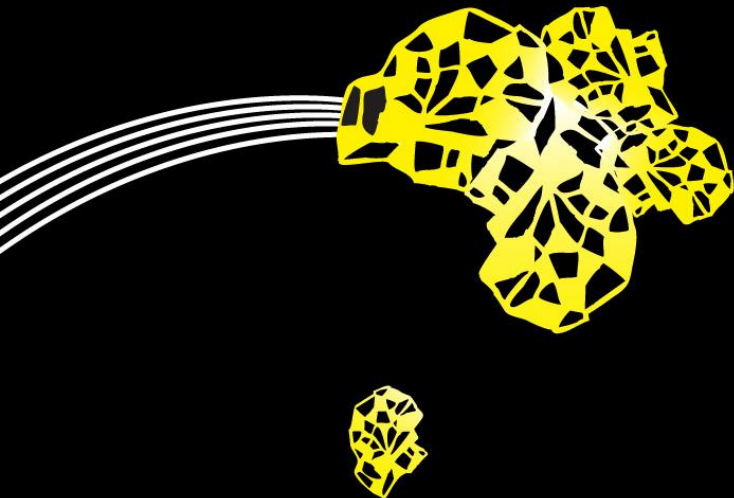




**Food security and novel food solutions: implications for food
choice, safety, and waste:
facilitating informed decision making
re risks of nanotechnology in food products**



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Decisions (FOOD): Integrating perspectives on consumer
perceptions of food safety, nutrition and waste





IMPLICATIONS OF INTRODUCING NEW FOOD PRODUCTS

Introducing new food products requires informing consumers about their risks and benefits

- Legal obligation: citizens have a right to be informed about the risks to which they are exposed
 - there is no such thing as “no risk”
 - e.g. ‘synthetic amorf silica’ (SAS), E551; based on nanotechnology; used in coffee creamer, soups, sauce, herbs mixtures etc.
 - otherwise threat of law suits



Introducing new food products requires informing consumers

- Strategy in reputation management & avoidance of loss of trust in case of (future) incidents
- Strategy in achieving particular health-related aims with consumers
 - Persuasive communication
 - Facilitation of consumer sense making and consumer informed decision making



APPROACHES IN RISK COMMUNICATION

| | Activity of risk communicator | Communication aim |
|-------------|---|--|
| Top-down | Tell consumers what to do < 2000 | Persuasion and behaviour change ↓ |
| Bottom-up | Provide answers to consumer question 2000 → | Facilitate consumer informed decision making ↓ |
| Interaction | Provide answers + Information exchange via social media 2010 → | Facilitate consumer informed decision making + facilitate consumer interaction |



FOCUS

What is the significance of social media in facilitating informed decision making in relation to new food products?


- What sources do consumers use for food information?
- Do consumers use social media to find food information?
- How do consumers respond to online interaction with a food communicator?
- Are consumers influenced by food related opinions on social media?



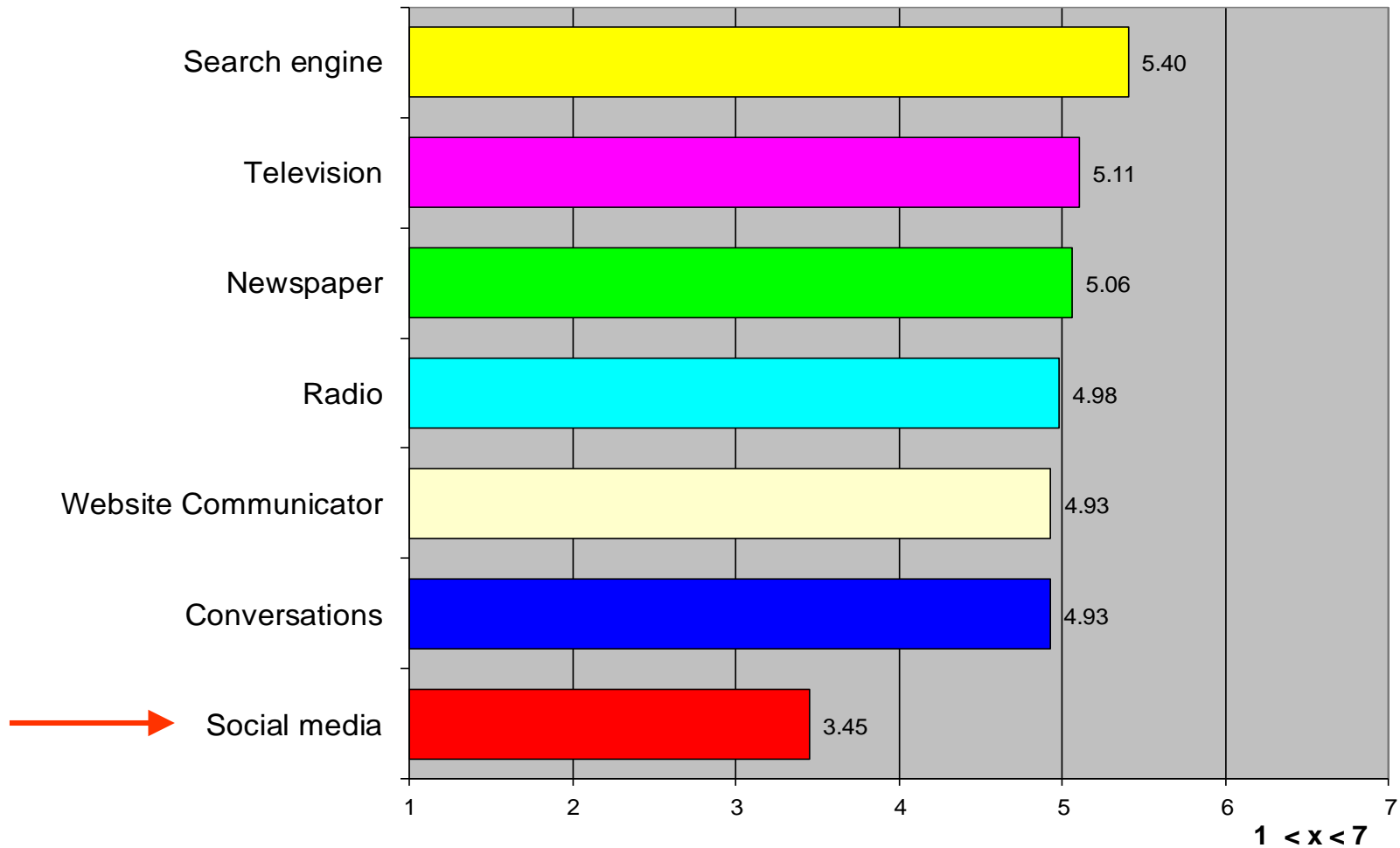
STUDY 1 – SURVEY ON MEDIA USE

Perception of media channels and likelihood of use in food related context

Fictitious scenario:

- Vegetables have risks and benefits
 - Contaminated vegetables found in supermarkets → removed and destroyed.
 - Newly imported vegetables tested.
 - Opinion of National Food Safety Authority and consumer organisations on safety of vegetables
- 

LIKELIHOOD OF USING INFORMATION CHANNELS





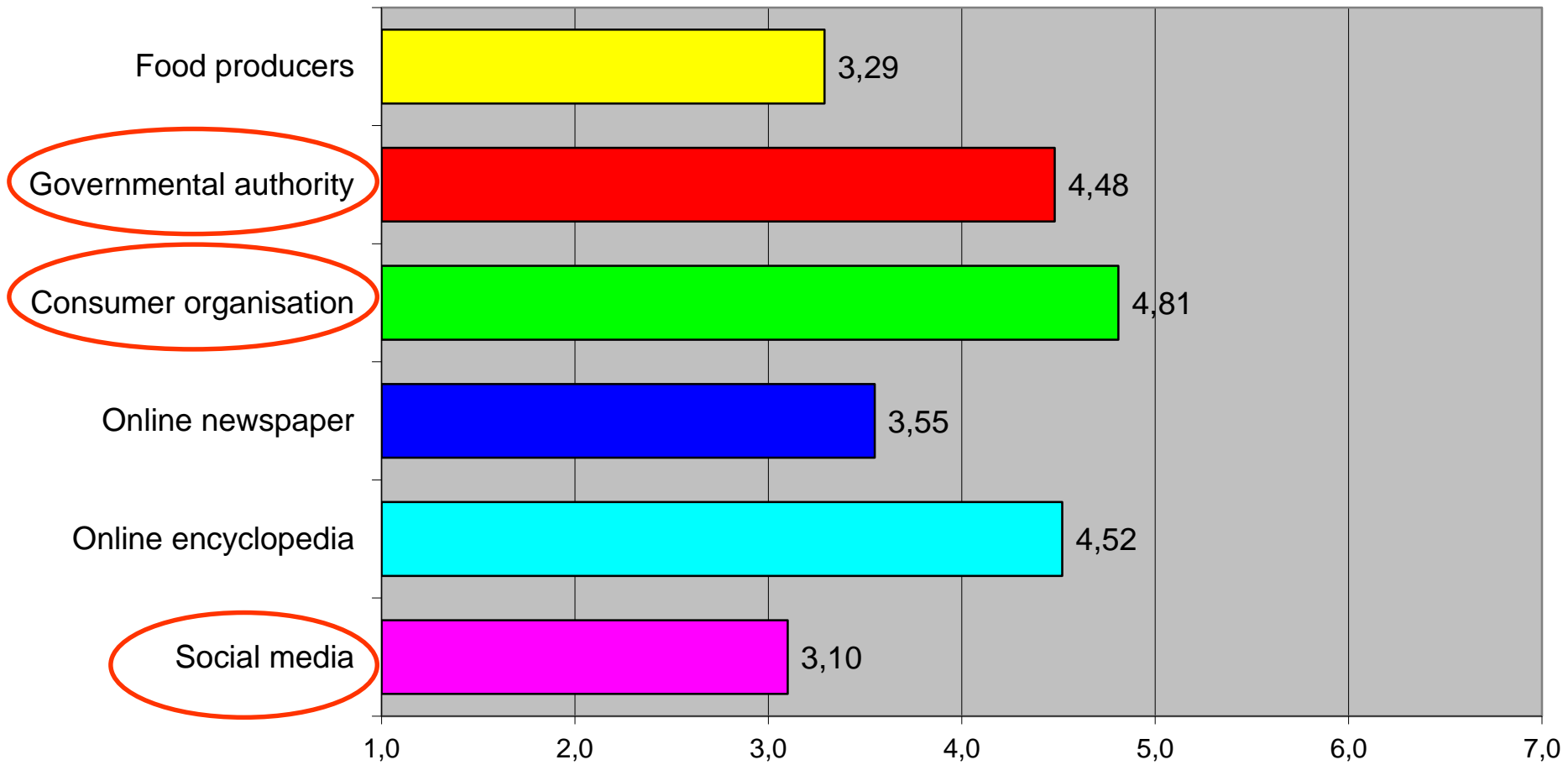
STUDY 2 – OBSERVATION OF WEB-BROWSING BEHAVIOUR

What online sources do consumers use?

- Tracking information seeking behaviour in web-browsing
- Cue:
 - What benefits of organically produced foods are mentioned on the internet?
 - What risks of organically produced foods are mentioned on the internet?
- Tool that registered browsing behaviour
- All explored links classified and duration of visit calculated (approximately n=1900)

| | Benefits | | | Risks | | |
|--------------------------|----------|------|------------|--------|------|------------|
| | Number | % | Dwell time | Number | % | Dwell time |
| → User generated info | 32 | 9% | 39.3 | 164 | 42% | 36.1 |
| → Dutch Nutrition Centre | 85 | 24% | 128.6 | 36 | 9% | 68.7 |
| Health & environment | 48 | 14% | 63.8 | 67 | 17% | 40.6 |
| News media | 43 | 12% | 29.6 | 44 | 11% | 34.9 |
| Food producers | 58 | 16% | 16.2 | 10 | 3% | 25.9 |
| Encyclopaedias | 44 | 12% | 88.5 | 6 | 2% | 33.5 |
| Portals | 18 | 5% | 45.2 | 14 | 4% | 29.6 |
| Retail organisations | 4 | 1% | 90.5 | 9 | 2% | 44.3 |
| Authorities | 2 | 1% | 91.5 | 5 | 1% | 18.8 |
| → Consumer org. | 0 | 0% | | | 0% | |
| Other | 19 | 5% | 46.1 | 33 | 9% | 23.5 |
| Total | 353 | 100% | | 388 | 100% | |

PREFERENCE FOR SOURCES





RESEARCH ON COMMUNICATION EFFECTS

- Long tradition of research into effects of communication campaigns and mass media coverage
- Effect dependent on 5 W's characteristics of
 - who source, communicator
 - says what message (content, tone-of voice, format)
 - to whom receiver, audience
 - where channel
 - when context, timingand the particular food issue at hand



EFFECT STUDIES

How about communication via social media re risks of new foods?

- intended versus unintended effects

2 studies

- Effects of online chat on nanotechnology in food
 - Intended – focus on communicator and message
- Effects of discourse on nanotechnology on Facebook
 - Unintended effects – focus on message and receiver characteristics



STUDY 3 – EFFECT ONLINE CHATTING

Intended – focus on source and message

- 3 x 3 Factorial design
 - Communicator: expert – similar other – not specified
 - Expressed viewpoint: positive – undecided – negative

Processes:


- Authority principle
- Similarity principle



DESIGN

3 x 3 Factorial design ; n=270

| | Expressed viewpoint | | |
|-------------------------------|---------------------|-----------|----------|
| Alleged chat partner | Negative | Undecided | Positive |
| Expert Dutch Nutrition Centre | | | |
| Similar other | | | |
| Not specified | | | |



POSITIVE

*I think that there are **more advantages** to nano in food products **than disadvantages**. It's supposed to lead to better products that are tasty yet healthy. Oh yes, and even additives that can put vitamins or medicines in foods etc. **Even though** it could be that nanoparticles get into your blood and destroy your DNA or gather themselves in your cells. **Still, I believe we shouldn't worry about this. The advantages are crucial!***

What do you think?

... ..

Please wait, partner is typing



DEPENDENT VARIABLES

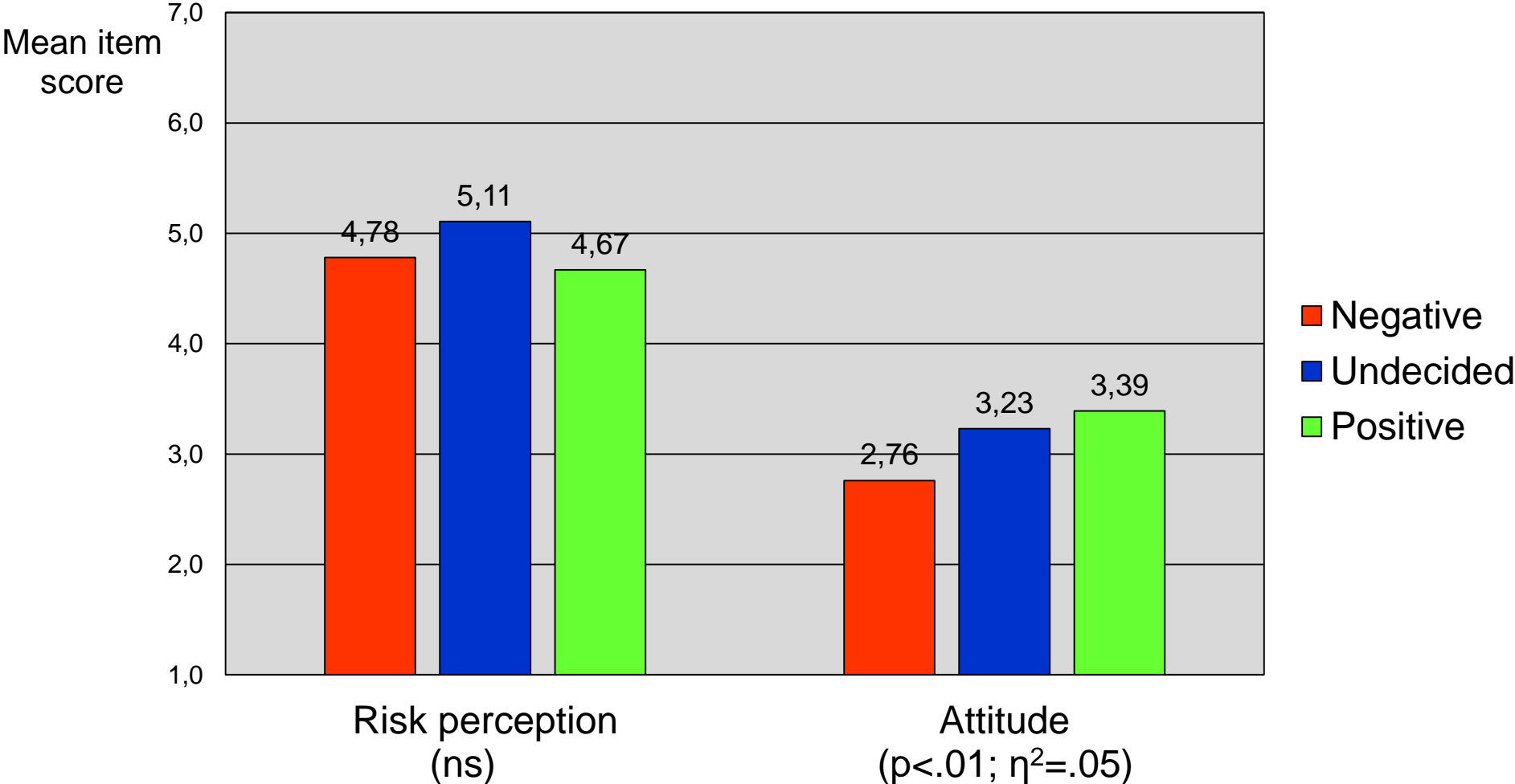
Perception and attitude

- Risk perceptoin
- Attitude

Dealing with information

- Information need
- Taking notice of information
- Seeking information
- Sharing information

EFFECT OF EXPRESSED VIEWPOINT IN CHAT ON ATTITUDE



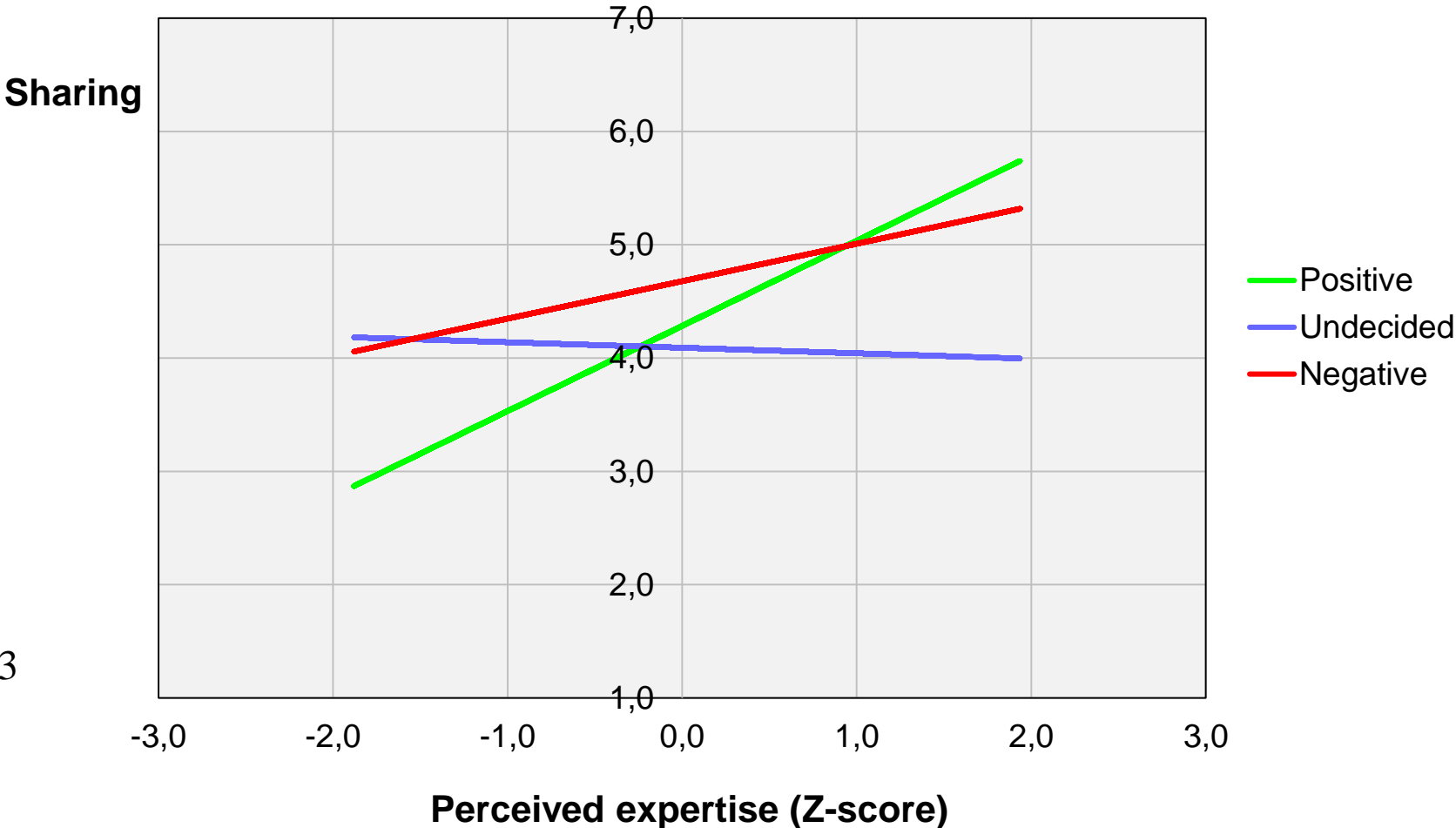


EFFECT OF PERCEIVED EXPERTISE ON INFO-VARIABLES

| Dependent variables | Statistics | | |
|-----------------------|------------|------|----------|
| | F | p | η^2 |
| Information need | .18 | ns | |
| Taking notice of info | 12.25 | .001 | .05 |
| Seeking info | 8.64 | .004 | .03 |
| Sharing info | 9.81 | .002 | .04 |

The higher the perceived expertise of the chat partner, the more response.

INTERACTION EFFECT PERCEIVED EXPERTISE – SHARING



$\eta^2 = .03$




SUMMARIZING

Attitudes

- Online interactions with consumers in which *viewpoints* are expressed might affect consumer attitudes in the direction of the viewpoint
- The *identity* of the chat partner not relevant

Dealing with information

- *Perceived expertise* of chat partner important determinant of dealing with information
 - If partner perceived to have expertise, consumers more inclined to share clear viewpoints
 - Expressed viewpoint not relevant in information seeking and sharing
- 



STUDY 4 – EFFECTS ON READING FACEBOOK POSTS

- Effects of discourse on nanotechnology on Facebook
 - Unintended effects – focus on message and receiver characteristics
- One factor design, 3 conditions:
 - Facebook post inviting comments +
 - 4 positive comments
 - 2 positive comments + 2 negative comments
 - 4 negative comments
 - Comments by “unfamiliar others”
- Initial dread as moderator

POST + 4 POSITIVE COMMENTS



Marieke Kleinsma

What do you think about the application of nanotechnology in foods?

Like · Comment · 29 May at 13.02 · 🌐



Linda van der Velde I saw once on TV how we can use nanotechnology and I am happy about the application of nanotechnology in foods! 😊

29 May at 13.18 · Like · 👍 273



Thomas Kuiper I think people get ill less often because of the nanotechnology in foods; therefore it is safe!

29 May at 13.21 · Like · 👍 254



Kevin Otters I am very much convinced that nanotechnology in foods makes food products healthier

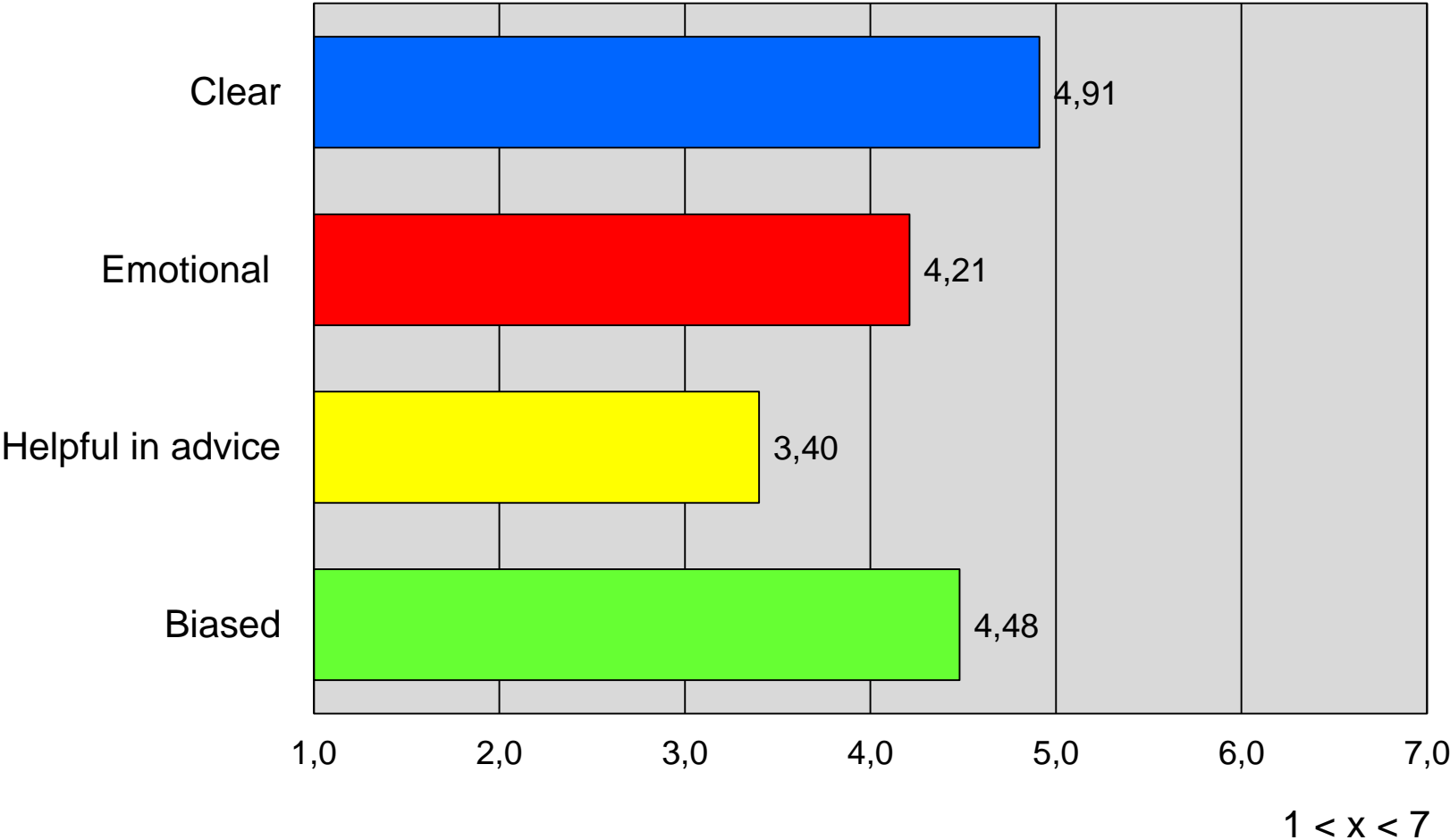
29 May at 13.46 · Like · 👍 286



Lydia Steinen To the best of my knowledge, nanotechnology in food products is not harmful and I will just eat it!!

29 May at 14.03 · Like · 👍 252

EVALUATION OF THE FACEBOOK SCREENSHOT





DEPENDENT VARIABLES


Perceptions and attitude

- Risk perception
- Benefit perception

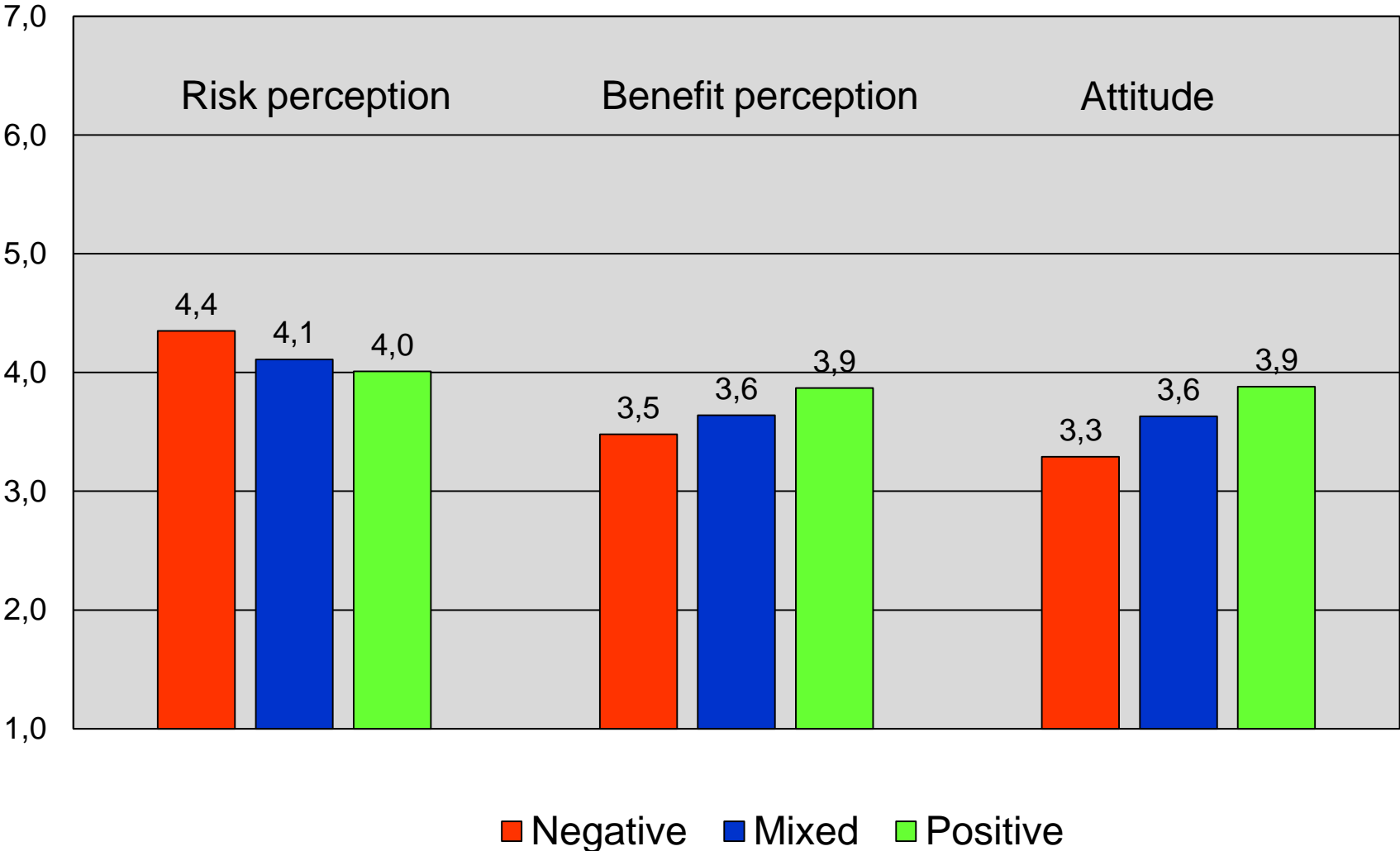
Emotions

- Anxiety
- Positive emotions

Attitudes and behavioural intentions

- Trust in retail
 - Attitude re nano in food
 - Willingness to buy
- 

SIGNIFICANT MAIN EFFECTS FOR 3 OUT OF 7 VARIABLES





IMPLICATIONS RE INFORMED DECISION MAKING

Facilitation of informed decision making

- Evidence that risk information on social media networking sites (Facebook) impacts risk perception, benefit perception and attitudes
- Evidence that (Dutch) consumers end up on social media sites when seeking information
- As authorities have no control over this information, it might be wise to provide risk information on new food products on social media
 - provide own perspective
 - reach out to hard to reach target groups
 - build trust
 - facilitate interaction among consumers



IMPLICATIONS RE RISK MODELS

How can we better include the interactive perspective in risk models?

Theoretical models often focus on the individual

- Some issues reflect a problematic family attitude or group behaviour
 - Obesity, waste?
- Informed decision making is also a collaborative effort
- Interventions at the individual level may impact family life
 - Family dinners collide with diet drinks as dinner
- “Social norm” insufficiently reflects these processes

Need for decision making models and interventions at the household or group level?



THANK YOU!
