Measuring implicit associations in sensory research

An exploratory study with the aid of the Single Category Implicit Association Test (SC-IAT)

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Marketing Research & Consulting
Sensory Analysis

Content

Measuring implicit associations in sensory research

Study characteristics

Background

Measurement:

- direct measures (rating scales, line scales, open answers)
- subjects are sometimes unwilling or unable to report their sensory perception, opinion or attitudes
- results might be biased and are subjective

Sensory Signals:
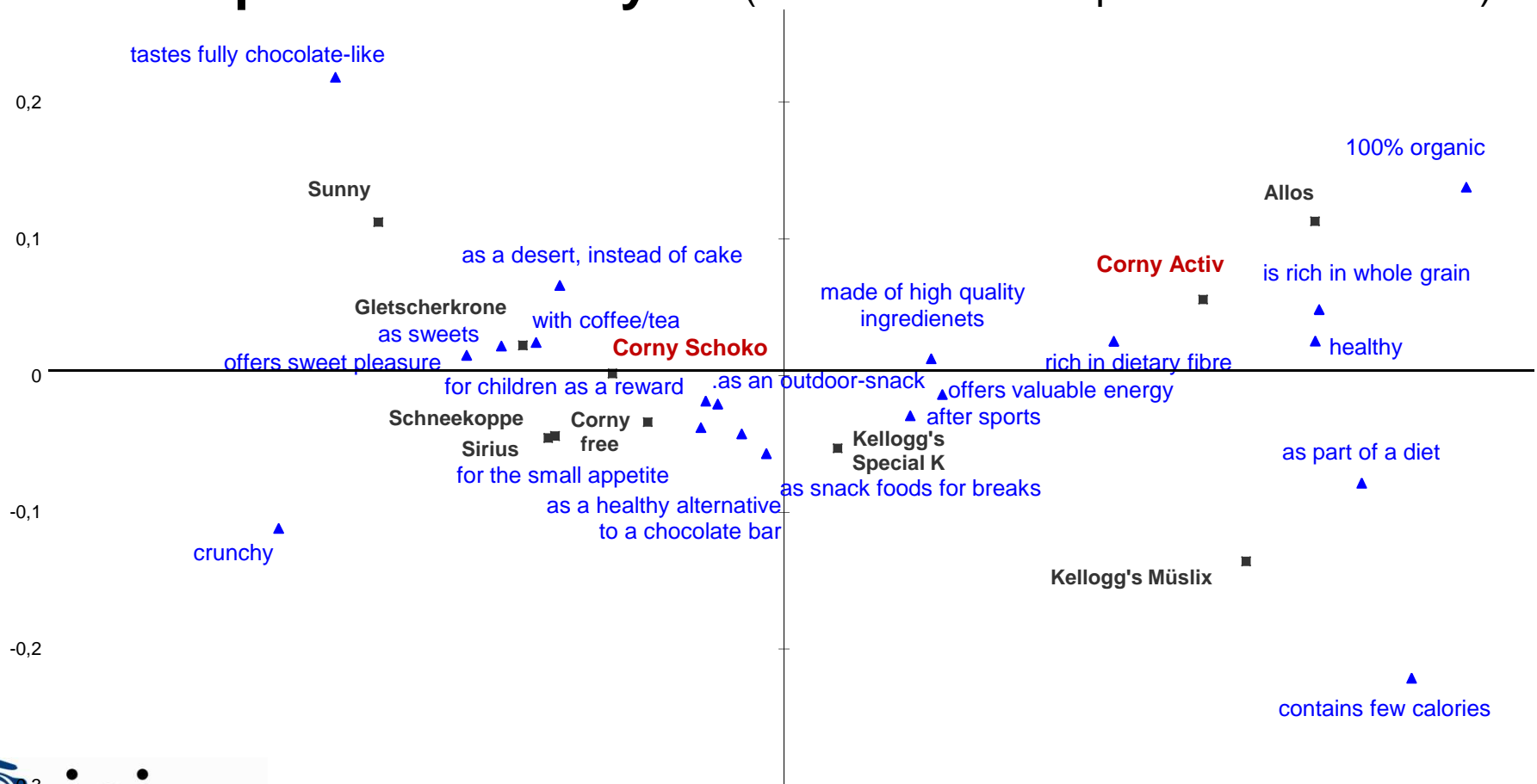
Background

Bogus (2007):

- sensory product features awake explicit associations

  - sensory profiles (descriptive panel)

  - sensory acceptance date (consumer test)

  - suitability in certain consumption situations and expected benefits

- The research confirmed the initial assumption that consumers allocate additional benefits to the tested cereal bars according to the perceived sensory dimensions.

Background

Correspondence analysis (benefits & consumption situations & CB)

Background

Active

Chocolate

- slightly sweet
- not crunchy rather dry and hard
- strong cereal taste and odor

→ healthy snack
→ after sports
→ gives energy

- sweet
- light and crunchy
- strong chocolate taste

→ sweet pleasure
→ as a dessert instead of cake
→ as a treat

Research question

In general:

Do sensory features of a product have an impact on the implicit associations?
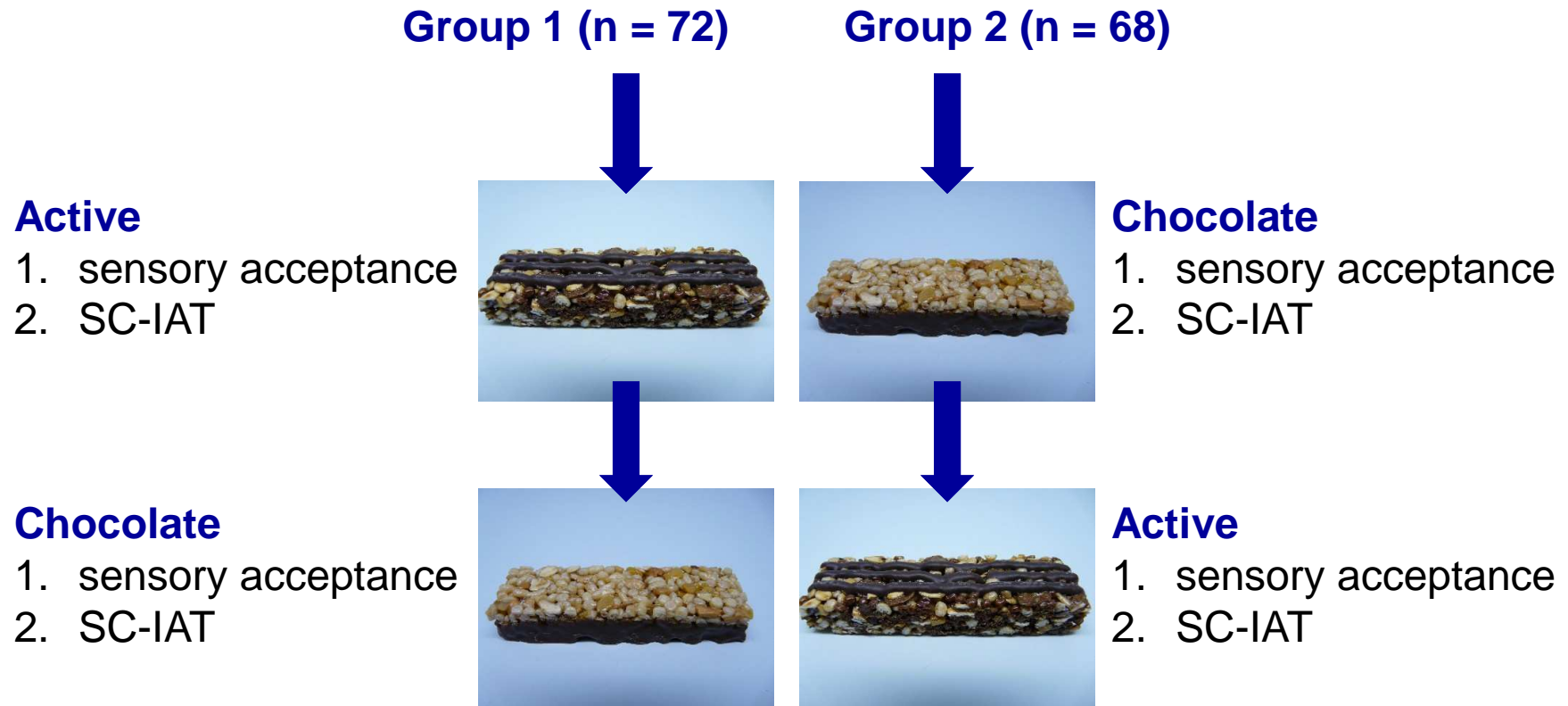
In detail:

Is a slightly sweet, not crunchy and rather hard cereal bar with a strong cereal taste implicitly associated with "**healthy**" or with "**pleasure**"?

Is a sweet, crunchy and light cereal bar with a strong chocolate taste implicitly associated with "**healthy**" or with "**pleasure**"?

Procedure

Group 1 (n = 72)   **Group 2 (n = 68)**

Active

1. sensory acceptance
2. SC-IAT

Chocolate

1. sensory acceptance
2. SC-IAT

Chocolate

1. sensory acceptance
2. SC-IAT

Active

1. sensory acceptance
2. SC-IAT

Please press ‚E‘   Please press ‚I‘

healthy   **pleasure**

Please press ‚E'   **Please press ‚I'**

   healthy   **pleasure**

Please press ‚E'

healthy

Please press ‚I'

pleasure

healthy   pleasure

vegetables

Please answer faster!

Please press ‚E'

healthy

Please press ‚I'

pleasure

or

cereal bar 387

Please press ‚E'

healthy

Please press ‚I'

pleasure

or

cereal bar 387

healthy

pleasure

or

cereal bar 387

sports

Please press ‚E'

healthy

Please press ‚I'

pleasure

or

cereal bar 387

healthy

pleasure

or

cereal bar 387

vitality

Please press ‚E'   Please press ‚I'

healthy   **pleasure**

or

cereal bar 387

Please press ,E'   Please press ,I'

healthy   pleasure

or

cereal bar 387

Please press ‚E'

healthy

or

cereal bar 387

Please press ‚I'

pleasure

Please press ‚E‘   Please press ‚I‘

        healthy   pleasure

          or

cereal bar 387

                              dessert

Please press ‚E'   Please press ‚I'

healthy   **pleasure**

or

cereal bar 387

Single **C**ategory **I**mplicit **A**ssociation **T**est (SC-IAT)

SC-IAT (Karpinski & Steinmann, 2006)

- modification of the IAT (Greenwald, McGhee & Schwartz, 1998)
- 2 attribute categories → healthy & pleasure
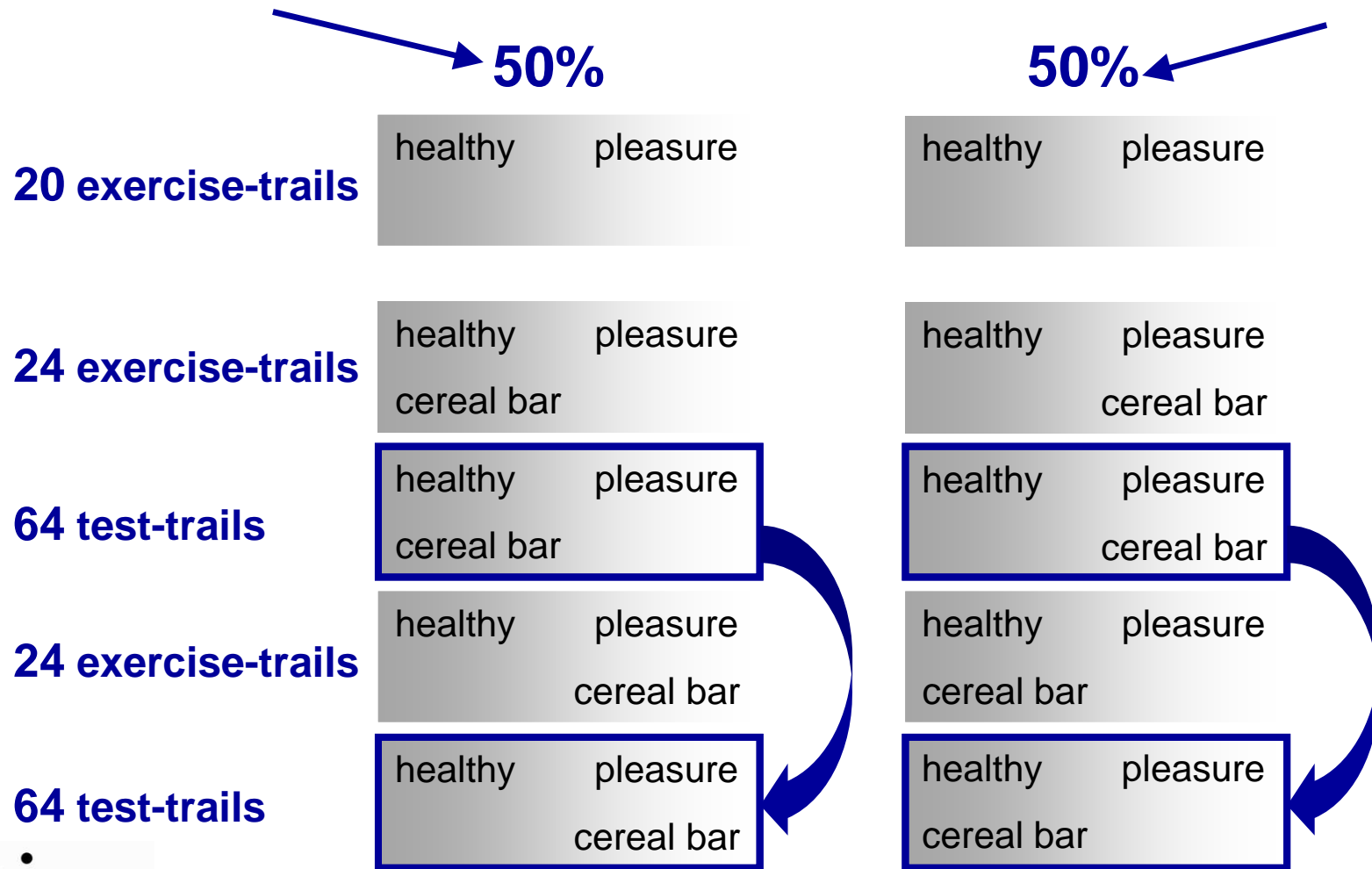- 1 target category → cereal bar

Design

- dependent variable: response time in milliseconds
- independent variables:
  - 2 sensory profiles (cereal bar "Active" and "Chocolate"→ within)
  - 2 test situations ("healthy" and "pleasure" → within)

Press 'E'	Press 'I'
healthy	pleasure
cereal bar	

Press 'E'	Press 'I'
healthy	pleasure
	cereal bar

Single **C**ategory **I**mplicit **A**ssociation **T**est (SC-IAT)

Sample structure & study details

N = 140

- balanced groups regarding gender and age
- males (n = 56) and females (n = 84)
- age in the range of 14 – 55 years
- students (n = 102) and pupils (n= 38)

Test duration

- 20 – 25 minutes

Timeframe

- July 2008

Sensory laboratory

- University of Applied Science in Nordhausen, Germany

Results

Implicit association data

Influence of "cereal bars":

- both cereal bars produce almost identical mean reaction times

  (F(1,139)=,09; p=0,761)

  Mean=**687,9ms** (SD=121ms)   Mean=**685,8ms** (SD=107ms)

  | Active | Chocolate |

Influence of "test situation":

- both cereal bars are implicitly associated with pleasure

  (F(1,139)=30,7; p<.01)

  Mean=**698,4ms** (SD=117ms)   Mean=**675,3ms** (SD=110ms)

  | healthy   pleasure | healthy   pleasure |
  | cereal bar | cereal bar |

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Implicit association data

Interaction of "cereal bar" x "test situation":

- sequential monadic testing →Trainings effects over both cereal bars
  (F(1,138)=75,55; p<.01)

Monadic value analysis:

- cereal bar and test situation interact *(F(1,138)=2,98; p=0,086)*

Mean=**720,5ms** (SD=127ms)   Mean=**729,2ms** (SD=121ms)

| healthy   pleasure | ←→ | healthy   pleasure |
| **Active** | | **Chocolate** |

Mean=**696,9ms** (SD=143ms)   Mean=**695,2ms** (SD=105ms)

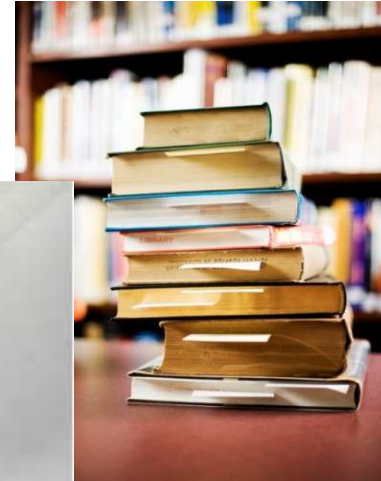| healthy   pleasure | ←→ | healthy   pleasure |
| **Active** | | **Chocolate** |

Conclusion

What did we learn & what should we take home?

Contact

Alexandra Kraus
Student Psychology (M. Sc.)
University Erfurt, Germany

Telephone: +49 162 2756 718
E-Mail: alexandra.a.kraus@googlemail.com

Robert Möslein
Managing Director Sensory Analysis

isi Sensory Analysis GmbH & Co. KG
Ascherberg 2
37124 Göttingen-Rosdorf

Telephone: +49 551 499 74 180
E-Mail: robert.moeslein@isi-goettingen.de

Andreas Scharf
Professor for Business Management
University of Applied Science, Nordhausen, Germany

Telephone: +49 3631 420-577
E-Mail: scharf@fh-nordhausen.de