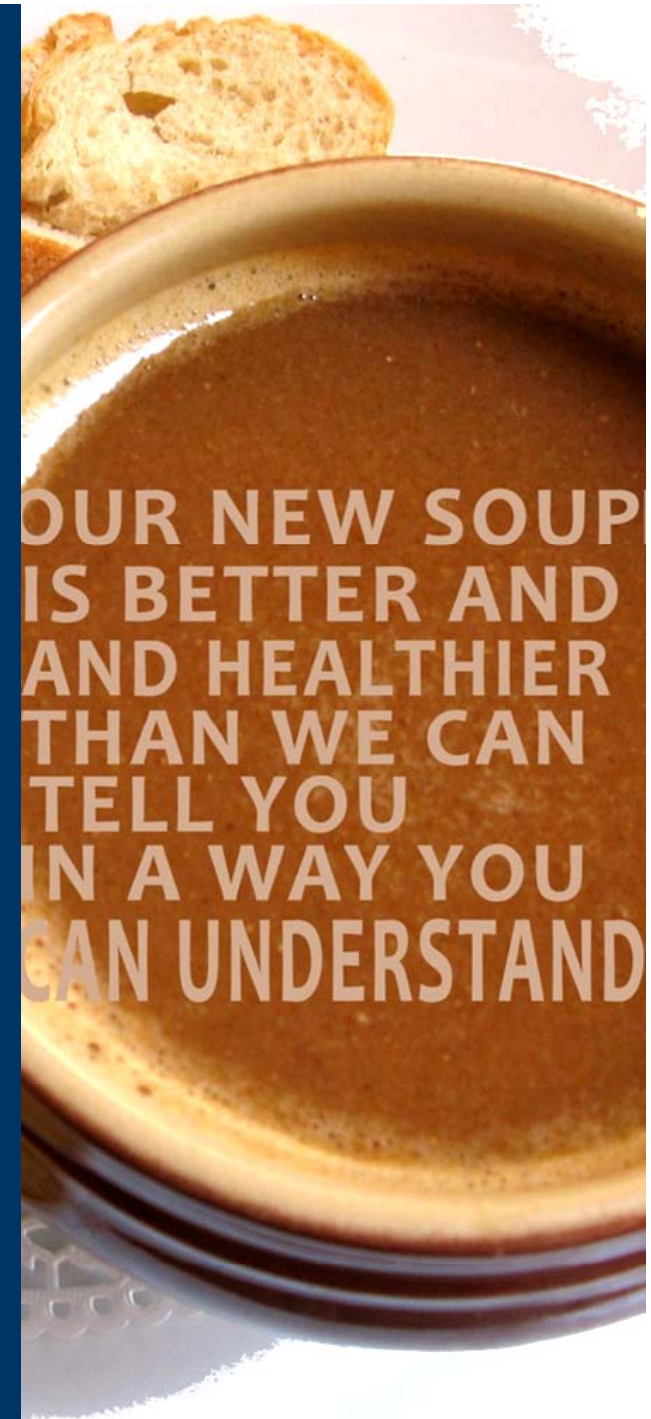
A General view

Food labels are the key communication channel

Consumers make fast decisions

Consumers may overlook and misinterpret information and risk being misled

Pieters, 1999; Clement, 2007; Craddock, 2008; Selsøe Sørensen 2008



The Market Place

An increasing number of foods in the EU bear nutrition and health claims

European Food Safety Authority (EFSA)

The key objective of the regulation is to ensure that any claim on food labels is clear and substantiated by scientific evidence

EFSA finds scientific validation for only **one third** of the applied claims

EFSA takes the scientific approach



The Market Place

Do consumers use scientific validation for their evaluation?

How do consumers interpret the information?



The Market Place

The objectives for food labels with health claims:
Will consumers notice?

If **yes**:

Will consumers understand?
Will consumers misinterpret?
Will consumers be misled?

Depend on
awareness and **knowledge**



Awareness – Visual Search

Colors, pictures, and illustrations have significantly better long-term effect on product beliefs and purchase intentions than precise verbal information

People perceive objects in relation to previous perceptions

Design features attract visual attention and help full perception

Rosch, 1975; Bone & France, 2001



Awareness

– what do consumers look at?

Humans are **not** good at processing two visual scenes at the same time

Feature-driven attention

Any visual search may be interrupted by visual basic features

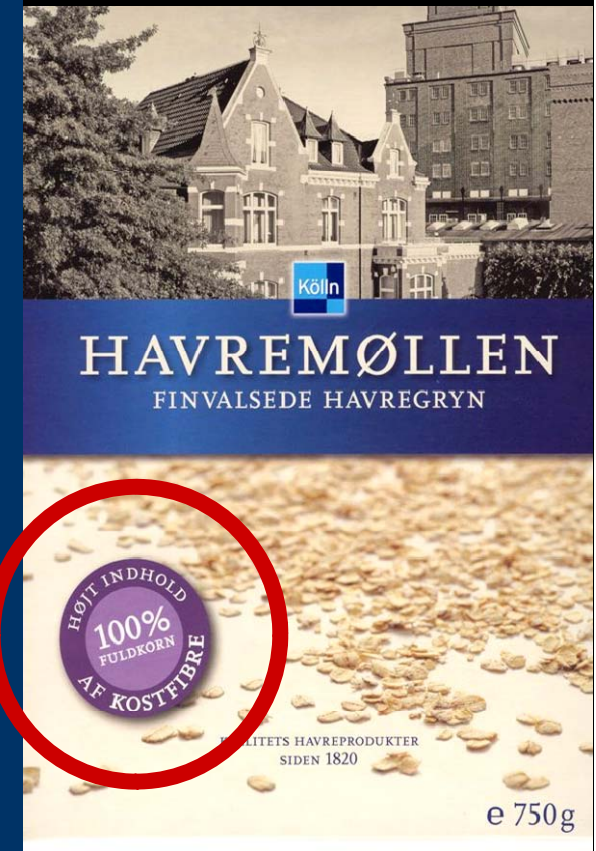
Neisser & Becklen, 1975; Duncan & Humphreys, 1989; Wolfe, 1998



Awareness – Visual Search

Are numerical elements potentially misleading?

How do these elements influence the decision process?



Awareness – Visual Search

Are picture elements potentially misleading?

How do these elements influence the decision process?

How to measure it?



Survey – Eye-tracking

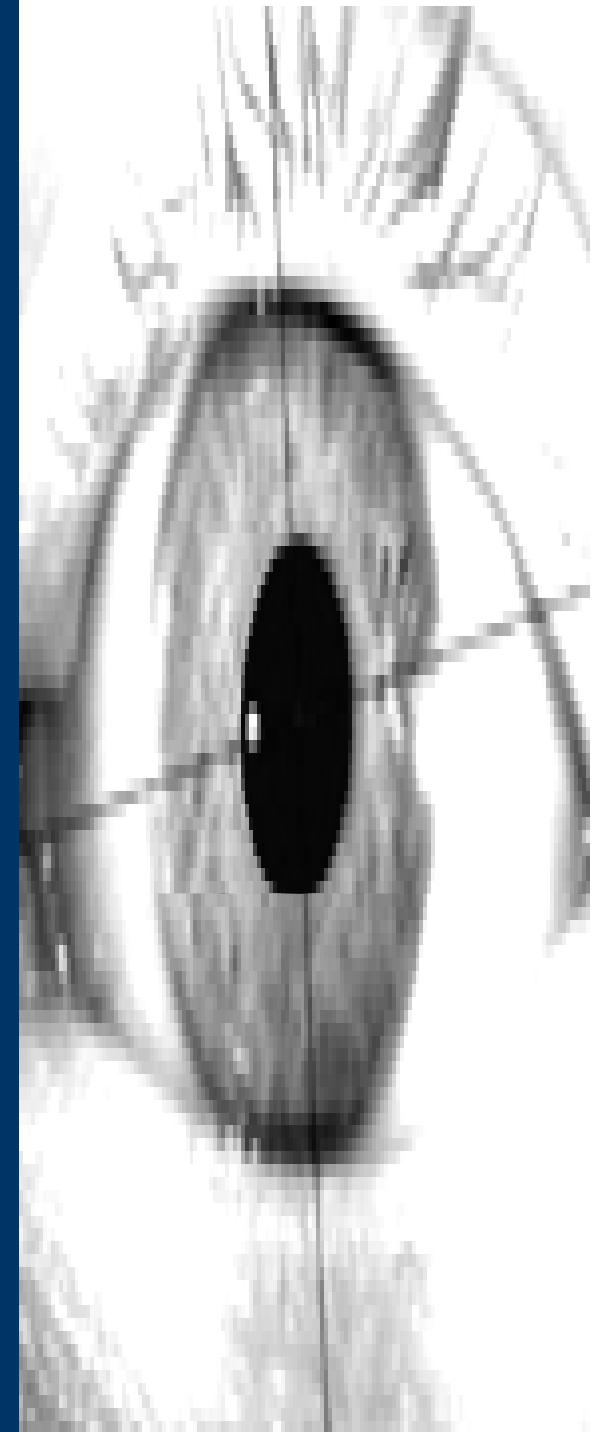
Humans have eye-movements

- saccades (10ms – 100ms)
- fixations (150ms – 600ms)

- 90% of viewing = fixation

**The pattern of eye-movements
indicates visual attention**

Yarbus, 1967; E. Young, 1981; Rosbergen et al., 1995; Duchowski, 2003



Knowledge

Each design element presupposes specific consumer knowledge

Repetition and the experience of processing fluency overrule memory-based knowledge in the judgment of a statement

Even well-informed consumers may not know enough to decode all information on the packaging

Kvavilashvili & Mandler, 2004; Reber & Schwarz, 1999; Unkelbach, 2007



Knowledge – Benchmarking consumers

The EU legislation refers to "the average consumer"

- in general, i.e. non product specific average consumer
- product specific average consumer (not discussed here)

*"In line with the principle of proportionality, and to permit the effective application of the protections contained in it, this Directive takes as a benchmark the **average consumer**, who is reasonably well-informed and reasonably observant and circumspect, taking into account social, cultural and linguistic factors, as interpreted by the Court of Justice, but also contains provisions aimed at preventing the exploitation of consumers whose characteristics make them particularly **vulnerable to unfair** commercial practices."*

(Unfair Commercial Practices Directive, Recital 18)

Survey – Benchmarking consumers

Working hypothesis

When the courts refer to the notion of average consumer, the existence of consumers below and beyond average is presupposed

We shall discuss **weak, average** and **strong consumers** and explore the arbitrary limit between these groups in view of benchmarking individual consumers and placing them in one of the three groups

The overall objective is to operationalize these concepts in order to improve food labels by creating tests that take into account the needs of real consumers

Survey rationale

Is it possible to construct a survey which would reveal the general status of a given individual consumer as far as non product specific knowledge is concerned?

The consumer

- Answers 45 questions relating to common elements found on Danish food labels (multiple choice)
- Sees the 15 most common signpost labels found on foodlabels and is asked whether (s)he has seen them before and if yes, to give a short description of their function/meaning

Survey – Benchmarking consumers

45 multiple choice questions
challenging the consumer's
background knowledge

Examples

- Unsaturated fats are considered to be:
good fats / bad fats / neutral fats
- Free range eggs is another word for:
organic eggs / cage-free eggs / yard eggs



Survey – Benchmarking consumers

Questions on 15 common
signpost labels

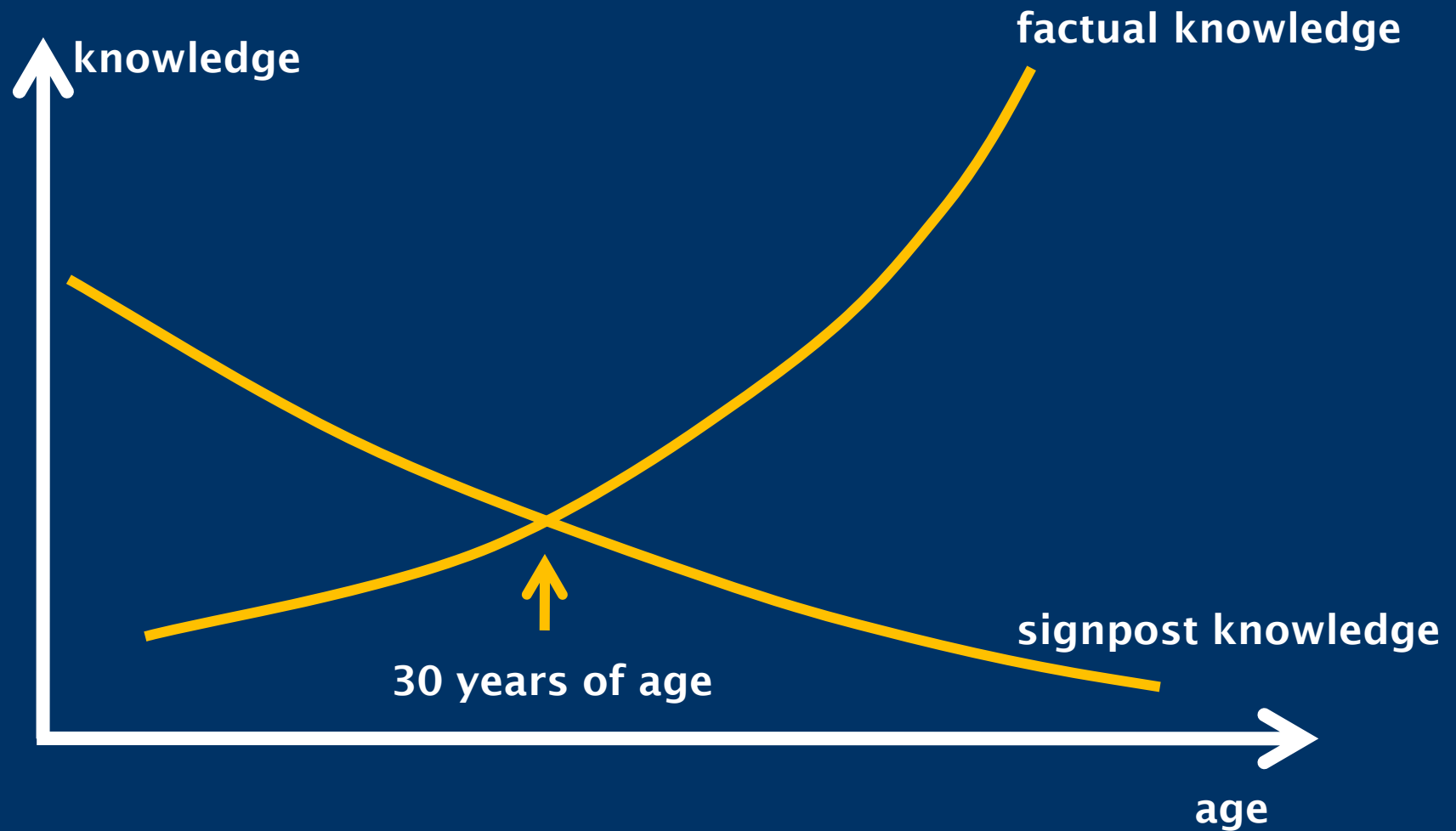


Do you recognize the label?

- no / yes

If yes, explain in a few words what it means

Bringing Awareness and Knowledge Together



Bringing Awareness and Knowledge Together

Areas of interest (AOI)

- **Claims;** health, cooking, ...
- **Illustration;** brand, picture, signposts, ...
- **Product;** name, type, ingredients, ...



Bringing Awareness and Knowledge Together

Visual attention

Pictures of persons are more likely to attract attention than other illustrations

Brand, logo and signposts attract less attention

This is general for all test persons



Bringing Awareness and Knowledge Together

Visual attention – time to first fixation

In general, the test persons first looked at the product name, then illustrations and in the end at brand/logo, health claims, and signposts

A high degree of factual knowledge makes consumers focus on signposts early in the visual search



Bringing Awareness and Knowledge Together

Visual attention – time to first fixation

Illustration like this one caught attention first, but only kept attention for less than 0,5 sec (below average gaze-time/element)

Test persons with a high degree of factual knowledge spend more time before they look at illustrations and less time before they look at signpost labels

– they search for meaningful information



Økologisk Leverpostej

Ingredienser pr. 100 G	Næringsindhold i 100 g ca.
Økologisk svinelever : 33%	Energi : 290 Kcal/1210 KJ
Økologisk spæk	Protein : 10 g
Økologisk suppe	Kulhydrat : 7 g
Økologisk hvedemel	Fedt : 25 g
Økologisk krydderier-blanding	
Salt	
Allergener: gluten.	

Pakkedato: 18.03.06 Mindst Holdbar Til: 11.04.06 Nettovægt: 0.220

Bringing Awareness and Knowledge Together

Visual attention – gaze-time

Test persons gazed more on product name and illustration than on brand/logo and health claims

They rarely gazed on signposts

A high degree of factual knowledge correlates with short gaze-times – consumers with factual knowledge seem to be more dedicated



Size of circle indicates gaze-time

Bringing Awareness and Knowledge Together

Visual attention - number of fixations

Test persons looked more often at product illustrations than at brand/logo and official signposts

Consumers with a high degree of factual knowledge have more fixations than those with a high degree of signpost knowledge



Conclusions

Two consumer profiles have been identified:

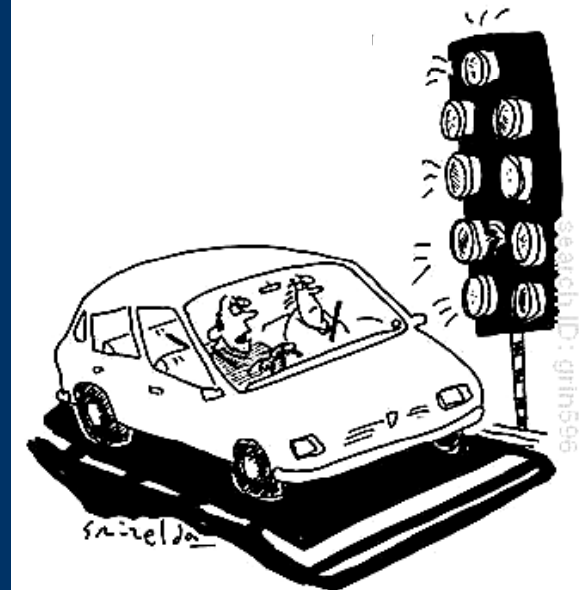
- 1) Those with knowledge on signpost labels but have less factual knowledge**
- 2) Those with factual knowledge but are less familiar with signpost labels**

Eye-tracking results indicate that the two consumer profiles tend to exhibit different patterns of visual attention, although some prominent design features attract visual attention from both profiles

Conclusions

Signpost labels attract attention even from consumers who are unable to decode them

Mismatches between packaging design and consumer knowledge/understanding may cause misleading



Oh no! They have adopted the TESCO food labelling system