Computer tailored persuasion: Working mechanisms

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Tailoring ingredients

- What in tailored interventions works; what elements are responsible for the effectiveness?: The tailoring ingredients.
- Seeable and readable features of tailored interventions
- Human interactive communication limited by Information Technology
Tailoring ingredients

- **Personalization**
  recognizable features such as gender, age, name, number of cigarettes, brand

- **Adaptation**
  avoiding redundant info, putting in relevant info (needs, preferences), communication matching

- **Feedback**
  new information about oneself (objective), the meaning of it (comparative, evaluative), the conclusion on adjustment (action oriented)
Dismantling tailored interventions

Dear John,
From your answers it seems you are not convinced about the benefits of change. But do you know that your behavior currently has negative effects on the people around you? In addition, on the long run it will cost you lots of money.

Dear Mary,
From your answers it seems you are convinced about the benefits of change. You are right, your behavior has negative effects for your body. In addition, on the long run it will cost you lots of money.
Dear John,
From your answers it seems you are not convinced about the benefits of change. But do you know that your behavior currently has negative effects on the people around you? In addition, on the long run it will cost you lots of money.

Dear Mary,
From your answers it seems you are convinced about the benefits of change. You are right, your behavior has negative effects for your body. In addition, on the long run it will cost you lots of money.
Adaptation

• Written “as if” it was directed at a **general audience**
• Every piece of information in a tailored intervention fulfills a function in one of the **intervention objectives**
• Adapted information is **content** information
• Adaptation of content information (of the arguments and recommendations) is used to reach the intervention objectives in people with **certain characteristics**
Adaptation

• Objective features
  Only provide smokers with home-living children with information on passive smoking on child development

• Needs/functions
  Provide arguments on outcomes that are related to individuals’ important values

• Styles/preferences
  Provide information that fits one’s cognitive and behavioral preferences in a change process
Matching psychological individual differences

- Need for cognition
- Locus of control
- Attitudinal functions
- Social comparison orientation
- Self-discrepancies
- Tailoring expectancies
- Stage of change

Psychological rather then logical match
Adaptation: Preferences

• Tailored Intervention Expectancy Questionnaire

Agreement on 15 statements

“In order for a program to be effective, it should be developed based on my own characteristics and needs”

“I do not think that the majority of smokers need individualized information on ways to quit”

(Weiss, Simmons & Brandon, 2005)
Smokers, N=240

(Webb, Simmons & Brandon, 2005)
Adaptation: Style

Bar chart showing the comparison between external and internal information for external and internal locus.
Communication adaptation

• Match the need to understand why a certain type of information is important/relevant

• Examples:
  - Explain internal actions to a person with external locus of control.
  - Explain a precontemplator why this information is relevant and what the goals are.
Adaptation: Needs

POEQ
Pretest
Positive outcome information

POES
Pretest
Negative outcome information

SEE
Pc  C  Pr  Act
Posttest
Self-efficacy enhancing information

Stage of change

2 months

N=497

Field-experiment
(Dijkstra, Conijn & De Vries, 2006)
Stage Matched and Mismatched information
percentages forward stage transition

44.7

25.8

p < .001
Adaptation and level of processing

1. Adaptation increases central processing because it enhances perceived personal relevance of the information.
2. When EL is low, matching serves as a favorable peripheral cue; When EL is high, matching leads to a favorable bias in the active processing.
3. Adapting information to the level of central processing.
4. Only under the condition of central processing, adaptation is effective.
1. Adaptation increases central processing

When the elaboration likelihood (EL) is not constrained to high or low: Matching enhances information processing activity.

(Petty, Wheeler & Bizer).
2. The mechanism depends on EL

- Adapted message
  - Content arguments
    - The match
  - High EL
  - Low EL
- Increased persuasion
3. Matching the level of processing

High perceived personal relevance: better/stronger arguments, more background information/education

Low perceived personal relevance: more arguments, weak and strong, and better peripheral cues
4. Adaptation only works when personal relevance is high

Self-discrepancies influence the processing of persuasive information
The Actual-Ideal discrepancy

Actual-Ideal discrepancy (AID) is related to a perceived short of positive outcomes

Actual-Ought discrepancy (AOD) is related to perceived impending negative outcomes

Sensitive to positive outcomes: Positive frame

Sensitive to negative outcomes: Negative frame
Self-discrepancies: direct measurement

- How big is the difference between how you actually are and how you ideally would like to be?
- How big is the difference between how you actually are and how you should or ought to be?
- 7-point scales from “very small” (1) to “very large” (7)
- If ID-score > OD-score → Mainly an AID
- If OD-score > ID-score → Mainly an AOD
Procedure

Pretest
Demographics, Discrepancies,
Attitude towards behaving healthy

Framed information

Posttest
Manipulation check
Intention to behave healthy
Low perceived personal relevance

Intention

Positive frame

Negative frame

Ideal

Ought
High perceived personal relevance

- **Intention**

  - **Ideal**
  - **Ought**

  - **Positive frame**
    - Ideal: 5
    - Ought: 1

  - **Negative frame**
    - Ideal: 3
    - Ought: 5
Procedure
(through the internet)

Pretest
Demographics, BMI, Discrepancies, Intention to lower fat intake

Access to framed information
Posttest
Manipulation check
Intention to lower fat intake

two weeks
Low perceived personal relevance

- Positive frame
- Negative frame

Intention

Ideal  Ought
High perceived personal relevance

- Ideal
- Ought

Intention

Positive frame

Negative frame
Two stages in information processing

Framed information

Perceived personal relevance of topic

Match or mismatch with main discrepancy

Cognitive changes
Personalization

• Refers **explicitly** to the recipient name, nickname, “you”, “your”

• Includes (a set of) recognizable features that refer with a **high probability** the recipient
  18 cigarettes a day, for 14 years, partner does not smoke

• In combination with assessment
Personalization

Personalization item

Standard text

Personalization item

Standard text
Personalization

• How does personalization lead to central processing of generic/standard information?

1. The self-reference scan detects a self-referent cue
2. The self-referent processing is started:
   • The whole message (including the generic/standard information) is “swallowed” as being self-relevant
   • The information is processed against the background of the self: This is similar to central processing
Personalization triggers self-referent encoding

TAILORED INTERVENTION

- Personalization items
- Content information

Self-referent encoding

Central processing

Persuasion
Argument strength in persuasion

- Low personal relevance: weak arguments
- High personal relevance: strong arguments
Study features

One-hundred and sixteen smoking students of the University of Groningen and the Hanze University Groningen

2(Standard/Personalization) x 2(Strong/weak arguments)

Involvement: "How important is health to you?"; “not at all important” (1) to “very important” (7)

Involvement: "How many years have you smoked"

Pre- and post test intention to quit smoking assessed as in study 1
Low perceived personal relevance

- Standard
- Personalized

Weak arguments
Strong arguments

Intention to quit
Intention to quit

High perceived personal relevance

- Weak arguments
- Strong arguments

Intention to quit

Standard

Personalized
Low perceived personal relevance

Intention to quit

Standard

Personalized

High perceived personal relevance

Intention to quit

Standard

Personalized

Weak ✗ Strong
Personalization as self-affirmation

- Personalization is the acknowledgement of the individual, boosting the self=self-affirmation

- Self-affirmation leads to central processing and induces open-mindedness
High perceived personal relevance

- Intention to quit
  - Standard
  - Personalization

- No self-affirmation
- Self-affirmation
High perceived personal relevance

Intention to quit

- Standard
- Personalization 4
- Personalization 12

No affirmation ☒ affirmation
Feedback control theory

Goals
Values

Input function

Comparator

Effect on environment

Output function
Feedback control theory

- Goals
- Values
- Input function
- Objective
- Comparator
- Comparative evaluative
- Action oriented
- Output function
- Effect on environment
Your score on the X-scale is 98

That is low

That is a good sign

You should go on like this
Feedback formulation

- The more obvious and saying the meaning of feedback on a certain level, the less it is necessary to add a next level of feedback.
- The more functional interpretations of feedback can be, the more it is necessary to add a next level of feedback.
**Task**

Feedback-Standard discrepancy

- **Is it possible to set another goal?**
  - **yes**
    - Higher standard
    - More effort
  - **no**
    - Less effort

- **Feedback-Standard discrepancy**
  - **positive**
  - **negative**

- **Does putting in more effort reduce the discrepancy?**
  - **yes**
    - Maintenance of effort or more effort
    - **yes**
      - Attention to learning
    - **no**
      - **yes**
        - Attention to the self
      - **no**
        - Belief in success?

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**Kluger & DeNisi**
Positive and negative feedback

- Intention to quit
- Positive feedback
- Negative feedback

Bar chart showing the intention to quit with and without self-affirmation for positive and negative feedback.
Conclusion

• To predict effects of tailored messages, it is essential to know what the psychological effects of tailoring ingredients are.

• Because we can not see these psychological effects directly, we describe them in psychological theories.

• Professional intuitive psychological thinking implicates the use of psychological theories.